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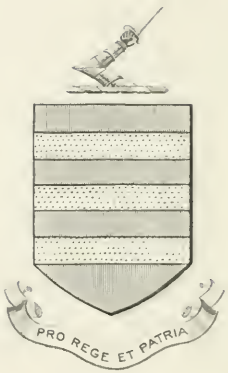

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A Weekly Journal of Medicine and Surgery

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Original Articles.

THORACIC SURGERY.

BY S. J. MELTZER, M.D., LL.D.*

NEW YORK.

WE are on the point of starting a new National Medical Society. It is a part of the duties of the presiding officer to state at such an occasion the aims and scope of the society and the reasons for its creation. But the present officer feels that first of all he owes a duty to the members and to himself to tell something of the circumstances which gradually brought him into the Presidential Chair of an Association for Thoracic Surgery. The little story is perhaps worth telling. When about forty years ago, I began my very modest career as an experimental investigator in the domain of medicine, I had no reason to anticipate that one day the honor would be conferred upon me to preside over a body of progressive physicians who wished to discuss particularly the surgery of the chest. I began my career by introducing stomach tubes into my esophagus. There seems to be no clear connection between this heroic act and thoracic surgery. But by good will a series of loose events can be detected and forged together into a chain capable of connecting both end points. My studies of the physiology of deglutition ripened in me the general conception that the phenomenon of inhibition is an important factor in all functions of the animal body. This conception of the mechanism of life never left me. It was a working factor in my studies of the respiratory function. When later, about twenty years ago, I came across the depressing action of magnesium salts, it then occurred to me that the magnesium is perhaps the representative of inhibition in the animal body. This view became a working hypothesis in our numerous investigations of the action of magnesium salts. Further on, in the attempts to utilize our new knowledge for therapeutic purposes, we soon realized that magnesium may inhibit the function of respiration. Now magnesium salts leave the circulation quite rapidly, and any danger from an inhibition of respiration could be met by temporary artificial respiration. But there were no satisfactory methods of artificial respiration which could be readily used in such emergency cases. The manual methods were entirely insufficient for our purpose. In our search for efficient methods we developed, Auer and I, the method of intratracheal insufflation. You probably remember the little battle between differential pressure and intratracheal insufflation. It occurred only eight years ago; but it seems now like history. When I presented my paper on intratracheal insufflation at the New York Academy of Medicine, my views were opposed, in the interest of conservatism in surgery, by three able surgeons. Now, these same surgeons are among the principal founders of the American Association for Thoracic Surgery, and my being the first presiding officer of the Association is due exclusively to their generous spirit and not to any merits of mine. This is my little story of how the introduction of a stomach tube carried a mere medical man into the presidential chair of a National Surgical Association.

Now I am coming to the performance of my duties, namely, to tell of the aims and scope of the Association and to give the reasons for its creation. Of course this could have been done better by the real founder of the association, by the member who is going to give us a review of the evolution of thoracic surgery in the past fourteen years and who by right should have been the occupant of this chair. But he willed it otherwise. As the name indicates, the chief aims of the Association are the advancement of the knowledge of and skill in thoracic surgery. It is expected that a greater progress will be attained in this line of medical research by focusing the attention of a group of practical surgeons to the thoracic cavity, by working together with physicians and surgeons, who are interested in special diseases of the thoracic cavity and its adjoining regions, and by working together with various experimental investigators in these fields.

Is it necessary to single out the thoracic cavity for special activities and is the thoracic cavity not part and parcel of the domain of all general surgeons? In looking for light on this question I did not have to go far to discover the fact that the thoracic cavity apparently has no special attraction for most of our leading surgeons. I shall cite only two illustrative instances. The program of the American Medical Association reflects the medical and surgical activities of the entire country. In looking over the program of the coming meeting, as it was published a few weeks ago in the *Journal* of the Association, I found that there were numerous papers on abdominal surgery sufficient to crowd the programs of two surgical sections with an overflow into the Section of Gastro-enterology; but there was not a single paper on thoracic surgery. Then I glanced through the volumes from the Mayo Clinic. They show us the sort of work which is done in this brilliant surgical institution. I found only two or three papers belong-

*President's Address at the meeting of the American Association for Thoracic Surgery, Chicago, June 10, 1918.

ing to the domain of thoracic surgery and these papers were written by a member of our Council while he was on the staff of the Mayo Clinic. Wonderful work is being done in this Clinic on organs below the diaphragm and above the thorax; but there is practically complete silence on intrathoracic organs, at least so far as surgery is concerned.

Does the development of thoracic surgery receive attention and support from our brilliant practical surgeons equal in extent and intensity to that bestowed upon abdominal surgey? A fairly instructive answer to our query may be obtained from the following analysis of the history of two similar incidents in abdominal and thoracic surgery. It was about the same time, about the middle of the last century, that a perityphlitic abscess (Hancock, 1848) and an abscess of the pleural cavity (empyema) (Sayre, 1842) were incised for the first time. Now let us compare the progress which followed both incidents. The opening of the perityphlitic abscess did not only lead to the removal of the appendix in acute stages of inflammation and to frequent interval operations for appendicitis—the latter meaning the exposure of the *normal* peritoneum, without trembling and with impunity; but it paved the way to the handling by the surgeon of every organ located within the abdominal cavity and to very frequent exploratory laparotomies for mere diagnostic purposes. In other words, surgeons, great and of medium size, have nowadays no hesitation whatsoever in opening the abdomen, exposing the normal peritoneum, and manipulating the abdominal organs without urgent indications for its performance and without fear of untoward results. Would the celebrated surgeons of half a century ago, who surely considered the opening of a typhlitic abscess as an heroic act, have admitted the possibility that a day will come when the normal parietal and visceral peritoneum could be exposed and manipulated with absolute impunity?

Now let us look at the progress in thoracic surgery made during the same period. It is true that one or the other surgeon pleads courageously nowadays for an exploratory thoracotomy in cases of empyema; but we must bear in mind that that which they wish to explore and manipulate is a simple or multilocular *abscess cavity* and not the normal parietal and visceral pleura. Is there a greater danger in exploration of the normal pleural cavity than the exploration of the normal peritoneal cavity? Our leading conservative surgeons seem to think so. But after the introduction of intratracheal insufflation Carrel and others have in numerous instances opened freely and simultaneously both pleural cavities for the purpose of patching the thoracic blood vessels and other operative procedures with complete impunity. Carrel and other experimental thoracic surgeons could do it, because they employed methods which, above all, insured the safety of the respiratory function. But our conservative surgeons say that for the surgical work on the thorax the new, hazardous methods of artificial respiration can be dispensed with, because the operations performed upon the thoracic cavity of human beings can be carried out under simple anesthesia without complicated methods. Here is the rub. The masters of technique, and fearless operators in the field of abdominal surgery, when they come to thoracic surgery confine their work chiefly to the abscess cavity of the pleura, which, by means of the abscess wall and the newly formed adhesions, protects the respiratory capacity of the lung in the other pleural cavity and also the remaining respiratory power of the non-collapsible part of the lung on the operated side.

Does the thoracic cavity possess features which distinguish it from other serous cavities so as to merit particular attention? Indeed, it does, and in a striking fashion. Every elementary textbook on physiology will tell you so; only the successful operations upon the abscess cavities of the thorax dim the vision of the surgeons. The opening of a normal pleural cavity causes a complete collapse and immobility of the corresponding lung. In dogs, the opening of one pleural cavity is, as a rule, sufficient to cause the death of the animal. As to human beings, I believe that no experience is available to answer this question; the opening of a pleural cavity was made, as a rule, either in diseased conditions which may have caused adhesion of some part of the lung or at least a complete isolation of the two cavities by means of a thickened mediastinum; or the opening was made under some form of artificial distention of the lung. Besides the respiratory mechanism, the thoracic cavity harbors the chief organ of circulation. An interference with the activity of this incessantly-beating organ may unexpectedly lead to danger, and even to immediate death. These serious problems confront the surgeon who has to work in the thoracic cavity, in addition to the serious features which the surgeon has to consider in dealing with all serous cavities.

I wish to emphasize here the significant fact that the additional serious problems which confront the thoracic surgeons are essentially of a *physiological* nature. Surgeons are generally well trained in *anatomy*, in technique, and in mechanical manipulations. Here there is hardly any limit to their courage and progressiveness. But when it comes to problems which have a predominant physiological aspect an undesirable form of conservatism comes to the fore.

I believe that I brought forward a sufficient number of reasons showing the desirability of knitting together a group of medical men who possess the necessary scientific preparations and the aptitude to work along lines which will help us to advance the knowledge and the skill of thoracic surgery; in other words, I gave you reasons for the creation of the Association for Thoracic Surgery. In performing my duties as the president of the association I may rest here my pleading the cause of the association, but I ask permission to add some remarks on subjects which interest me as an active worker in the problems belonging to the domain of our association.

I shall deal first with the method of intratracheal insufflation. I entertained the conviction that the right of this method to permanent citizenship in the domain of surgery has been established beyond a doubt. But in looking over the literature I came across a paper which contains a rather severe judgment against the method, rendered in a sharp, categorical manner. The paper was written by a man

who at all times is entitled to a respectful hearing. But just at present he is the man of the hour; he will be the next president of the great American Association; it was written by Dr. Bevan. It is, perhaps, fortunate for a president of such a young and small society as ours to be in the position to rub against the president of the largest national society; my discussion with him may thus get a hearing. In a paper, entiled "The Choice and Technique of the Anesthetic," published in 1915 in the *Journal of the American Medical Association* (the issue for October 16), Dr. Bevan deals among others with the intratracheal anesthesia. From his conclusions it is sufficient to quote two which leave no mistake as to his views. "The method is dangerous," he begins, and finishes up by saying that, "On the whole, therefore, intratracheal anesthesia has little place in practical surgery." On what experience are these dicta of Dr. Bevan based? I received from a most reliable source the information that no patient was operated in Dr. Bevan's clinic by the method of intratracheal insufflation. If Dr. Bevan has seen the method used elsewhere and with bad results, he should have expressly stated that fact. On what information, then, did Dr. Bevan base his categorical statement? He quotes the paper of Dr. Robinson of several years ago in which fourteen hundred cases were collected with seven deaths. It is quite strange to find that in striking contrast to Bevan's conclusions, Robinson, on the basis of his statistics and observations, proves himself in this paper to be an ardent supporter of the method. He says there, "Those of us who have managed intratracheal anesthesia during general surgical operations are universally impressed with the ideal condition which exists." Did Bevan try to analyze the seven cases of death mentioned in Robinson's paper? Well do I remember three cases. In one case the ether bottle was reversed by mistake and pure ether was driven into the lungs; in another, the nurse pushed the intratracheal tube, while being connected with the pressure apparatus, deep into the bronchus, which led, of course, to rupture of the lung. In a third case the patient was in a prone posture with the anterior part of the neck hanging over the edge of the table; the patient was not looked after, and it was discovered late that the insufflated air and ether mixture had no chance of escaping. Does Dr. Bevan believe that these gross "errors" have anything to do with the method as such? On the other hand, how does he explain the facts that men like Dr. Elsberg, who used the method in more than twelve hundred cases, and Dr. Peck, who used it in more than five hundred cases, never encountered any accidents?

Without entering into a further discussion of the validity of Dr. Bevan's dicta in this instance, I may be permitted to refer here to two instructive statements. Tuffier, who is probably as good an authority on thoracic surgery as Dr. Bevan (on invitation, he presented an extensive report on thoracic surgery before the Surgical Section of the International Congress in London in 1913) published an article* in which he says, among others, that according to his opinion, based upon personal experience with the method, intratracheal insufflation anesthesia will be in the future the only method of anesthesia for thoracic surgery.

In an article (submitted by the Section of Plastic and Oral Surgery and approved by the Surgeon General, U. S. A.) published in the *Military Surgeon* for May, 1918, the following simple statement is made: "The utility of intratracheal anesthesia for certain types of operations is well established." Perhaps I may add that in the many thousands of cases in which intratracheal ether anesthesia was used *not a single case of ether death* occurred.

There is another point which I wish to bring out here. Intratracheal insufflation is generally discussed from the point of view as a method of administering anesthesia. It is overlooked that it provides the patient during the anesthesia with a luxurious artificial respiration. *It is not generally appreciated how important this point is.* Auer and I found that ether has a curare-like action upon the endings of the motor nerves, and Githens and I found that during ether anesthesia both the diaphragm and the phrenic nerves lose some of their irritability. It is no doubt that during ether anesthesia an element of asphyxia is present. Now, this fact is very important, especially when one works in the neighborhood of the heart. When the individual receives efficient artificial respiration simultaneously with the ether anesthesia the heart may be handled with practical impunity. It is different when the respiration is insufficient; the heart often responds to each touch with a series of irregular beats which in some hearts may lead to ventricular fibrillation and a heart death.

The so-called pharyngeal method of anesthesia, of which Bevan and other surgeons are now speaking favorably, is, of course, incapable of providing efficient artificial respiration. It is different with the pharyngeal insufflation which I described about a year ago and the efficiency of which I have recently demonstrated to hundreds of military medical officers and other interesting parties. But I do not intend to dwell here on this subject.

Finally, as the president of the Association for Thoracic Surgery, I shall avail myself of the opportunity and the privilege to make one or two remarks on topics of human thoracic surgery. It seems to me that the most desirable object in thoracic surgery is the proper development of *exploratory thoracotomy* with the object of using it in the same manner and for the same purpose as exploratory laparotomies are used, that is, in the first place for making a proper diagnosis. I risk making the statement that in some conditions the exploratory incision in itself may even exert a therapeutic effect. In some instances exploratory laparotomies undoubtedly influence favorably pathological processes in the abdominal cavity. I have a theory for it; but I shall not dwell upon it now. At any rate, an exploratory thoracotomy may lead to a proper understanding as to the therapeutic measures which could be employed now or later. On the other hand. I would rather counsel conservatism in the attempts

*Tuffier (*Presse Médicale*, June 1, 1914, p. 497).

"Ces indications nous paraissent devoir être les suivantes; 1° Eile constitue, sans aucun doute, la meilleure méthode d'anesthésie et de pression positive dans la *chirurgie intratheracique*, nous pouvons dire restrictions *la méthode d'avenir*. nous l'avons utilisée dans la résection de l'œsophage thoracique et, malgré une installation rudimentaire, la fonctionnement de l'appareil et les résultats de l'anesthésie ont été parfaits."

to perform untried and unstudied methods of operation. An occasional success rapidly leads to repetitions and numerous failures, and this discredits thoracic surgery. Patient, practical, and experimental studies should be the means of paving the way to the final success in thoracic surgery.

My second suggestion is rather bold, and I am well aware that it will not be acceptable to most of you if to any. Nevertheless, I am throwing out this suggestion, looking upon it as a seed which may perhaps take root somewhere some day. I propose that large intercostal incisions should be made for the treatment of pulmonary tuberculosis. If the procedure does not interfere with the respiration, that is, if it proves that the mediastinum sufficiently protects the respiratory activities of the lung in the opposite cavity, steps should be taken to keep the incision open for a longer period. If the lung of the opposite side is also affected, the same procedure should be followed out later when the first incision is healed. The idea underlying this suggestion has nothing in common with the method of treatment by means of insufflation of nitrogen in the pleural cavity. Forlanini's method is based upon the supposition that rest will act as a curative agent. The ideal rest of the kidneys does not prevent development and progress of tuberculous processes in their parenchyma. My suggestion is stimulated by the experience of the curative effect of laparotomy upon tuberculous peritonitis; the introduction of nitrogen or oxygen into the peritoneal cavity exerts no such curative action. We should bear in mind that the treatment of tuberculous peritonitis by laparotomy owes its origin to mistaken diagnoses which were made by Spencer Wells in England and by Van De Walker in this country. In years gone by nobody would have thought of suggesting the treatment of tuberculous peritonitis by an abdominal incision, and if it had not been for the accidental errors in diagnosis, it might never have been performed. So far we do not possess a clear explanation of the nature of the therapeutic effect of the laparotomy; but there is no doubt as to the fact of the therapeutic result. Thoracotomy may exert a similar therapeutic effect. If we could only test and establish the fact of therapeutic action, the explanation of the effect may wait in thoracotomy as it has had to wait in laparotomy. I venture to throw out the further hypothesis that the moderate distentions of the partly adherent exposed lung may rather prove to be a favorable factor in the possible therapeutic action of a thoracotomy. I have my reasons for this hypothesis, but I shall not discuss them; I think I have done more than enough by venturing to make the bare statement.

I do not expect to live to see my suggestion taken seriously and tested. But, you see, a physiologist rushes in where surgeons fear to tread.

The Rockefeller Institute for Medical Research

Magnesia and Cancer.—Dubarde gives from 8 to 12 grams of white magnesia daily to all of his operative cases of cancer, his theory being that poverty of the organism in magnesia favors the development of malignancy. Remineralization would seem to be an important aspect of the problems of prophylaxis and immunity.—*La Presse Médicale.*

RELATION OF INTERNAL SECRETIONS AND FAULTY METABOLISM TO MENTAL PERVERSIONS.*

By BITTLE C. KEISTER, A.M., M.D.

ROANOKE, VA.

We are to-day facing many and divers theories on the subject of internal secretions, their effect on metabolism, and their relation to mental perversion. We are all more or less familiar with the caprice and peculiar freaks played by the ductless glands. Take, if you please, the thyroid, the thymus, the pituitary, the pineal, etc., whose physiological functions are exciting the liveliest interest thoughout the scientific world. Our foremost scientists are to-day puzzling their brains over these apparently insignificant organs.

The most definite clue to the action of internal secretions has been obtained with the thyroid. Recent experimental work on this gland makes it necessary to distinguish between the thyroid and the parathyroid tissue. The thyroid proper consists of two oval bodies located on the sides of the trachea at its junction with the larnyx. These have no ducts, and are composed of vesicles of various sizes, which are lined by a single layer of cuboidal epithelium, and contain in their interior a material known as colloid. This material is formed within the lining of epithelial cells, and when the vesicles rupture it is discharged into the surrounding lymphatics. The nature of this colloid material has given rise to much speculative thought, and will be referred to later on in this paper.

We have what is known as a set of accessory thyroids, and having a similar structure to that of the thyroid, no doubt their functions are somewhat similar.

The parathyroids are quite different in structure, being composed of solid masses of epithelial cells which are not arranged in vesicles, and contain no colloid material. It has been demonstrated that when the parathyroids alone are removed the animal dies quickly with acute symptoms, muscular convulsions, tetany, etc.; while if the thyroids alone are removed the animal may survive for a long period, but develops a condition of malnutrition, a slowly increasing cachexia, which may later assume a condition resembling myxedema in man.

We find after a cursory study of these glands, that after any form of traumatism or disease which may cause hypofunction or stagnation of their secretion, quite an array of peculiar symptoms arise. The mental forces become weakened and inactive, the skin becomes thick and immobile, owing to a collection of mucine-like material in the corium, the connective tissue fibrils thicken, and the hair falls out. Weakness of the muscles and disturbance of sensation are associated with a general loss of intelligence.

While these and many other pathological symptoms and conditions are the result of any serious impairment of the thyroids causing a loss of function, we have on the other hand from hyperfunction of the thyroid such a condition as exophthalmic goiter (Graves' disease), with all of the horrible

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symptoms and suffering that usually accompany that disease, such as tachycardia, syncope, asphyxia, and asthmatic breathing from excessive pressure, etc.

In discussing the subject of internal secretions we do not confine our argument simply to the ductless glands, but include the pancreas, ovaries, and other internal secreting glands.

The thymus gland, about which there has been much speculation of late years, belongs to the ductless class, and its physiological function is yet quite obscure. Formerly this gland was supposed to reach its full development at birth, and subsequently to atrophy, being replaced by a growth of lymphoid tissue, but of late this belief has been abandoned and many observers have learned that it continues to grow, and that true thymus tissue may persist through life. Its proximity to the thyroids and parathyroids, and its similarity in origin would indicate that, like them, it may have some important specific influence upon metabolism.

There seems to be some reciprocal relation between this gland and the reproductive glands. We find that when this gland is removed it hastens the development of the testes, and when the testes are removed the thymus becomes slightly enlarged for a time prior to a retarded atrophy (Henderson). There is no doubt in my mind that a similar relation holds good in females under like conditions. And if we will read between the lines and take the time to consider, we may be able to account for much of the peculiar phenomena that follow the spaying of our women by "unbaked" gynecologists.

It is a well known fact among writers on the subject of internal secretions that the ovaries play an important part in the nutrition of both body and mind. In gynecological practice it is often observed that following complete removal of the ovaries with the premature menopause that ensues, we find many distressing symptoms, both mental and physical. There are cases whose mental condition becomes so serious that they are fit subjects for an insane asylum.

It was the writer's unfortunate privilege some years ago to attend a number of this class of mutilated patients who had undergone complete ovariitomy. All honor to our modern gynecologists for their conservatism in the matter of not removing *in toto* these important glands from our young and middle-aged females.

One of the class of these patients above referred to, attended by the writer was a refined, highly cultured lady of twenty-six, who had been for some time previous quite nervous, bordering on hysteria. Acting on the advice of her relatives, she went to her young uncle's sanatorium in a distant city for treatment, and was operated upon for *supposed* cystic ovaries and hysteroepilepsy. Within a few months following the operation she began to run down both physically and mentally. At regular monthly intervals she had attacks of hallucination or cyclic insanity preceded by a state of moroseness. At other times her mind would appear almost normal, but this lasted only a short while, when she would gradually revert to the abnormal. This patient was under my observation at intervals for several months. She seemed to find temporay relief in coming to my office at irregular intervals to take electricity and vibratory massage administered by a trained nurse under my careful supervision. If I had been accessible to some reliable manufacturer of ovarian extract I should have administered a thorough course of it, aided by other constructive treatment.

To keep this young lady out of the lunatic asylum and save her family from the remorse, I sent her to a specialist's sanatorium for the treatment of nervous diseases where she remained only a few weeks prior to being sent back home to die. Being absent from the city when she returned, I failed to see her, but was informed that her physician diagnosed her last illness as cerebrospinal meningitis. This, in my judgment, was the closing scene of a typical case of abnormal internal secretions, complicated by autointoxication, superinduced by the complete extirpation of both ovaries of this young woman.

In older literature it was affirmed that not only the entire nature of woman, but her character as well, depended on the reproductive organs. Heimont said: "Propter solum uterum mulier est, quod est." Chereau said: "Propter ovarium solum mulier est, quod est."

Virchow's statement that a woman is a woman simply because of her generative glands, is familiar to us all. Prof. Hochwart, in the *American Journal of the Medical Sciences*, deliberately states that, "The peculiarities of woman, both in body and mind, in fact, all the femininity which we admire in the true woman, are dependent on the ovary."

Every up-to-date physician and neurologist who has had ten years experience is quite familiar with these cases of psychoneurosis among our women of the past decade, who had been operated upon.

The function and sacred mission of these important organs are being studied with more care and zeal during the past half decade, and instead of the radical a more humane operation is being advised by our leading gynecologists, giving more consideration for after results.

These psychoses are well known to the careful observer, from early puberty to the menopause, in a very large percentage of women who may be apparently healthy in all other respects. Recent investigations have shown that the menstrual life of women is not a suddenly appearing or disappearing event. On the contrary, the phenomena seems to be a continuous wave-like condition which is not found before the beginning nor after the close of menstruation, either in early youth or old age. Much of the variability of mood and disposition may be explained in this, the often inexplicable vacillating temperament, in the sexually mature woman.

The question of the not infrequent insanity during menstruation has been likewise discussed. Suicides have been frequent at these times. A. Pilez found intramenstrual changes of the sexual organs in more than one-third of female suicides.

Among fifty-six shoplifters, Legrand Soulle found that thirty-five were "unwell" at the time of the crime. Icord who has written quite extensively on the subject of internal secretions observes that in perusing the diary of a young girl it does not require much perspicacity to discover the pages which were written during menstruation.

We observe these psychic disturbances at the climacterium, which is considered the most dangerous and critical age of woman. At the time when menstruation begins to be irregular, sometimes even months or a year before, women fall into a strange state of unrest, sometimes accompanied by sexual over-excitability. Deep depression, a tendency to outbreaks of weeping, periods of irritability, psychic vacillations, a decrease of intelligence, evil forebodings, etc. These are some of the well known conditions in a large percentage of women during this critical time. In some cases it reaches a very high degree of psychosis, as is shown in the following case that came under the writer's observation.

A lady of 46 years, whose family history was negative so far as I could ascertain. Her peculiarities in temperament and disposition were such that her family life was anything but pleasant; her husband, who was a railroad man, was living apart from her, her two married sons could not tolerate living under the same roof with her, hence we can only surmise the kind of life she was living. After the first day or so of her entrance into my private sanatorium I made several very thorough examinations and found quite an array of abnormal conditions, both physical and mental. Among the physical my attention was first drawn to her enlarged thyroids and slightly protruded eyeballs (exophthalmos), fast and nervous heart sounds, marked tenderness over both ovaries with slight protuberance and tympanites; speculum examination showed a double laceration of the cervix, an endometritis with catarrhal discharge, clitoris double the normal size; urinary analysis revealed albumin and casts with s.g. 1.010 (24-hour specimen). The mental symptoms at this and subsequent examinations were: Hysteria, melancholia, insomnia, psychic blindness, syncope, nymphomania, etc. My diagnosis and treatment at the time (several years ago) were both purely symptomatic, but to-day I would diagnose this case as one of simple "abnormal internal secretions complicated with nephritis and lacerated cervix." The first week's treatment consisted of absolute quiet in bed under special trained nurse and nervines with special diet; second week operation for lacerated cervix and curettage of the uterus under local and H. M. C. anesthesia; during the third, fourth and fifth weeks I administered the dry-hot-air treatment (Sprague method) with massage, and a strict select cereal and milk diet. At the end of the seventh week the patient was dismissed as partially cured. My last account of this patient was that she was doing light housekeeping and other ordinary household duties, and had had a reconciliation with her husband and former friends.

This is only one of many similar cases that the general practitioner meets and puzzles his brain over, and then wonders why we know so little when there is so much yet to learn.

Would that our physiologists and anatomists, our chemists and laboratory workers would delve a little deeper into their respective sciences and bring to surface the respective functions and anatomical relation of these ductless and other internal-secreting glands, with their special bearing on metabolism and mental forces.

We have the pancreas and its allied coworker, the liver, with their peculiar generating and secreting forces producing pathological conditions such as diabetes mellitus, a disease about which, until within the past decade or so, we knew but little. And even at this late day we are guessing between abnormal internal secretions and faulty metabolism with their respective relation to the islands of Langerhans as the real factor in the etiology of this well known disease. The fell symptom of acidosis in the production of diabetic coma in this disease points very conclusively to the fact that faulty metabolism plays an important rôle in diabetes.

We have conditions very similar to these in certain diseases of the kidney when the functions of that organ become impaired to such an extent as to cause uremia with its long train of mental and physical symptoms. When we consider the vast array of psychic symptoms and phenomena produced by faulty metabolism and deranged internal secretions we become somewhat bewildered in differentiating these conditions from some of the ordinary forms of insanity. No doubt many a poor devil has been sent to a lunatic asylum on account of some sudden outbreak of anger or other erratic act due to dysfunction of some one or more of the ductless glands or possibly to deranged body metabolism.

Since we have discovered that there is direct communication between the sympathetic nervous system and the ductless glands, we can the more readily understand why these organs with their secretions become influenced by mental emotion either of anger or distress. Many cases of melancholy, hypochondriasis, etc., may be caused by derangement of the internal secretions. We may also have mental perversions, a lack of control of the sexual passions and anger. Our paranoiacs with their cunning schemes, our alcoholic and drug fiends, our eccentric, so-called religious fanatics who are suddenly and without preparedness called by a Higher Power to preach some strange emotional doctrine, dogma, or cult. These are only a few of the pathological effects of abnormal internal secretions on mental depravity. We have the various kinds of faulty metabolism that give rise to the purine bodies such as uric acid, xanthine, guanine, etc. We also have the toxins that are set free, and invade the entire system when these ductless and other internal secreting glands become impaired, causing every imaginable form of mental perversion such as illusions, hallucinations, etc. The cardinal feature of the pathogenesis of various forms of insanity is involved in this connection, since the foregoing data and illustrations clearly indicate that hypothymia and hypothyroidism may, by inhibiting the efficiency of the defensive functions of the ductless glands in general, entail a pathological toxemia capable of evoking mental disorders. Hypofunction of any of the ductless glands may give rise to toxemia by simply depriving the system of this regulating or harmonizing fluid whose function is to destroy the toxins. This is especially true of the parathyroids, since we know that tetany is nothing other than a form of toxemia caused by hypofunction of these glands.

Then as a result of the deficiency of the nucleins, the catabolic phase of metabolism is also impaired, and toxic wastes accumulating in the blood, including that which circulates in the brain cells, catatonic phenomena are invited. Chemical changes in the cortical cells of a degenerative type may ensue, causing autointoxication. After a study of the fundus of the eye in 109 consecutive cases of this character, H. L. Tyson and L. Pierce Clark deliberately state that the visual syndrome, as observed by them was, "a distinct contribution to the theory that dementia precox is an autotoxic disease, and that the poison is primarily vascular, which finally induces neuronic degeneration.

Concerning the genesis of the poison, these au-

thors, with many others, conclude that the syndrome points conclusively to the fact that this toxin is generated in the gastrointestinal tract.

To antagonize the intoxication by any wrong method of treatment, the ductless glands which take part in the defensive functions of the body, the thyroids, the parathyroids, and the adrenals become abnormally active in some instances, and incidentally excite the dystrophic brain cells, provoking the catatonic form of the disease (Sajous).

Dercum and Ellis, in a postmortem study of eight patients suffering from dementia precox, all of whom had succumbed to tuberculosis, found that in seven the thyroid was under weight. The other seven glands showed colloid abnormalities, both quantitative and qualitative, and four showed retrograde changes in the acinal epithelial cells. The adrenals, on the other hand, showed a marked excess in weight.

It is a well-known fact that 65 per cent. of all idiots, before the age of six years, are deprived of the thymus gland (Sajous). It is also a fact that this class is more susceptible to infectious diseases, and about the same percentage succumb to these infections. Many die of tuberculosis in the incipient stage. As previously intimated, when we have a suppression or stagnation of the secretions of any one or all of the ductless glands, we may have a state of degeneracy of both mind and body. We may have amentia, ranging from the slight backwardness of the moron or imbecile to profound idiocy, including the amaurotic, moral, and microcephalic forms. Hebephrenic phenomena of melancholic type incident upon puberty are quite noticeable among school girls who rarely pass the intermediate grade of the public high school.

It is not within the scope of this paper to discuss fully the hyperfunction of the glands of internal secretion. When, however, in the presence of toxemia, we have clear evidence of overactivity of these organs, it is reasonable to conclude that we are dealing with a defensive reaction. If, after a trial of the desiccated thyroids and iodothyrin, we observe an increase of the motor symptoms of catatonia and those peculiar to Graves' disease, such as rapid pulse, muscular tremors, hyperhydrosis, overactive eye reflexes, increased muscular excitability, dermographia, loss of weight, and skin pigmentation, we may reasonably conclude our diagnosis. The only clear indication, in our judgment, is a partial thyroidectomy, which has proven quite successful of late. Dr. Fallis treated by this method eight successive patients with "catatonia," who recovered their mental integrity. This treatment applies more particularly to the young than to the old and long standing cases. In mild cases of dementia precox, we might administer a thorough course of thymus extract aided by lecithin, which is a phosphorus compound, and is indicated in the treatment of the active nervous symptoms of both catatonia and Graves' disease. Dr. Bayard Holmes adds emphasis to the importance of this subject when he writes: "There is no disease, not even general paresis, that finds the profession in so helpless, hopeless, and pitiable a condition as dementia precox does." There is no disease that costs the state a larger amount in care and custody than this disease. According to various estimates it represents about 25 per cent. of the total admissions to the institutions of the insane (Ingham).

In view of these established facts, sanctioned by such men as Sajous, Dercum, Hochwart, Howell, and L. F. Barker, from whose able pens I have learned much and quoted liberally in the preparation of this paper, let us as progressive medical men and humanitarians, give the subject of internal secretions more zealous study, and use our influence toward the establishment of institutions for the study and treatment of psychiatry and its relation to internal secretions and metabolism. By this lofty endeavor we may relieve the profession of the stigma of permitting 30 per cent. of our fellow mortals to be doomed to the asylum for the insane.

"More might be said hereof to make a proof,
Yet more to say were more than is enough."

DEATH AND ITS SEMITIC TRADITIONS.

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IN the Bible death is viewed under form of an angel sent from God, a being deprived of all voluntary power. Throughout the Bible are mentioned the following: The "angel of the Lord" smites 185,000 men in the Assyrian camp; "the destroyer" kills the firstborn of the Egyptians, and the destroying angel rages among the people of Jerusalem. In I Chronicles xxi:15 the "angel of the Lord" is seen by David standing "between the earth and the heaven, having a drawn sword in his hand stretched out over Jerusalem." Job uses the general term "destroyer," which tradition has identified with "destroying angels," and Proverbs xvi:14 uses the term the "angels of death." The rabbis found the angel of death mentioned in Psalms lxxxix:45, where the translation reads: "There is no man who lives and, seeing the angel of death, can deliver his soul from his hand." Ecclesiastes viii:4 is thus explained in the passage: "One may not escape the angel of death, nor say to him, 'Wait until I put my affairs in order,' or 'There is my son, my slave; take him in my stead.'"

The angel of death occurs very frequently in rabbinical literature. Where the angel of death appears there is no remedy. If one who has sinned has confessed his fault, the angel of death may not touch him. By acts of benevolence, the anger of the angel of death is overcome; when one fails to perform such acts, an angel of death will make his appearance. God commands the angel of death. As soon as he has received commission to destroy, he does not discriminate between the good and the bad. In the city of Luz, the angel of death has no power, and when the old people are prepared for death they leave the immediate precincts of the city, and die in the outskirts. A legend to the same effect existed in Ireland in the Middle Ages.

The angel of death was created by God on the first day. His dwelling place is in heaven, whence he reaches the earth in eight flights, whereas pestilence reaches it in one day. He has twelve wings. "Over all people have I surrendered to thee the

power," said God to the angel of death, "only not over this one which has received freedom from death through the law." It is said of the angel of death that he is full of eyes. In the hour of death he stands at the head of the departing one with a drawn sword, to which clings a drop of gall. As soon as the dying individual sees the angel he is seized with a convulsion, opens his mouth, whereupon the angel of death hurls the drop into it. This drop is the cause of his death, and he turns putrid and his face becomes yellow. The expression "the taste of death" originated in the conception that death was caused by a drop of gall. The soul is said to escape through the mouth or, as is mentioned elsewhere, through the throat; therefore the angel of death stands at the head of the patient. When the soul forsakes the body its voice travels from one end of the world to the other, but it is not heard. The drawn sword of the angel of death indicates that the angel of death was regarded as a warrior who kills off the children of men. "Man, on the day of his demise, falls down before the angel of death, like the beast before the slayer."

In later representations the knife sometimes is substituted for the sword, and reference is also made to the cord of the angel, which indicates death by throttling. Moses said to God, "I fear the cord of the angel of death." Of the four methods of execution in this period, three are named in connection with the angel of death: burning (by pouring hot lead—the drop of gall), slaughtering (by beheading), and throttling. The angel administers the particular punishment which God has specified for the commission of sin. A peculiar mantle belongs to the equipment of the destroyer. The angel of death assumes the particular form which will best serve his purpose; *e.g.* he appears to a scholar in the form of a beggar imploring pity. "When pestilence rages in the town, walk not in the middle of the street, because the angel of death (pestilence) strides there; if peace reigns in the town, walk not on the edges of the road. When pestilence rages in the town go not alone to the synagogue, because there the angel of death stores his implements. If the dogs howl, the angel of death has entered the city; if they make sport, the prophet Elijah has come." The "destroyer" (Satan Hamashhit) in a daily prayer is represented as the angel of death.

There are six angels of death: Gabriel over kings; Kapziel over youths; Mashbir over animals; Mashhit over children; Af and Hemah over man and beast.

When the Messiah comes all the dead will arise, and there will be an end to death, for the angel of death will be himself destroyed by the Messiah. The last enemy that shall be annihilated is death: the same idea seems to be expressed in the book of Jubilee, 29 and xxiii: "And they shall fulfill all their days in peace and joy and shall live on, since there will be no Satan and no evil to destroy them." The angel of death, who is identified with Satan, immediately after his creation had a dispute with God as to the light of the Messiah. When Eve touched the tree of knowledge she perceived the angel of death and thought: "Now I shall die, and God will create another wife for Adam." Adam also had a conversation with the angel of death.

It was Moses who most often had dealings with the angel. At the rebellion of Korah, Moses saw him. It was the angel of death in the form of pestilence which snatched away 15,000 every year during the wandering in the wilderness. When the angel came to Moses and said, "Give me thy soul," Moses called to him, "Where I sit thou hast no right to stand," and the angel retired in shame and reported the incident to God. Again God ordered him to bring the soul of Moses. The angel went and, not finding him, inquired of the sea, the mountains, and of the valleys; but they knew nothing of him. Really Moses did not die through the angel of death, but through God's kiss (bineshkah); *i.e.* God threw his soul out of his body. Legend seizes upon the story of Moses' struggle with the angel of death, and expands it at length.

Solomon once noticed that the angel of death was grieved. When questioned as to the cause of his sorrow he answered: "I am requested to depart with your two beautiful scribes." Solomon at once charged the demons to convey his scribes to Luz, where the angel of death could not gain access. When they were near to the city, however, both perished. The angel laughed on the next day, whereupon Solomon inquired as to the cause of his mirth. "Because," answered the angel, "thou dist send the youths thither, whence I was commanded to bring them." In the next world God will permit the angel of death to fight with Pharaoh, Sisera, and Sennacherib.

The teaching of God shields one from the power of the angel of death. The children of Israel have accepted the Torah (the five books of Moses—Genesis, Exodus, Leviticus, Numbers, and Deuteronomy) only that the angel may exert no power over them. Since death can only result from sin, it cannot, of course, come to those who live in accord with the Torah. Although the sentence of death once pronounced could never be recalled, yet the angel may not visit teachers of the law; he is, on the contrary, their friend, and even imparts knowledge to them.

Teachers of the law of the fourth century associate rather familiarly with him. When he appeared to one on the street, the instructor reproached him with rushing upon him as upon a beast; whereupon the angel called upon him at his house. To another he granted a respite of thirty days, that he might put his affairs in order before entering the next world. To a third he had no entry, because he was powerless to interrupt the study of the Talmud. To a fourth he displayed a rod of fire, whereby he is recognized as the angel of death. Oftentimes does he resort to cunning means to approach and seize his victims.

The death of Joshua ben Levi, in particular, is enhanced with a web of fable. When the time came for him to die and the proverbial angel of death appeared to him, he demanded to be shown his place in paradise. When the angel had consented to this, he demanded his knife that the angel may not frighten him on the way. This request was also granted him; and Joshua sprang with the knife over the wall of paradise; the angel, who is not allowed to enter paradise, caught hold of the end of his raiment. Joshua swore that he would

not come out, and God declared that he should not leave paradise unless he was absolved from his oath; if not absolved, he was to remain. The angel of death then demanded back his knife, but Joshua refused. At this point a heavenly voice rang out: "Give him back the knife because the children of men have need of it."

In Arabic Literature, the angel of death is spoken of in the Koran, and is called by the Mohammedans, Azrael. "When death was created by God, he, on account of his terrible power, had to be put in seventy thousand chains of a thousand years' journey's length each, and behind millions of barriers. When Azrael was placed in charge of him, and saw him he called the angels to look at him; and when he, at God's command, spread his wings over him and opened all his eyes, the angels fainted away, and remained unconscious for a thousand years. Azrael was given all the powers of the heavens to enable him to master death."

Azrael reaches from one end of the world to the other and has seventy thousand feet and four thousand wings. His entire body is covered with eyes and with tongues as numerous as the living creatures on earth. When any of these latter die a corresponding eye bulges forth. At the end of the world all these eyes, excepting eight, are plucked out by God; those of Israfil, Michael, Gabriel, Azrael, and the four "Hayyot" of the heavenly chariot alone remaining. The times of the death of persons is made known to the angel of death through the roll-book in his possession, showing the white stripe around the name of the person doomed. Forty days before death, however, a leaf falls from the tree of life, under the throne of God, into the lap of Azrael, who is seated in the seventh heaven, thus announcing the death.

"When people lament and weep too much over the departed person the angel of death shall stand at the door, and say: 'What cause have you for such violent complaint? I am only the messenger of God and have done His bidding, and if you rebel against Him I shall return often and take one of your house.' When a righteous person dies, the angel comes with a host of good angels carrying sweet odors of paradise and makes the soul leave the body like a drop taken out of a bucket of water. When a wicked person dies the angel of death comes in the company of demons, who pull the soul out as with iron spits."

The ancient Hebrews expected to be gathered to, or sleep with, their fathers when death befell them, and feared only the idea of going down to Sheol (pit or destruction) mourning. To sleep and be at rest was the desire of the distressed. To die in "a good old age" was regarded as a blessing; to be cut off from the land of the living in the noontide of life was dreaded and looked upon as a calamity. Only at times the stings of mortality and the stroke of Sheol became objects of horror, from which the Lord was petitioned to redeem men. Nowhere, however, in the Bible is death regarded as a genuine evil, except from the point of view that man, being of divine origin, should have had, like any other heavenly being, access to the tree of life, and have existed forever. Accordingly, the eschatological view found expression in such phrases as that "death shall be swallowed up forever" and "the dead shall rise again." Satan is called in the New Testament "a murderer from the beginning" and the "destroyer." Death is conceived of as a person who has charge of the shades in the nether world. He is their general. The following is a description of death as one of God's messengers:

"When Abraham had refused to let the archangel Michael take his soul, God said to the latter: 'Call Me hither, death of the shameless countenance and pitiless look.' Death shivered and trembled at being called to come before the Lord, when God said to him: 'Come hither, thou bitter and fierce name of the world, hide thy fierceness, cover thy corruption, and cast away thy bitterness from thee, and put on thy beauty and all thy glory and go down to Abraham, My friend, and bring him to Me.' Death put on a robe of great brightness, and made his appearance like the sun, and became fair and beautiful above the sons of men, assuming the form of an archangel, his cheeks flaming with fire, and went to Abraham, a sweet odor and a flash of light, announcing his coming to the patriarch, who took him to be an archangel, the chief captain of God, and welcomed him as the purveyor of light and the most glorious helper. But death rejoined: 'Most righteous Abraham, I am the bitter drop of death,' and when asked for his errand he said: 'For thy holy soul have I come.' Abraham again refused to relinquish his soul. Death followed him into his chamber, and when Abraham laid down upon his couch he sat by his feet, and would not depart, notwithstanding all the entreaties of the patriarch to let him live.

"On inquiry of the patriarch, he told him that only because of his great righteousness, his hospitality to man, and his love toward God, which became a crown of glory upon his head, did he approach him in such beauty and glory; to sinners he came in fierceness, and corruption, and bitterness. 'Show me these,' asked Abraham, but death replied, 'Thou canst not stand these looks.' Thereto Abraham answered: 'By means of the name of the living God, I shall be able to look.' So death put off his sunlike glory and put on his tyrant-like robe and made his appearance fiercer than all wild beasts, and filthier than all filth, and he showed Abraham seven fiery serpents' heads and fourteen faces: (1) of flaming fire, (2) of darkness, (3) of a viper, (4) of a precipice, (5) of a fierce asp, (6) of a terrible lion, (7) of a cerastes, (8) of a basilisk, (9) of a fiery scimitar, (10) of terrible lightning and thunder, (11) of a stormy sea, (12) of a rushing river, (13) of a three-headed serpent, and (14) of a cup filled with poison; and then he showed him every mortal disease emanating from the odor of death. Seven thousand man-servants and maid-servants of Abraham died from the effect of this odor and sight, so that Abraham implored death to hide his fierceness and to put on his former garb of beauty. Death complied with his request, and joined Abraham in a prayer to God to restore to life those who had died so suddenly by his fierceness, and the prayer was granted.

"Abraham, however, would not consent to surrender his soul until death had explained to him the different forms and faces he had displayed to

him in all their fierceness; whereupon death answered that the seven heads of the serpents indicated the seven ages during which he is to destroy all men, rich and poor, and to bring them to the bottom of Hades. Because people die by fire, by falling from precipices, by the sword, by rushing rivers, on the raging sea, and in storms of lightning, by wild beasts, or cups of poison, he assumed all those aspects. Finally, he spoke of the seventy-two kinds of death, and of the death of the holy. Then death took the right hand of Abraham, and his soul clung to him."

Death appears here as the personification of psychic evil, with numerous traits, but not of moral evil.

There are different views among Jews concerning death, and its cause. Some assign it to Adam's first sin in partaking of the forbidden fruit. This point of view is somewhat modified by the rabbis, who regard death as the fruit of personal sin, maintaining that, like Adam, each person dies on account of his own sin, as "there is not a righteous man that doeth good sinneth not" (Ecclesiastes vii:20). Still the rabbis speak of a number of "saintly men who died without sin and only in consequence of the poison of the serpent": *e.g.* Benjamin, Amram, Jesse, the father of David, and Chileab, the son of David. Another view is that death was ordained at creation, and that Adam by his sin merely hastened death. According to others, Adam was destined to live forever and not to taste death, but, owing to the fact that men like Hiram of Tyre and Nebuchadnezzar wanted to be worshiped as Gods, God decreed death for man. The opinion is also expressed that God would have annihilated the power of the angel of death over Israel after its acceptance of the law, but for the fact that the decree could not be altered. From the point of view that sin precedes and causes death in each person, the Talmud designates special reasons for the death of innocent children.

Modes of Death.—There are 903 distinct deaths. The hardest is by asthma, and the easiest is called "death by the kiss" which is "like drawing hair out of milk," that is the interpretation of "by the mouth of the Lord." Six persons are known to have died in this manner; namely, the three patriarchs, and Moses, Aaron, and Miriam.

Death coming after an illness of five days' duration is considered an ordinary occurrence; after four days a reprimand from heaven; after three days a severe rebuke; after one day, a sudden one, or, according to some, an apoplectic one. To die before reaching the age of fifty is designated as "being cut off." Sixty years is a ripe age; seventy is old age, and eighty is advanced age.

Many allegorical tales are related in rabbinical literature regarding the communication of the dead with the living. A pious man, being censured by his wife for giving away a dinar (a Roman silver coin worth about fourteen cents) to a mendicant in time of famine, went to sleep in the cemetery. It was New Year's eve, and he overheard the spirits of two women gossiping. One of them proposed to fly and listen behind the curtain in the judgment chamber to the promulgation of the future visitations in the world. The other spirit excused herself, saying: "I cannot accompany thee because I am buried in reed matting; go thyself and come back and tell me what thou hearest." Presently her companion returned and reported: "I heard that the hail will kill whatever is planted in the first rainy season." The pious man planted in the second rainy season. The following year he again went to sleep in the cemetery on New Year's eve, and overheard a similar conversation, gaining the information that whatever was planted in the second season would be consumed by blight. The pious man planted during the first season. His wife was curious to know how he managed to evade the calamitous visitations, and he, being pressed, related his story. A few days later the woman had a quarrel with the mother of the second spirit, and abused her for giving her daughter an indecent burial. The third year the pious husband again sought to obtain information regarding future crops. The second spirit said: "Hush, companion! Our former conversation was overheard by mortal man."

The dead are supposed to take an active interest in worldly affairs. The assertion of one authority that "the dead know not anything" is interpreted, "the wicked who are considered dead while yet alive." R. Isaac said, "The sting of a worm to the dead is like the pricking of a pin to the flesh of the living." The dead are very sensitive. One must not tell tales around the deathbed of a scholar. Inasmuch, however, as the dead are exempt from performing the precepts, they feel slighted if such performance should take place in their presence by the living, as it would be like "mocking the poor." In burying a scholar it was customary to deposit in his coffin a scroll that was unfit for reading.

The practice of praying for the intercession of the dead is of early origin. Caleb on entering Hebron visited the cave of Machpelah and prayed to the patriarch to be saved from cooperating in the conspiracy of the scouts sent by Moses to make a report of the conditions existing in the Holy Land. The Talmud mentions the custom of visiting the cemetery to request the dead to pray for the living. The noise of the soul's departure from the body reverberates through the world from one end to the other, yet the sound is unheard. Prior to the exit of the soul it sees the Shekinah (the majestic presence or manifestation of God which has descended to "dwell" among man). The soul after death is in the same condition as it is in life when one dreams. Until the body is entirely consumed the soul hovers over the grave. Samuel said: "If one wants to have a taste of death, let him sleep with his shoes on." "And God saw everything that He made, and behold it was very good." This includes death. "The day of death (is better) than the day of one's birth" is explained to mean that death tells of the meritorious life of the departed; it is like the vessel entering port laden with goods. The great ones of each generation must die to make room for the greatness of successors; "the righteous themselves ask for death as a favor." The Zohar (a commentary on the Pentateuch) calls death a festal day, and the day upon which Adam died was made a holiday.

The windows of the death chamber should be opened to allow the spirits to enter and to depart.

The angel of death is supposed to wipe his bloody knife in water near the dead; hence all water of the adjacent houses must be emptied on the ground. As the "shedim" (demons) are supposed to follow the dead or to wander around their graves, those who follow a funeral cortege must wash their hands on their return, before entering a house; but should not dip them in a river. A special lavatory for this purpose is usually provided at the cemetery. On returning from the funeral one should sit down and rest on the way several times, so as to drive away the spirits that follow them. The board upon which the dead is cleansed must not be turned over. One should not visit the same grave twice during one day, nor sleep in a cemetery, nor look closely upon the face of a deceased person, nor kiss the dead, not even when a near relative.

A common superstition is current that if the shadow of one's head is invisible against the wall in a house where a light is burning on Hosha'na Rabbah (the popular name for the seventh day for the feast of Booths) eve, it is a sign that the person will perish within the year. If visible, he will live. R. Ammi says, "If one wishes to ascertain whether he will live during the following year, let him, during the ten penitential days, burn a candle in his house where no wind can extinguish it. If it is not blown out he will live; otherwise not." To discover whether the husband or the wife will die first, calculate the numerical value of the letters in the names of both. If the amount is even the man will expire first; if odd, the woman.

Fanaticisms relative to death in connection with dreams are quite numerous. One of them, the vision of a scroll in the ark, presages death, as the demise of Aaron follows the description of the tablets placed in the ark. A dying child may be released from the grip of dissolution, if nominally sold by the parents to a friend for a shekel. A change of name may save one from mortality. The removal of a feather pillow from beneath the bed of a dying individual aids the soul in an easier departure. Some rabbis objected to this custom, on the supposition that it disturbed the patient and so hastened his demise. The iron keys of the synagogue, if placed under the pillows, are believed to accomplish the same effects. Announcement of a death should be made in an indirect manner, and it was for this reason that the shofar (the ancient ritual horn of Israel) was blown in talmudical times when death occurred in a town. The beadle who summons the congregation to early morning prayer and devotion, by knocking three times on their doors or windows, announces a death by reducing the number of raps to two. It is a happy omen to die with a smile on the face, or to die on one's birthday. Rain on the day of one's funeral is a sign of pity and condonation toward the departed. It is habitual to bend the thumb of the corpse so that the entire hand resembles the word "Shaddai" (Almighty), and to bind it in this position with certain fringes. A shard is placed over the eyes, a little stick in the hands, a piece of metal on the body, a small bag of earth from the Holy Land under the head, and a three-toothed wooden fork in the hand, to enable the dead to excavate a subterranean passage to the Holy Land on the day of resurrection, when all the Jewish dead will arise in Palestine. A towel is hung up and a glass of water placed next to it, so that the soul might bathe when it returns to the body.

To demons were ascribed the various diseases, particularly such as affect the brain and the inner parts. In the main they were perpetrators of great harm to the body. There were a great many supposed to exist, some of which are mentioned below. "Shabriri" (lit. dazzling glare), the demon of blindness, who rests on uncovered water at night and strikes those with blindness who drink of it; "Ruah Zeradah," the spirit of catalepsy; "Ruah Zelatah," the spirit of headache, hovering on palm trees; "Ben Nefilim," the demon epilepsy; "Ruah Kezarit," the spirit of nightmare; "Ruah Tezazit," the spirit of delirious fever and madness; "Ruah Zara'at," the spirit of leprosy; "Ruah Kardeyakos," the spirit of melancholy; "Shibetta," a female demon, bringing croup to persons, especially to children, who do not wash their hands in the morn; "Bat Horin," a demon bringing a disease of the eye to one who fails to wash his hands after meals; "Kuda," a demon who attacks women in childbirth; "Eshshata," the demon of fever; "Ruah Zenunim," the spirit of sexual desire; "She'iyyah," an ox-like fiend dwelling in desolate homes; "Puta" or "Pura," the spirit of forgetfulness; "Ben Temalyon," the demon of St. Vitus' dance.

These demons were supposed to enter the body and cause the disease, while overpowering or "seizing" the victim; hence the ordinary cognomen for "epileptic" is "nikpeh." The synonymous Greek word means the state of being in the authority of exorcism. To cure such diseases it was necessary to draw out the evil demons by certain incantations and talismanic performances. Josephus, who speaks of friends as "spectres of the wicked which enter into men that are alive and kill them," but which can be driven out by a certain root, witnessed such a performance in the presence of the Emperor Vespasian, and attributed its inception to King Solomon.

In the Book of Wisdom, Solomon claims to have received from God power over the demons. The same potency of curing by demonism such diseases as dumbness, blindness, epilepsy, mania, and fever were exercised by Jesus and His disciples, as also by their Jewish contemporaries. Occasionally a demon is called "Satan": "Stand not in the way of an ox when coming from the pasture, for Satan dances between his horns." The name "mashhit" (destroyer) seems to refer to the head of the demons in the sentence: "When permission is given to the destroyer to do harm, he no longer discriminates between the righteous and the wicked." The queen of demons is Lilith, pictured with wings, and long flowing hair, and called the "mother of Ahriman." "When Adam, doing penance for his sin, separated from Eve for 130 years, he, by impure desire, caused the earth to be filled with demons and evil spirits." And it was Lilith, as Adam's concubine, who bore them.

Birds as Souls.—In Psalm xi:1 the soul is compared to a bird: "Flee as a bird to the mountain." As living beings that move and fly through the air birds have suggested themselves at all times and in all lands to primitive man as images of the soul, the name for which in most languages is taken

from breathing ("nefesh," "neshamah" = "anima" or "psyche"); the soul was represented in the form of a butterfly, as illustrated by the tombs of the early Christians. The soul of the king of Egypt was pictured on the monuments as a bird, and the genius of the kings of Persia and Assyria retained the wings of the bird. The Arabs also regarded the soul as a bird, and believed that after death it hovered at times around the body, screeching like an owl. This view was shared by the Jews. They placed credence in the supposition that all souls are gathered in a great cage or treasure house in heaven, a columbarian, called "Guf"; and so Rabbi Asi taught that the Messiah, the son of David, cannot come until all the souls have been taken out of the Guf, and have gone through human bodies. In the Greek Baruch Apocalypse, Baruch sees in the fourth heaven a lake full of birds, and is told that these are the souls of the righteous, who continually sing the praise of God. These stories are repeated by Christian saints who affirm having seen the souls of the devout in paradise. In the zohar the sparrow and the swallow, spoken of in Psalm lxxxiv:3, are compared to the souls of the religious which dwell in paradise. Three times a year, they rise upon the walls of paradise and sing the praise of the Master of the universe, whereupon they are ushered into the palace where the Messiah is secreted, called the great "Souls' Nest." They are adorned with crowns in his honor when he appears to them, and from beneath the altar of heaven, where dwell the souls of the pious, they prepare the erection of the temple of the future. It is customary among certain Jews, when a death occurs, to open a window in order that the soul may fly away like a bird.

As previously recounted, the dead are assigned to a place called "Sheol," which connotes a locality where those that had passed away were believed to be congregated. Jacob, refusing to be comforted at the supposed death of Joseph, exclaims: "I shall go down to my son a mourner unto Sheol." (Genesis xxxvii:36) Sheol is underneath the earth and is very deep and it marks the point at the greatest possible distance from heaven. The dead descend or are made to go down into it; the revived ascend or are brought and lifted up from it. Sometimes the living are hurled into Sheol before they would naturally have been claimed by it, in which cases the earth is described as "opening her mouth." Sheol is spoken of as a land, but ordinarily it is a place with gates, and seems to have been viewed as divided into compartments with "farthest corners" one beneath the other. Here the dead meet without distinction of rank or condition—the affluent and the indigent, the pious and the iniquitous, the master and the bond servant—if the portrayal in Job iii refers, as most probably it does, to Sheol. The dead continue after a fashion, their mundane existence. Jacob would mourn there (Genesis xxxvii:35, xlii:38); David abides there in peace (I Kings ii:6); the warriors have their weapons there with them (Ezekiel xxxii:27), yet they are mere shadows.

The following extracts, also, are quoted in the Bible: The dead merely exist without knowledge or feeling. Silence reigneth supreme, and oblivion is the lot of them that enter therein. Hence it is known also as "Dumah," the abode of silence, and there God is not praised. Still on certain extraordinary occasions the dwellers in Sheol are credited with the gift of making known their feelings of rejoicing at the downfall of the enemy. Sleep is their usual lot. Sheol is a horrible, dreary, dark, disorderly land, yet is the appointed house for all the living. Return from Sheol is not expected; it is described as man's eternal house. It is "dust"; hence in the Shemonah Esreh, in benediction No. II, the dead are spoken of as "sleepers in the dust." God's rulership over it is recognized. Hence He has the power to save the pious therefrom. Yet Sheol is never satiated; she "makes wide her soul," *i.e.* increases her desire and capacity. In these passages Sheol is personified; it is described also as a pasture for sheep with death as the shepherd. From Sheol, Samuel is cited by the witch of En-dor.

As a rule Sheol will not give up its own; they are held captives with ropes. The realm of the dead is in the earth, the gateway being in the west. It is the "land without return." It is a dark place filled with dust, but it contains a palace for the divine ruler of this shadow realm. Seven gates guard successively the approach to this land, at the first of which is a watchman. A stream of water flows through Sheol.

This concept of Sheol reverts to primitive animistic conceits. With the body in the grave remains connected the soul, as in dreams; the dead buried in family graves continue to have communion. Sheol is practically a family grave on a large scale. Graves were protected by gates and bolts; therefore Sheol was likewise similarly guarded. The separate compartments are devised for the separate clans, sects, and families, national and blood distinctions continuing in effect after death. That Sheol is described as subterranean is but an application of the custom of hewing out of the rocks, passages leading downward for burial purposes.

There is no scriptural basis for the belief in retribution for the soul after death; this was supplied by the Babylonians and the Persians, and received the Jewish coloring from the word "gehinnom" (the valley of Hinnom) made detestable by the fires of the Moloch. The smoke of the subterranean fires came up through the earth in this place; there are cast the spirits of sinners and blasphemers and of those who work wickedness and pervert the words of the prophets. Gehinnom has a double purpose—annihilation and eternal pains. Gehinnom has seven names: "Sheol," "Abbadon," "Pit of Corruption," "Horrible Pit," "Mire of Clay," "Shadow of Death," "Nether parts of the Earth." It is also called "Tophet." It has seven divisions, one under the other. According to rabbinical traditions, thieves are condemned to fill an unfillable tank; the impure sink into a quagmire; those that sinned with the tongue are suspended thereby; some are suspended by the feet, hair, or eyelids; others eat hot coals and sand; others are devoured by worms, or are placed alternately in snow and fire. These conceptions are ascribed chiefly to Joshua ben Levi, and have their parallel in the apocalyptic literature appropriated by the Christian church. The punishment of the evil endures twelve months, according to R. Akiba;

the generation of the flood will in time be released, but the punishment of those who have led others into heresy, or dealt treacherously against the law, will never cease.

The Garden of Eden is called the "Garden of Righteousness," being no longer an earthly paradise. It is above the earth, and its inhabitants are clothed with garments of light and eternal life, and eat of the tree of life in the company of the Lord and His anointed. In Slavonic Enoch its place is in the third heaven; its four streams pour out honey and milk, oil and wine. It is prepared for the "righteous who suffer innocently who do works of benevolence and walk without blame before God." It has been created since the beginning of the world, and will appear suddenly at the Judgment Day in all its glory. The pious dwell in those heights where they enjoy the sights of the heavenly "Hayyot" (previously mentioned) that carry God's throne. There are seven divisions for the good which shine like the sun, the moon, the firmament, lightnings, torches, and lilies. Each of these divisions is placed differently before the face of God. Each of the holy will have a mansion, and God will walk with them and lead them in a dance. As the wicked have a sevenfold pain, the righteous have a sevenfold joy.

"In the world to come there is neither eating, drinking, nor procreation, neither barter nor envy, neither hatred nor strife; but the holy sit with their crowns on their heads and enjoy the splendor of the Shekinah, for it is said: 'And they saw God, and they did eat and drink'; that is, their seeing God was meat and drink to them."

Regarding death, the philosophical attitude of the Jew is beautifully expressed in the following narrative:

During a brief absence of Rabbi Meir from home two of his sons died. Their mother, concealing her profound anguish, awaited the return of the father. He soon arrived, and after the customary exchange of greetings and a fond embrace she said to him: "My husband, some time ago, two jewels of inestimable value were placed in my charge for safekeeping. He who left them with me called for them this day, and I delivered them into his hands." "That is right," said the Rabbi, in an approving manner, "and I am very happy that you acted accordingly. Furthermore, we must always return cheerfully and loyally those things that are left in our care for protection." Shortly following this exchange in words the rabbi asked for his boys, and the heartbroken mother, taking him by the hand, gently guided him to the chamber of death. Meir gazed upon his sons and, realizing the truth, wept bitterly. "Weep not, beloved husband," said his noble wife; "didst thou not say to me we must return gladly when 'tis called for, and all that has been placed in our care for safekeeping and protection? God gave us these jewels. He left them with us for a time, and we gloried in their possession, but now that He calls for His own we should not repine."

The few following paragraphs are taken from the Talmud, which is replete with wit and wisdom:

The question is asked, "Why is a man born with his hands clinched, but has his hands wide open in death?" And the answer is: "On entering the world man desires to grasp everything, but when leaving it he takes nothing away."

Even as a fox who saw a fine vineyard and lusted after the grapes within the confines of the fence surrounding the enclosure; but being too fat to crawl through the only opening there was he was compelled to fast for three days. Having attained the necessary slimness it was an easy matter to gain access to the grapes. After having fed to his heart's content he could not get out until he had fasted for three days more. "Naked man enters the world, and naked does he leave."

Death is the haven of life, and old age the ship which enters port.

Do not speak ill of the departed, but remember that his soul still lives, though the body is dead.

It is our duty to comply with the last wishes of a dying person.

The death of the holy is a calamity equal in magnitude to the burning of the temple.

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FURTHER CONTRIBUTIONS TO THE TREATMENT WITH DIGITALIS PREPARATIONS.

AN EXPERIMENTAL STUDY OF BLOOD PRESSURE AND TOXICITY.*

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Digitalis preparations for a long time were considered valuable remedies in the treatment of cardiovascular disease. While older colleagues are enthusiastic about its therapeutic effects, frequently we hear complaints from younger observers that this drug should be selected for special cases, and should not be used so frequently as was the custom in former years before we learned more about the occurrence of partial heart block and irregularities of the pulse rate due to an overdose of the remedy. If unexpected symptoms arise, is it the fault of the anatomical lesion, or is it the fault of the patient, or must the explanation be looked for in the particular nature of the remedy?

Without entering into the discussion of the first two questions, personal investigation has shown that the cardiovascular remedies are not constant in their physical properties; that they undergo changes as they become older, particularly as regards the ionisation studied by means of the fontactoscope.[1] It was found that notwithstanding a careful storage, excluding light and humidity, these changes take place. Furthermore, my investigations have revealed the possibility that, by exposing digitalis preparations to the action of high frequency waves, these drugs present a higher degree of ionization after such treatment. The question came up whether such drugs would gain in therapeutic efficiency by such a treatment.

To solve this problem the following experiments may be recorded.† It cannot be the aim of this pa-

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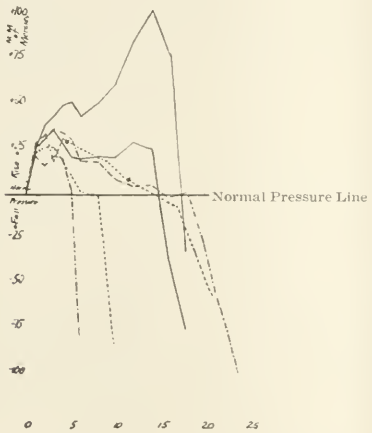
†At this opportunity I wish to express my thanks to Dr. Coulsson, biological chemist at the Laboratory of Messrs. Sharp & Dohme, as through their courtesy the present investigations were carried out under my supervision.

per to report all the experiments made, but a few of them reviewed may be sufficient for the demonstration of their therapeutic differences.

The animals upon which the digitalis powder—crude and activated—was tried were cats, which, while kept under ether anesthesia when tracheotomized, had one carotid artery ligated and connected with the manometer filled with Ringer's solution, and the fluctuation of the blood pressure were recorded on the kymographion. The normal blood pressure was ascertained first for a period of at least 5 minutes. Into the femoral vein the test solution of either digitalin or activated digitalin solution of a given strength was injected, and the resulting changes in the blood pressure curve were studied until the death of the animal or until blood clot formation stopped the experiment. The lethal dose of the drug was calculated per one kilogram of animal weight.

Before entering into the discussion of our results let us consider the pressure curve* obtained by us-



ing digitalin dissolved in normal saline solution, one mil corresponding to .001 gram of digitalin.

Control animal, cat, male, weight 3.5 kg. Experiment begun on March 24, 1917, at 9.58 a. m., with normal pressure 166 mm., primary waves, 3 cm. in length, .3 cm. high, composed of two ascending and two descending wavelets measuring .1 15 cm. in height. Blood pressure 4 minutes later 163 mm., 3 mm. less when 2 mils were injected into the femoral vein. As a result we find a primary fall of 1.7 cm. after the injection, the maximum being reached at 1.9 c.m., the difference in height being .2 cm., which decline then is succeeded by a steep and prolonged ascent, the primary waves measuring .4 cm. in length and .4 cm. in height, the amplitude of the secondary wavelets being .3 cm.

Blood pressure at the beginning of the 6th minute registered 197 mm. or 34 mm. above the normal figure, at which moment 2 more mils were introduced into the femoral vein. A rapid drop of 1.2 cm. followed, which occurred at an earlier moment than before, and the average height of the secondary wavelets becoming less—.25 cm.—an unsuccessful attempt is made for a rise in the blood pressure, the drop in the pressure becoming more manifest, while the secondary wavelets reach an amplitude of .3—.35 cm. When 2 more mils of the test solution were introduced, the pressure reading at 7 minutes gave a lower figure, 181 mm., or only 18 mm. above the average normal value. A moderate rise of .3 cm. is the result with secondary wavelets not higher that .2 cm., irregular with groups of 4 wavelets and a more pronounced drop in the pressure curve composed of very shallow wavelets not higher than .1 cm. Following this, a steep rise of the pressure is observed to a higher level—20 mm.—while the primary waves become less pronounced and irregular in succession with small superposed wavelets not exceeding .1 cm. This rise is of short duration, since at the beginning of the 8th minute the pressure registered was 195 mm., ar 32 mm. higher than the average.

Two more mils of the test fluid injected were followed by no further rise, but by a drop of 12 mm., which occurred at an *earlier* period than in former observations. A blood clot in the carotid vessel observed at that time, though removed, complicated the experiment, so a further discussion of the curve is not attempted. It will be of interest to note that 15 mils of the test solution were required to kill the animal weighing 3.5 kg., or per kg. weight of animal 4.28 mils or .00428 grams of untreated digitalin in the course of 22 minutes were needed to produce the same result.

Since in the preceding experiment the formation of a blood clot did not permit any further discussion of the experiment beyond 6 minutes after the injection was given, I report another control experiment.

Control cat, male, weight 3.13 kg., examined on March 24, 1917. Ether anesthesia employed, tracheotomy done. Solution used consisted of digitalin —Merck—in normal saline solution, 1 mil corresponding to .001 gram of the original substance. Experiment started at 11.42 a. m., medium pressure for the following 4 minutes, 139 mm. No primary waves noticeable, the height of the secondary wavelets averaging .3 cm. With the introduction of the first 2 mils of test solution into the femoral vein a rapid but temporary drop in the pressure results, rapidly followed by a rise and a greater amplitude of the secondary wavelets, the height of which is .4 cm. The pressure has risen to 162 mm. 5 minutes after the start of the experiment, equivalent to a gain of 23 mm. The same amount of fluid injected is succeeded by a drop first in the pressure curve, which is compensated rapidly by a rise, the primary waves being just suggested, the secondary wavelets maintaining an amplitude of .4 cm., and 2 minutes after the first injection the pressure registers at 166 or 27 mm. above the normal.

Shortly after the repeated injection of .2 mils, a small depression in the pressure curve is noticed with a following attempt to reparation, but not reaching the former level. The primary waves are more manifest, with an amplitude of .3 cm. of the secondary wavelets. At the beginning of the next

*The pressure tracings cannot be reproduced, but instead a description of the changes observed on the records will be given.

minute the pressure shows the same level and a further injection is succeeded by a drop in pressure and more accentuated primary waves and with secondary wavelets the height of which is not in excess of .1—.2 cm. Four minutes after the injections were given we notice a fall in the blood pressure, namely, 158 mm., only 19 mm. above the average reading. Two mils injected results in a further drop of the pressure curve, presenting short primary waves and hardly perceptible secondary wavelets not exceeding .1 cm. in amplitude. Five minutes after beginning of the injection experiment the pressure curve has reached its normal level, the curve demonstrating an irregular rhythm and a hardly perceptible amplitude of the secondary wavelets.

Without any immediate injection 6 minutes after the start the pressure is just .2 cm. above normal and 1 mil injected produces a further drop and an irregular pulse curve, and the primary waves are not higher than .3 cm. in height and of irregular duration. Eight minutes after the onset of the experiment the pressure shows no improvement, just as if no further action of the drug could be expected. One mil of the fluid injected gradually is succeeded by an irregular, very accentuated curve, in which arrhythmia and extrasystole are suggested. Within 10 minutes after the beginning of the experiment the pressure curve registered a very low level, 56 mm. or 83 mm. below normal. One mil of test solution introduced results in a very rapid decline and no more secondary wavelets being encountered the animal succumbs a few seconds later. Thirteen mils being the lethal dose for the animal weighing 3.13 kg., or per kg. of animal weight, or corresponding to .004153 gram of untreated digitalin, with a treatment hardly exceeding 10 minutes.

In the animals which were injected with a solution of digitalin—Merck—which was subjected to the passage of high frequency waves the following pulse curves were obtained:

Test animal, cat, weight 2.65 kg., male, test solution 1 mil, corresponding to 0.001 gram digitalin, subjected to the high frequency waves, in normal saline solution—animal kept under ether anesthesia and tracheotomized. Experiment started on March 28, 1917, at 11.03 a. m. Mercury pressure for 3 minutes 155 mm., primary waves measure .25—.3 cm. in height, and consist of small crescendo and decrescendo wavelets, with an elevation of about 1 cm. After injection of the first 2 mils of digitalin solution into the femoral vein an immediate rise of .7 cm. is noticed, followed by a deeper depression and a steady ascent of the curve, with more pronounced primary waves and a longer amplitude of the secondary wavelets, measuring .2 cm. Three minutes after the beginning of the experiment the pressure is found at 182 mm. or 27 mm. higher. With an injection of 2 more mils the short rise is succeeded by a greater descent of the curve, which rises to a higher level, registering 186 mm., or 31 mm. more than at beginning of experiment. After another introduction of 2 mils a slightly more pronounced drop in the curve is noticeable, which then ascends to a higher level, while the primary and secondary wavelets show a higher amplitude. Three minutes after the injection the pressure has reached 191 mm., or 36 mm. above the normal readings.

The next dose of 2 mils injected coincides with a rise and a more accentuated drop of the pressure curve, succeeded by a lessened ascent, less marked primary waves and secondary wavelets of higher amplitude, measuring from .35—.4 cm., alternating with lower ones, which gradually lead to a lower pressure of 183 mm., or 28 mm. above normal at the beginning of the fourth minute. The fifth dose of 2 mils solution injected presents, after a small initial rise, a steady depression, an incomplete attempt to restoration and a smaller amplitude of the secondary wavelets measuring .2 cm. Five minutes after the first injection, the pressure curve registering 176 mm., or 21 mm. above normal, without any further injection, the primary waves became irregular and the secondary wavelets were further reduced to .1—.2 cm.

With six minutes' observation the pressure was at 175 mm., 20 mm. above the normal. One mil digitalin solution being injected the depression in the curve becomes more noticeable, also the primary waves are less marked, longer in duration, and very small secondary wavelets are encountered and only a slight increase of the pressure—22 mm. above normal—is noticed with 8 minutes' test. One mil injected results in a drop of the pressure curve, which slowly is compensated, the primary waves are less pronounced and the secondary wavelets again are very small. Ten minute pressure reading shows no difference in the former reading, and 1 mil more injected into the femoral vein results in a depression of similar depth as noticed before, with flattened primary waves, quite irregular in their registration.

Though with 12 minutes we notice a pressure of 185 mm., or 30 mm. in excess of the normal, the further dose of 1 mil coincides with a more accentuated drop of the primary waves and a decided irregularity in the height and succession of the same, with secondary wavelets barely noticeable. With 14 minutes the pressure reads 181 mm., or 26 mm. in excess of the normal figures. One mil of solution being injected the following drop of the curve is not restored to the former level, the irregularity of the primary waves, as to their height and succession, is still more noticeable. Sixteen minutes after the first injection the pressure has fallen to 120 mm., or found 35 mm. below the normal. The next dose of 1 mil, with a very irregular tracing, reveals only primary waves and 18 minutes' reading shows a pressure of only 80 mm., or 75 mm. below normal, when the last dose of 1 mil given results in the death of the animal 15 seconds afterwards. The lethal dose of the test animal found as 16 mils or 16 mg. of digitalin previously treated with high frequency current for 1 kg. of the weight of the cat would correspond to 0.00603 gram of the treated drug, acting over a period of 18 minutes.

Before entering upon the results of this experiment another instance may be given of a female cat weighing 2.24 kg. treated on March 28 in an identical way. Experiment begun on the etherized and tracheotomized animal at 2.57 p. m. Normal pressure for the first 3 minutes 87 mm., the height of the primary waves being .6 cm., the height of the secondary wavelets measured .2 cm. The first dose of 2 mils of the activated digitalin solution corresponding to 0.001 gram of digitalin in normal

saline solution, injected into the femoral vein caused a primary fall in the pressure curve, but was quickly followed by a rise to 113 mm. pressure or 26 mm. above the normal average in the first minute. The repetition of the same dose showed less marked primary waves, but a greater amplitude of the secondary wavelets, amounting to .4 cm. amplitude, the pressure curve at the end of the second minute having reached 125 mm. or 38 mm. above normal. The following pressure readings are obtained after 2 mils were injected up to the fourth minute. Third minute 131 mm., or 44 mm. above normal, and fourth minute 137 mm. or 50 mm. above normal. The primary waves are hardly noticed, the secondary wavelets become very marked by their amplitude of 5 mm. Five minutes after the first injection the pressure is found at 139 mm. or 52 mm. above normal.

The first indication of irregular waves is noticed, and the next injection of 1 mil is given within 6 minutes after the pressure had dropped to 44 mm. above the normal line. Irregularity of the primary waves and the small amplitude of the secondary wavelets was noticed, but still the ascent of the pressure curve to 138 mm. or 51 mm. above normal is conspicuous 8 minutes after the treatment was started.

The pressure readings are taken every 2 minutes and at the end of these notations 1 more mil of the test solution was injected. The varying length and the irregularity of the waves in their succession will be noticed, the secondary wavelets becoming smaller and hardly noticeable. The pressure readings at 10 minutes are recorded at 149 mm. or 62 mm. above normal; at 12 minutes, 173 mm. or 86 mm. in excess, the maximum being reached within 14 minutes, 191 mm. or 104 mm. above the normal level. The irregularity in rhythm and the tendency to drop occurring at that moment leads to a decided drop in the 16th minute, namely to 161 mm., being still 74 mm. in excess of the normal, and in the 17th minute with a pressure of only 55 mm., or 32 mm. less than normal the animal expires.

The lethal dose for this animal was found to be 16 mils of the solution, corresponding to .016 gram of activated digitalin, or calculated per kilogram of animal weight 0.00714 gram of digitalin acting for 17 minutes.

A comparison of the results with untreated and activated digitalin powder as recorded above may show the following possibilities, although we must bear in mind the individual differences in the animals used for comparison.

In taking control animal 1 the maximum pressure was reached in 6 minutes ofter the observation was begun or 2 minutes after the first injection, amounting to 197 mm. or 34 mm. above normal with only a slight difference in pressure after 4 minutes and after 8 mils of test fluid had been given.

Control animal 2 has reached its maximum pressure of 166 mm. or 27 mm. above the normal level in 2 minutes when 4 mils of the test solution had been administered and remained unchanged after the following dose.

For animal 3 receiving the activated digitalin product the maximum pressure was reached, namely 191 mm. or 36 mm. in excess of the normal 3 minutes after the first injection, and after the incorporation of 6 mils of test fluid, which result compares favorably with animal 2.

Test animal 4 has reached its maximum pressure 14 minutes after the first injection was given, showing an excess pressure of 104 mm., exceeding all previous observations. It will be noticed that already, in the second minute after the first injection with 4 mils test fluid was given, the rise in pressure is more marked than compared with the control animals.

From a perusal of the tracings we may learn that in the control animals the amplitude of the secondary wavelets diminishes more rapidly in height and occurs at an earlier moment than in the tracings referring to the instances when activated digitalin was given. Coincident with this fact we have observed an irregularity in the primary and secondary waves.

With reference to the toxicity of the genuine and activated digitalin products, it will be of interest to call attention to the difference revealed by the foregoing experiments.

Control animal No. 1 was killed in 22 minutes by a dose of 0.00428 gram; No. 2, in 10 minutes by 0.004153 gram; No. 3, in 18 minutes by 0.00603 gram, and No. 4 in 17 minutes by 0.00714 gram of activated digitalin powder, and such differences would suggest that the crude product is more toxic than the activated powder.

In the accompanying chart, containing also experiments with a solution of digitalin in the usual strength and then exposed to the high frequency waves, these differences in the physiological action are recapitulated. The full line indicating the activated powder shows, in comparison to the crude digitalin powder, that a higher blood pressure is to be expected which remains a longer period above the normal level at a time when the crude digitalin already presents its detrimental effects.

In presenting this study of digitalis remedies to the public, I am aware that more work has to be done to determine the physical and chemical changes which take place in these complex compounds, but as a preliminary communication, the subject appears to me of great interest.

Clinically speaking a few observations would suggest that cases of myocardial degeneration can be favorably influenced by subjecting cardiovascular remedies to the influence of the Herzian waves,[2] or by giving such cases a combination treatment of pharmaceutical remedies in addition to electric wave applications. From the chemical standpoint the proposition of changing the qualities of an organic substance by the exposure to electric waves is of interest, since my experiments have taught me that organic compounds are more susceptible to the action of wave energy, a conception which has been gained by experiments with ultraviolet light acting upon benzoic acid and iron compounds changing the first into salicylic acid (Neuberg).[3]

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PRICE HILL.

VACCINE DOSAGE IN THE ELIMINATION OF THE SYSTEMIC EFFECTS OF MOUTH INFECTION.*

By JOSEPH HEAD, M.D., D.D.S.,
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VACCINE dosage is a problem that is being solved by accredited clinicians in a manner that theoretically might seem to altogether discredit vaccine therapy as a science. Initial doses of 500 million are given on the one hand, while other practitioners find that doses of one one-thousandth or even one ten-thousandth of these quantities gives satisfactory therapeutic results.

One cannot help feeling that the state of knowledge concerning the routine administration of vaccines is about the same as that held formerly in the routine administration of calomel or quinine, when these were first discovered and administered as drugs. Ten to fifteen grain doses of calomel were given, frequently with good therapeutic results, and then again salivation sometimes occurred under such dosage with permanent injury. In the same way quinine was frequently administered in fifty or sixty grain doses. When the patient was not sensitive to quinine unqualified good results were obtained, but when there was an idiosyncrasy disastrous if not fatal effects were encountered.

Some seven years ago when I began the treatment of my patients with vaccines I also used large doses. I gave myself experimentally forty-two weekly doses of vaccine, thirty-two of which each contained 1100 million mixed germs. The results were excellent. But during the first four or five years of my experience in this treatment I encountered very occasionally reactions in my patients so serious that at times I wondered whether the anxiety and worry occasioned made the treatment worth while. However, such satisfactory cures were obtained in 90 per cent. of the cases without any bad symptoms at all developing that there was more than sufficient encouragement to continue the treatment. Nevertheless, the result of my experience steadily impelled me to use smaller doses, so that instead of starting with a minimum dose of twelve to twenty-five million germs, or even fifty million, if the vaccine consists of four or five different species, I now start with doses of thirty thousand, and in some very exceptional cases this dose has to be reduced instead of increased. I believe that in a certain percentage of cases it will prove harmful to give a first dose of five to ten million germs until the tolerance of the patient is carefully ascertained. I do not desire to have an intense reaction as shown by depression, fever, acute or local inflammation, or marked variations in the blood pressure. I wish just to avoid these symptoms, and by so doing obtain better therapeutic results.

I am well aware of the incredulity that will be aroused by this statement since it is largely, if not entirely, based on clinical experience, but a little consideration may well show that it is not so preposterous as it may first appear. Webb has found that one or two tubercle bacilli when injected hypodermically are capable of giving excellent clinical results, and Myer Solis-Cohen, *Archives of Pediatrics, January*, 1918, has shown that one ten-millionth of a milligram of tuberculin residue may be an effective dose. If this is so, why then should the tubercle bacillus be absolutely in a class apart from all of the other organisms that infect the body? I have been growing cultures anærobically from material taken from the tips of extracted teeth. Formerly ærobic cultures alone were used but by the anærobic cultivation we appear to have discovered a new Gram-negative coccobacillus that is associated with the absorption of root tips, which germ seems to have extreme virulence and toxicity. And, as just stated, this new germ may partly but not entirely account for the reactions that occasioned the reduction in dosage.

It is claimed by many observers that certain people cannot advantageously take vaccine. This statement, when applied to autogenous vaccines, seems illogical, for, as a matter of fact, the patient by the mere presence of the disease has already taken the germs in a living state. I believe that any patient suffering from a localized infection can safely and usually beneficially take an autogenous vaccine prepared from the localized infection, if a judicious dosage is employed. And so again we come back to the question of dosage. The determination of the size of the dose depends primarily on the interpretation of what constitutes a preliminary reaction, and this interpretation is dependent upon a nice discrimination.

Seven or eight years ago the general procedure was to start treating a so-called normal patient with 12 to 25 million germs. If the patient showed depression or fever that did not last twelve hours the dose was doubled, and after a while it was again doubled, and doubled again, until incredibly large doses were given, the patient each time getting a terrific therapeutic bump. If the patient didn't get a bump the dose was increased, and if he did get a bump the dose was also increased, because it was noted by many authors and clinicians that those patients who had the worst reactions made the best recoveries. And so the rather loose philosophy of vaccine dosage seemed to be, "Give the patient small doses at first and increase them so as not to have too great a reaction, but if the patient does have too great reaction he will have a better recovery." Either way it's all right, and, strange to say, this vague unphilosophical theory of dosage seems ordinarily to have worked out very well.

The large doses administered gave good results and still do give good results in a great majority of cases but in a small though important percentage of cases they still do harm, and as the unfortunate results always make a greater impression than the good results it was not surprising that many physicians gave up the use of vaccines altogether. Many thousands of physicians were getting such good results, however, that the despairing cries from some esteemed leaders were not sufficiently conclusive to make them discard vaccines. Many of us felt too sure of the value of the treatment to be stampeded by crudities that must of necessity be remedied in the near future.

In my opinion there must be more investigation into the effect of small doses of vaccine. I still give my patients doses of one hundred and fifty million to three hundred million germs, but I in-

*Read before the American Association of Immunologists, March 30, 1918.

variably start with a small dose. I believe the average patient with his various latent infections is very much in the position of a many chambered magazine containing powder that must be touched off without blowing out the sides of the building. If each room of the magazine has small quantities of powder in it and the powder is slightly damp or slow burning the task is comparatively simple and one room at a time can be safely fired by a judicious explosive charge, but if there are an infinite number of compartments each full of explosive, and instead of slow-burning powder we have dynamite the difficulty is greatly increased and a much greater caution in the size of the explosive charge should be used.

I propose to recite briefly a few cases that have reacted in an astonishing way to small vaccine doses. There are many other cases that I could quote that unmistakably responded clinically to small doses but a mere piling up of cases would be tedious and unconvincing.

The first case was a man, aged 40, who had gouty deposits in the ears, crepitus and pains in the knee-joints, associated with sharp pains along the tendons of the thighs and legs whenever he walked—a typical case of systemic infection from diseased teeth and gums. The infected teeth were extracted and an autogenous vaccine was made. The first dose of 150 thousand germs made him uncomfortable, the second dose, a week later, of 210 thousand germs sent him to bed with inflammatory fever, painful joints, and swollen ears. After two weeks when the symptoms subsided a dose of 30 thousand germs was given that made his ears swell a little, but the dose was well borne. For four weekly intervals he was given 30 thousand germs, with marked improvement. Then he was given 60 thousand germs and promptly went to bed again, this time for only two days. Then 30 thousand germs were given at weekly intervals for six times and he made a most satisfactory recovery.

There are numerous cases where the patient showed marked improvement and also marked systemic reaction to weekly doses of 6 to 15 thousand germs, but I shall only mention one—that of a married woman, aged 36, of the systemic inflammatory type. Teeth sensitive to heat and cold, resisting all treatment. When she came for treatment she had just weaned her baby. The first dose of thirty thousand germs caused her breasts to become painful and to swell. There was also a vaginal discharge and she was depressed and ached all over. A week later she was given fifteen thousand germs with similar reactions but less marked, and these symptoms recurred seven times at weekly intervals, although the dose was reduced to nine thousand germs. The breast and vaginal reactions are particularly interesting as they could not have been the result of neurasthenia or hysteria. Meantime she showed marked improvement and the teeth were successfully treated and filled in a manner theretofore quite impossible.

The last case I shall mention is that of a woman, age, 62, who could not bear thirty thousand germs without a severe reaction but could stand fifteen thousand germs. Finally I tried sixty thousand germs as a test, and she had great depression and lymphatic enlargement especially in the groins. For two days she was so weak that she required cardiac stimulants.

In closing this paper it might be well to state my present method of ascertaining the proper vaccine dose. Thirty thousand germs are given at the start and raised by weekly doses so long as the patient bears the dose well, even if the dose goes up to a billion. However, when the patient is showing satisfactory improvement under a dose, that dose is maintained. If thirty thousand germs are not accepted easily the dose should be reduced to a number that are easily accepted. It is also especially important that the patient should be carefully watched for reactions.

When grip and colds are prevalent the patient who is given a dose that cannot readily be borne is apt to get sore throat or grip. Such an attack must be regarded not as an unimportant, accidental symptom, it should always be regarded as a possible reaction calling for dose reduction, and if the cold or grip should recur regularly with the vaccine administration, its recurrence should be considered conclusive evidence that the sore throat, cold or grip is a real reaction, calling for a corresponding modification in dosage.

It has been my experience that reactions occur in widely different forms and require most careful analysis on the part of the physician if the best results for the patient are to be obtained. It has also been my experience that large doses given at the start seem to mask a fine gradation of symptoms by which a just analysis of the patient's needs may be ascertained. Large doses may be accepted by the body because it is roused to combat a pathological assault, and being aroused, it protects itself and at the same time finds its energies exhausted, while the exactly ascertained dose that will just stop short of a reaction, philosophically may give the best therapeutic effect.

My vaccines are standardized by Wright's method controlled by turbidity tests.

Fifteenth and Locust Streets.

Goats in War Time.—Goats have decided advantage over other animals because they can shift for themselves. Even rabbits have to be provisioned. The goat costs practically nothing to keep and the return in meat, milk, etc., is highly advantageous.—*La Presse Médicale.*

Action of Sugar on the Bronchial Secretions.—Sanmartino having published the fact that injection of 1 gram of saccharose increases the amount of milk in the nursing woman, Lo Monaco adds that in a sufferer from bronchial catarrh the same injection causes a rapid diminution in the secretions and eventually arrests them completely. In tuberculous and bronchiectasis cavities the result is less pronounced. Lo Monaco sees here a great advantage over the use of expectorants, which are bound to cause anorexia and digestive disorders. The patient also gains the caloric value of the injected sugar. Injections into the muscles are recommended, although these are somewhat painful. The action of the sugar is simple—that of a vaso-constrictor. The author believes that in the earlier stages of tuberculosis sugar may exert a marked prophylactic action not only for the patient but for his entourage as well.—*Rivista Critica di Clinica Medica.*

Military Medicine.

Epidemic Cerebrospinal Meningitis.—Surgeon A. G. L. Reade, R.N.V.R., writing in the *Journal of the Royal Sanitary Institute*, February, 1918, says that previous to 1914 experience of cerebrospinal fever in Great Britain was mostly limited to sporadic cases and a few epidemics, the largest epidemic being in Glasgow in 1908. The unhygienic conditions, however, brought about by the mobilization and concentration of men in large naval military depots and camps favored an outbreak of the disease in epidemic form. Reade deals with an outbreak at the naval barracks at Chatham, England, and suggests the following methods of prevention: (1) Increased sleeping accommodation is a matter of the first importance. It was found that under the stress of mobilization the cubic air per man had been greatly reduced, sometimes to 320 cubic feet. The men were therefore thinned out by sleeping them in tents, drill shed, gymnasium, bowling alley, and gunnery school until more permanent tents were put up. These provided for the men to have, at least, 500 cubic feet per man, and since 1914 this has never been reduced and is the minimum that should be allowed. The ventilation was improved and supervised by frequent visits of a medical officer and a patrol of sick berth attendants during the night. (2) Disinfection. The room in which a case occurred was shut up, if possible, for two days. On the first day the windows, ventilators, fireplaces, etc., were closed up and formaldehyde vapor generated for twelve hours. The room was then washed down with izal solution and left to air for twenty-four hours. Meanwhile the bags and hammocks were disinfected. (3) Isolation of contacts. All immediate contacts were sent to hospital for bacteriological examination and in addition all men in the room were examined. (4) Frequent examination of men to detect carriers. With a large number of men it is impossible to examine them all, but it is hoped that in a short time all men will have their naso-pharynx examined before they are sent on draft. (5) Special care of delicate new entries. All new entries, boy seamen, boy servants, and stokers, are examined daily and any looking ill or anemic, or suffering from catarrh, are isolated in a special mess, are relieved from all duties, and generally cared for until their health improves.

In the discussion that followed the reading of Surgeon Reade's paper Dr. Alfred Greenwood said that greater stress should be laid upon bad ventilation in favoring infection, than upon cubic space *per se*. He had met with many instances where it was clear that bad ventilation of huts, caused through the deliberate blocking of ventilation openings by the soldiers, had been an important predisposing cause in the spread of cerebrospinal meningitis. Among scores of carrier cases, proved positive by bacteriological tests, he had never found one to develop the disease subsequently. Referring to preventive measures he said that as the germ of the disease appeared to be easily killed it seemed unnecessary to adopt elaborate, expensive methods of disinfection when a case had occurred, and a thorough wet cleaning of the room, with boiling of sheets, etc., would appear to meet the circumstances satisfactorily.

The Grave Form of Trench Foot.—In the *Medical Press*, April 8, 1918, Dr. E. Chanvin of the French Army discusses the grave form of trench foot. With regard to treatment he summarizes as follows: Finally tetanus forms one of the classic complications of frost gangrene. It developed in one of his cases, in spite of two preventive injections of serum. In presence of the array of serious complications, actual or prospective, therapeutic practice requires to be very energetic. The use of cardiac tonics, camphorated oil, caffeine, sparteine, general tonics, alcohol, quinine extract, general antiseptics, local applications, antimycosic treatment, or use of hot air, all these are but methods of expectancy. The neuritic structures must be got rid of sooner or later. Is it well to wait for spontaneous separation, and then have recourse to an economic trimming of the wound, or is it better to amputate early and save the patient from the grave risks which always attend the most skilled expectant treatment?

The ideal procedure would certainly be to await the separation of the eschar, while drying it up by application of hot air, and then embalming the part in pomades or antiseptic powders. After the separation to clean the stumps and asepticise it with appropriate dressings, and when we are at last in presence of a bone projecting from healthy soft tissues in a state of healthy granulation, to extirpate the projecting bone, and suture the edges of the wound. This is surely the method which enables us to preserve the maximum length of the affected limb, and it appears to us to be applicable in two groups of cases: (1) In those of congelation which are accompanied with grave general phenomena, but in which the sphacelus does not extend beyond the metatarsus. Here the tarsal articulations are intact. At the utmost, the tendons may infect their sheaths. There will be no deeply placed articular infection, and the maximum conservation of tissues can be secured, leaving the wound to be properly trimmed afterwards. (2) For the same reasons, this procedure should be adopted in the "massive" lesions which involve the whole foot and necessitate a tibio astragaloid separation. The narrow sectional plane above the ankle joint presents little liability to infection.

But in the intermediary types, where a groove of elimination has begun to form, a distant chopart or subastragaloid amputation should be promptly carried out; for temporization is, as previously said: (1) Dangerous. The separation of the gangrened extremity by no means marks the termination of the infective phenomena, and a grave septicemia may carry off the patient. Any or all of the complications already indicated are liable to appear. (2) Useless; the sole argument for its adoption being the prospect of securing a longer limb. But a secondary amputation, which is the form most frequently demanded in a highly infected case, must be carried out at a very high level on account of the propagation of purulent foci. On the other hand, on account of the progress of prothesis amputations of the leg are now preferred by a large school of surgeons to any of

the various disarticulations. Finally, early amputation, on the fourth or fifth day, as soon as the spachelus has become clearly defined, is as economic as the most obstinate and fortunate temporization; for it enables us to exterminate the dead tissues completely before the appearance of any secondary phenomena. Personally, Chauvain says, in their practice they have adopted early amputation in their later cases, after the disappointing experience of their first tentatives in conservatism. They have performed amputations of the leg, according to the extent and disposition of the lesions, either with an internal flap or, more frequently, a posterior one, reaching to a variable distance above the heel. A circular amputation, with reunion of the edges is often made necessary by the gravity of the local infection and enables the avoidance of operation at too high a level.

Bouchon's First Dressing.—Bouchon of the French medical corps contributes a brief article on his method of wound treatment to the *Journal de Médecine et de chirurgie pratiques* for March 25. He devised the technique two years before the war and described it at the London International Congress in 1913. It is adapted to recent wounds and amputation stumps and is practised only at the front. The wounded are then transported to a base hospital and on the fourth day, when the dressing is removed, the wound should be found clean and the patient without fever. The wounded man may be dressed in the trench, on the stretcher, or in the subterranean dressing station. In these advanced localities there is no opportunity for asepsis. The substance used for antisepsis and hemostasis is a solution of formol in alcohol and ether. One liter of equal parts of the two solvents contains 30 c.c. of 40 per cent. commercial formol and 3 gm. of methylene blue. Applied directly to the raw surface this solution is a powerful hemostatic and antiseptic. The dark clot which forms is not molested and behaves somewhat like an application of collodion. A compress soaked in the same solution is now applied and adheres intimately to the subjacent tissues; it is allowed to remain from three to six days. The method seems to be intended especially for amputation stumps in which suturing is not practised.

Antidysentery Inoculation.—Prophylactic inoculation against bacillary dysentery has, at last, promised to become a practical proposition. The organisms responsible for the disease known by this name are several and the difficulty has been to confer immunity against all these. The two main bacilli, those of Shiga and Flexner, have, however, furnished a vaccine, which in the hands of Captain H. G. Gibson, has given promising results. Neutralization of the toxins by means of eusol was unsatisfactory, it being found that such vaccine became toxic on keeping, due to the breaking down of the bacilli. Sensitized vaccines did not prove very satisfactory, as they failed to stimulate sufficiently the elaboration of protective substances. Gibson, thinking that the defect was due to antibacterial substances of the serum employed, which rendered the bacteria inert as antigens, absorbed these substances from the serum and administered the vaccine with this absorbed serum. Such vaccines produce little or no reaction and have been proved to develop protective substances in the blood. Trials are now being made in the field and it is hoped that these will be successful.—*The Prescriber*, April, 1918.

Canadian Hospital Bombed.—A despatch from London reports that on the night of June 24 the Germans bombed a Canadian Hospital and killed doctors, nurses, and patients. The Canadians have occupied the hospital for more than eighteen months. The roofs were painted with great red crosses and the buildings have never been used for military purposes. One operating staff, including the nurses, was buried under a mass of debris and in a few minutes the whole operating section was in flames. Bursting tubes of ether and hydrogen added to the horror of the scene. Two other surgical teams narrowly escaped, having just left a few minutes before to go to their midnight supper.

Big United States Hospital in England.—Work has been begun on what will be the largest military hospital in Great Britain. It is located near Southampton and will accommodate 3,000. The site is a country estate of 200 acres which the Red Cross has purchased. It plans to erect nearly ten acres of buildings. The contract provides for the opening of 400 beds within six weeks.

Fox Hills Hospital Ready.—The United States Base Hospital at Fox Hills, Staten Island, was completed on June 26. Eighty-six buildings have been constructed in 100 days. There are three large wards in the large buildings which contain 1,000 beds each. The transports will land their patients at Quarantine and they will then be taken to the hospital by motor ambulances. In connection with the hospital the Red Cross has built a theatre that will seat 7,200 persons. It is planned to have entertainment for the wounded soldiers and sailors every afternoon and evening. The Government has acquired fifteen acres of land adjoining the present site so that the capacity of the hospital can be doubled at any time.

Army Has Enough Dentists.—The War Department has authorized the statement that the dental requirements of an army of more than 5,000,000 men can now be met by the present force of the Dental Corps of the American Army. Examinations for dental officers have been closed and no more will be needed for at least six months. At the time that the United States declared that a state of war existed between this country and Germany, the total number of dental officers was 58. The present force now numbers 5,810. Commissions were offered to 5,467 dentists in all parts of the country and 95.1 per cent. were accepted, which speaks well for the patriotism of the dental profession. The Preparedness League of American Dentists which a year ago had a membership of 5,000 to-day has 15,000 members. This organization has been largely responsible for three dental ambulances that have been presented to the Surgeon General of the Army.

Army School of Nursing Endorsed by General Medical Board.—The committee on nursing of the General Medical Board has given its hearty sup-

port to the project of the Army School of Nursing and the facilities at the command of the committee will be used in a recruiting campaign to secure suitable candidates for the school. The plan of the Army School of Nursing will be based on the methods that have been found to insure the best care of the sick in civil life. The standard will be that of high class nursing schools, such as Johns Hopkins, the Peter Bent Brigham, the Lakeside of Cleveland, the Presbyterian, St. Luke's, etc. The plan provides that the headquarters of the school will be in the Surgeon General's office and the course of training will be given in the various base hospitals assigned as training camps, each one of which is to be a complete unit. The plan provides that the course leading to a diploma is to extend over three years. The experience in the military hospitals is to provide surgical nursing, including orthopedic, eye, ear, nose, and throat, and medical nursing. Experience in children's diseases, gynecology, obstetrics, and public health nursing is provided through affiliations with civil hospitals and visiting nursing organizations. It is expected that schools will be opened early in July at Camp Devens and Camp Wadsworth.

President Wilson Signs Rehabilitation Bill.—The bill providing for the vocational rehabilitation and return to civil employment of disabled soldiers and sailors has been signed by President Wilson.

Homes Offered as First Aid Hospitals.—At a committee meeting of the emergency unit of Harlem, New York City, on June 25, it was learned that H. C. Frick, George J. Gould, and S. Lewisohn have offered their homes to the Police Department as first aid hospitals in the event of an air raid or other emergency. The emergency unit is composed of physicians who are training to be prepared to give aid in case of emergency and are instructing those desiring to take lessons in first aid treatment.

Praise for Poets' Ambulance.—Arnaldo Fraccoroli, correspondent of the *Corriere della Sera* of Milan, writing from the Piave battle front, says that one of the most admirable episodes he has witnessed was the work of the ambulances inscribed "The gift of American poets." He says, "The courage of these young Americans doing their duty among the intense shell fire, this is indeed authentic living poetry."

Dr. J. Breckinridge Bayne of Washington, who was believed to be dead, is in a German prison camp. Dr. Bayne was serving with the British Red Cross in Roumania and when the Germans invaded that country and the rest of the hospital staff fled he remained behind to attend to the wounded and was taken prisoner by the Germans.

Americans in Fine Physical Condition.—At the weekly War Department Conference on May 25 members of the House Military Committee were told that the soldiers of the American Expeditionary Forces were freer from disease than the other armies and the troops training at home.

Dr. George F. Nicolai, formerly professor of pathology at the Berlin University and the author of a book denouncing Prussian Militarism for which he was punished by imprisonment, escaped from Germany in an airplane and landed safely in Denmark on June 24.

Mount Sinai Unit at the French Front.—The Mount Sinai Hospital Unit, designated as United States Base Hospital No. 3, has been established in a monastery near the front. On its staff are 26 officers, 65 nurses, 150 enlisted men, and several untrained women. The hospital has accommodation for about 1,500 patients. The surgical supplies are provided by Mount Sinai Hospital and the American Red Cross. The chief officers of the hospital are: Major Michael A. Dailey, commanding; Major George Baehr, Major Howard Lilienthal, Major Herbert L. Celler, Major Edwin Beer, and Major Walter M. Brickner.

Park and Tilford Donate Paris Offices.—The arrival of increased numbers of troops in France has created a need for greater hospital facilities. To assist in meeting this need Park & Tilford have donated their Paris offices to be used as war hospitals and for other war purposes.

Catholic War Council Builds Hospital.—Plans have been completed for the construction of a $300,000 hospital in Manhattan for soldiers and sailors by the National Catholic War Council. The site has been selected and arrangements made for the remodeling of one building and the erection of another. The hospital will have 500 beds, and immediately upon completion will be turned over to the Government to be used in whatever way the War Department deems best.

Give Home for Navy Hospital.—Commodore and Mrs. Morton F. Plant of Eastern Point, Conn., have given their large country home, the Watson House, to be used as a hospital for convalescent soldiers and sailors. The use of the residence is accompanied by a gift of $10,000 for its equipment.

Camp Upton Base Hospital Issues Publication.—The enlisted personnel of the Medical Department of Camp Upton are editing and publishing a four-page news issue under the title of "The Cure." It is "published in the interests of the base hospital rather often" with the "largest high grade hospital circulation in Camp Upton."

Osteopaths Not Admitted to the Medical Service.—At a meeting of the American Osteopathic Association in Boston, on Monday of this week, the president made a vigorous protest against the report made by the Surgeon General's Office to the Military Affairs Committee of Congress adverse to the acceptance of drugless healers in the Medical Corps of the army. He quoted from this report as follows: "The admission of osteopath physicians as such, and without the degree doctor of medicine, to the Medical Corps would have practically unanimous opposition of the medical profession of this country and of all allied countries; would be regarded, and justly so, as lowering the standards, educational and professional, of our Medical Corps, and would have a discouraging and detrimental effect upon efforts to secure physicians for the corps, both now and in future, and upon the general morale of the corps." It certainly is difficult to imagine how an osteopathic practitioner, who is forbidden by the license law to give drugs, could treat the wounded at the front or those ill with trench fever, or the like.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, July 6, 1918.

THE PATHOLOGY OF THE CARDIAC LIVER IN PULMONARY TUBERCULOSIS.

IF there is a well-established fact in relation to the tuberculous heart, it is certainly cardiac atrophy going hand in hand with the general emaciation. Whatever theories may be brought forward to explain the small size of the heart in phthisical subjects, it is, nevertheless, an established fact that the cardiac atrophy involves the entire muscle, and it may very well be that this general emaciation of the heart is the reason why the most trifling causes, acting on the weakened myocardium, result in dilatation of the organ. In cases in which the right heart gives way under pressure from the obstacle, the right ventricle is flattened and somewhat softened, and although the tricuspid valve is not involved in its integrity the auriculoventricular orifice is frequently dilated and insufficient.

Hypertrophy of the heart is met with in fibrous phthisis, particularly mitral stenosis, in chronic tuberculous interstitial nephritis, and when there is emphysema or pleural adhesion resulting in an increase of the heart work from respiratory difficulty. Under the term suprarenal asystolia Josué and Belloir have described a syndrome characterized by a considerable hypertrophy of the heart and a permanent drop in the maximum and minimum blood pressure. In these circumstances the liver was found to be of the nutmeg type and the suprarenal glands small, and markedly sclerosed, with tubercles in the apices, either cicatrized or undergoing evolution. It may be supposed that the suprarenal gland, after having undergone an exaggerated secretory function necessitated by the cardiac hypertrophy, finally gives out functionally, and there is likewise the possibility of direct action of the tuberculous process.

A number of writers admit the possibility of sclerosis of the myocardium during fibrous phthisis, due to the action of the tuberculous toxin, while fatty overcharge is quite as common. No matter what factor is in play, when hypertrophy follows dilatation of the right ventricle this is merely a transitory phase in the process, and when compensation does not take place dilatation of the right auricle and tricuspid insufficiency ensue. In other words, cardiac hypertrophy is the defense of the heart against obstacles; secondary dilatation indicates the impotency of the organ. This impotency reaches its maximum in tuberculous cardiac symphysis. Not only does the heart not increase in size, but it may even undergo atrophy. This process may occur without cardiac symphysis.

The explanations which have been offered for the small size of the heart in cardiac symphysis, in opposition to the production of pancarditis in rheumatismal symphysis, is the rarity of the coincidence of tuberculous endocarditis with symphysis, the slow evolution, the absence of myocarditic reaction, and the torpid inflammatory reactions in the surrounding structures. However, fibrocaseous or caseous nodules may be detected in the midst of the fibrous tissue; likewise gray granulations in the external leaf of the pericardium.

The external surface of the pericardium may adhere to the sternum and neighboring ribs, while adhesions may form between the mediastinal pleura and pericardium. The mediastinum may be transformed into a fibrous shell, in which case caseous lymph nodes will be found in the region of the hilum which have unquestionably played a part in the production of the surrounding fibrous tissue. On the other hand, the distribution of the neighboring fibrous tissue, that of the pericardial adhesions, is very variable, and for this very reason it is quite evident that one cannot give to cardiac symphysis a settled nosological value.

A cardiac liver in pulmonary tuberculosis has been merely mentioned as a possibility in fibrous phthisis. Nutmeg liver has been found in perhaps 1 per cent. of the cases. But the very special interest of a cardiac liver in tuberculosis is that it is accompanied by either fatty degeneration or cirrhosis. When the steatosis is slight it isolates the islands of localized blood stasis around the suprahepatic veins.

At the autopsy of tuberculous subjects no macroscopic hepatic lesion may be found, but in other cases, and these are the more frequent, the general aspect is that of a fatty liver. Occasionally, the viscus assumes a congested aspect, or one may find red islands of suprahepatic stasis, as in the nutmeg liver, which are here very distinct against the pale and yellowish background offered by a state of steatosis of the parenchyma.

But there are instances where the hypertrophy and congestion were marked, and on section of the hepatic gland the blood flowed out as in a typical cardiac liver where the fatty degeneration was so discrete that it was found only microscopically. This mixed condition of degeneration and congestion may be met with even in cases of tuberculous cardiac symphysis. But sclerosis may also be met with in these circumstances, and then it becomes the cardiotuberculous cirrhosis of Hutinel. The liver is hypertrophied and hard; it offers the nutmeg aspect, and upon section fibrous trabeculæ, sometimes visible to the naked eye, and decolorized areas corresponding to the steatosis, may be seen.

Histologically, islands of sclerosis around the suprahepatic veins and portal spaces are found, along with tuberculous follicles and fatty degeneration. And still more, perihepatitis, ascites, and various tuberculous peritoneal processes, are present.

INDUSTRIAL HEAT HAZARDS.

THE present day development of industries on a large scale has naturally created conditions of hazard which there has not been time yet either to study or to correct. That excessive heat produced in certain industries reacted badly upon the workers has long been noted, and recently Watkins (Public Health Reports, Vol. XXXII, No. 50) pointed out that these heat conditions and their effects are largely preventable, with the result that not only is the health of the worker improved, but the efficiency of the work is raised. The acute effect of excessive heat, heat exhaustion, is a comparatively minor consideration, because those who are so susceptible to it are soon eliminated from such occupations, but the chronic effects are the ones that create this industrial problem. To the heat hazard can be ascribed the general inefficiency of the worker, the loss of physical tone, and even a general physical deterioration, diminished resistance to fatigue, lowered resistance to disease, and a reduction of the period not only of usefulness but of length of life.

The heat production of the body being such an important function, it goes without saying that any vital interference with it must react badly upon the organism. The normal temperature of the body is maintained within rather narrow limits by the balance between heat production and heat loss. The production and the loss must be mutually proportioned, if not by one means, by another. In respect to heat loss, interference with one means usually provokes compensation by another. Body heat is produced by general muscular activity, gland activity, and the metabolic processes. All bodily energy is converted into heat, and about 80 per cent. of the food ingested is for heat purposes. Muscular activity is probably the greatest factor in the heat-producing mechanisms, and, of course, has an important bearing on the heat factor in the industries. On the other hand, body heat is lost by conduction, by radiation, by convection, by evaporation, and to a lesser extent by the excretions. But the loss of body heat varies particularly with conditions external to the body, and it is these conditions that industrial hygiene, with respect to the heat hazard, proposes to remedy. More than 80 per cent. of the body heat is lost by radiation, evaporation, conduction, etc., and these means are retarded or accelerated according as industrial conditions are appropriate. The relative humidity of the air, the temperature, the rate of air motion, all influence the heat loss. As the temperature of the air rises, the rate of heat loss or the transfer of heat from the body diminishes. Likewise, the loss of heat by evaporation diminishes as the humidity of the air rises. The relative humidity of the air is one of the most important factors in the heat hazard of industrial establishments. Much higher temperatures can be tolerated and much more heat lost when the relative humidity is within reasonable limits. About 15 per cent. of the heat loss is through evaporation—the water output of the body varies inversely with the humidity.

Most of the measures looking toward the eradication of the heat factor in the industries has to do with the engineering features, in the way of isolation of the source of heat or the separation of the worker from it. Much can be done, however, by attention to proper clothing, diminution of muscular activity to the minimum, appropriate diet, the water intake, bathing, and, above all, frequent rest periods to the workers by means of short shifts. It would seem that the removal of the clothing would aid the loss of heat, but in fact the presence of clothing which is saturated by perspiration is a great factor in heat loss, because moisture is so good a conductor of heat. The clothing should be light, and capable of absorbing moisture. Cotton would seem to answer the purpose, except for the fact that it allows cooling off so easily, and is therefore so likely to encourage internal congestion, with its possibilities. Wool does not have this objectionable feature, and woolen clothing is, therefore, best for this sort of work.

Provision for and the encouragement of water drinking is helpful in the dissipation of heat, but it must not be taken at a temperature below 55° F., because of the tendency to gastric disturbances. Frequent bathing with showers at a temperature of about 85° F. is very beneficial. In respect to food, it must be generally reduced in these occupations. Proteins and fats cause the greatest amount of heat production, and should be reduced. The starches, green vegetables, and fruits should be increased.

EFFECTS OF THE WAR ON THE FRENCH MEDICAL PRESS.

BARDET contributes an article on this subject to the *Bulletin Général de Thérapeutique* for February. He refers only to the medical press of France, but the periodical literature of the other warring countries, as well as that of some of the neutrals, is exposed to the same perils. From the very outset of the war the French journals have experienced great difficulties in getting out their issues. All of them ceased to appear for a few months, and not until the beginning of 1915 were certain among them able to reappear, but only a few on the original ante-bellum schedule. In regard to the *Bulletin* itself, it was hoped that two numbers could be issued monthly, beginning in January, 1915. This expectation was not realized, for two reasons. First, there was a great dearth of contributions, for the physician has time for neither writing nor research. Second, the printers are unable to issue more than one number a month. Scarcity of paper is a separate problem not included under the printer's shortcomings. The price of paper has quintupled since 1914. The amount of printed matter has been formally reduced by the Government, so that adver-

tising matter can total only one-third of the text proper. But without this outside intervention much the same results would come about from intrinsic factors already mentoned. The cutting down of advertising matter occurs despite the fact that the subscriptions of the readers fall far short of the cost of publication. Without its publicity columns, every medical journal in France would have to suspend. As it is, the subscription price may soon have to be doubled, and perhaps trebled. The publishers of medical journals will also be forced to withhold sample copies and exchange numbers. There has never been, with one or two exceptions, any profit in a medical periodical in France, and if publication must mean a total loss, then the outside world can no longer learn what French medical science is accomplishing.

Is Migraine a Radiculitis?

In migraine the presence of a meningeal reaction is but seldom alluded to by writers. Nevertheless, to this meningism may be attributed a number of migraine symptoms, such as flushing and pallor of the face, the peculiar pulse, photophobia, nausea and vomiting, and constipation. The tension of the cerebrospinal fluid is increased, and lumbar puncture often gives relief. These points are made by Babonneix and David in an article which appears in the *Journal de médecine et chirurgie pratiques* for March 10. The writers also note the hitherto undescribed symptoms of return of pain as a result of coughing and sneezing, and of aggravation of pain during the course of the paroxysm. This phenomenon has, however, been described in connection with radiculitis. If the brachial plexus is affected the severe arm pains following a sneeze are looked upon as pathognomonic. In radiculitis of the limbs the patients assume peculiar defense attitudes to minimize the effects of the sneeze. How explain the presence of this phenomenon in migraine? Is the latter a radiculitis of the trigeminus? In both migraine and radiculitis the increased tension of the cerebrospinal fluid may be a factor.

Typhus Fever in Paris.

Netter recently announced that a few cases of exanthematous typhus existed in Paris, which has not had a true visitation of the disease since 1893, although doubtless sporadic cases appear from time to time (*Journal de médecine et de chirurgie pratiques*, March 10). Two miserable children, brothers, covered with vermin, appeared to suffer from typhoid fever, but this affection was eliminated by hemoculture. It was then learned that two other children and the mother had the same affection, which was shown to be true typhus through guinea pig inoculation. Triboulet, another pediatrist, has seen a similar family epidemic. If it is granted that such cases occur in Paris, what is their source? We need not go as far as Africa, for in Brittany a sporadic incidence has been noted since 1893. Netter believes, however, that the metropolis has never been entirely free from the disease since the Middle Ages, but there is a constant tendency to attenuation of virulence and diminution of contagion. He then cites Brill's disease, first described in New York several years ago, and later in other American cities. His own cases, while perhaps not the same, are similar to Brill's disease. Much stress is laid in the Paris cases upon failure of attendants to contract the disease, and until this occurs, he says, the question of contagion does not become a vital one.

News of the Week.

Influenza Epidemic in Europe.—The epidemic of so-called Spanish influenza which recently incapacitated a large part of Spain is now in Paris and London and has also spread among the French and German soldiers. One report states that so many German soldiers have been incapacitated by this affection that it is delaying the drive that has been planned.

Conference on Vocational Education.—The Federal Board for Vocational Education, finding that the response to the request for a conference of the women interested in the supervision of the schools and the training of teachers under the Smith-Hughes Act for vocational education has been most gratifying, called a conference in Chicago, on June 26. The problems that have arisen during the year in the development of vocational home economics were discussed as well as plans for the carrying out of the program of part time and evening school instruction proposed as a war time measure.

American Association for Thoracic Surgery.—The first annual meeting of this association was held in Chicago, on June 10, 1918. The officers were: *President*, Dr. Samuel J. Meltzer, New York; *Vice-President*, Dr. Willy Meyer, New York; *Secretary and Treasurer*, Dr. Nathan W. Green, New York; *Councillors*, Dr. Edward R. Baldwin of Saranac Lake, N. Y., Dr. Rudolph Matas of New Orleans, La., Dr. Samuel Robinson of Santa Barbara, Cal., and Dr. Charles L. Scudder of Boston, Mass. An address was made by the president, Dr. Samuel J. Meltzer, and a "Review of the Evolution of Thoracic Surgery in the Past Fourteen Years" was presented by Dr. Willy Meyer. The treatment of empyema by the Carrel-Dakin method at the War Demonstration Hospital, the Rockefeller Institute for Medical Research, New York, was outlined upon invitation by Maj. George A. Stewart, M. R. C. "Remarks Concerning the Employment of the Dakin Solution in Cases of Empyema" were presented by Dr. Charles L. Scudder of Boston. As Dr. Scudder was unable to be present, the remarks were read by the secretary. A paper entitled "What Shall Be Done With the Open Chronic Suppurations of the Chest Cavity?" (with presentation of patients) was read by Dr. Emil G. Beck of Chicago. "Post-Operative Thoracic Drainage" (exclusive of empyema) was the topic for discussion. The discussion was opened by Dr. Nathan W. Green, continued by Dr. Willy Meyer and Dr. Conrad Georg, Jr. Dr. B. Merrill Ricketts of Cincinnati presented many *x*-rays of partial and complete pneumothorax. A film of the skin sliding operation was presented by Dr. Emil G. Beck of Chicago. The following officers were elected for the ensuing year: *President*, Dr. Willy Meyer, New York; *Vice-President*, Dr. Henry S. Plummer, Rochester, Minn.;

Secretary and Treasurer, Dr. Nathan W. Green, New York; *Councillors*, Dr. Samuel J. Meltzer, New York, one year; Dr. Rudolph Matas, New Orleans, two years; Dr. Samuel Robinson, Santa Barbara, Cal., three years; Dr. Charles L. Scudder, Boston, Mass., four years. The association has a membership of seventy-one at the present time.

American Medical Editors' Association.—The forty-ninth annual meeting of the American Medical Editors' Association was held at the La Salle Hotel, Chicago, on June 10 and 11, under the presidency of Dr. George W. Kosmak of New York. One of the features of the meeting was the banquet on the evening of June 11, at which time Colonel R. E. Noble, M. C., U. S. A., spoke on the needs of the Medical Service; the Hon. Quinn O'Brien made an address choosing as his subject, "Is America Doing Her Best?" Colonel Charles Dercles of the French Army and A. Franklin Martin also made addresses. At the Executive Session resolutions were passed remitting the dues of members of the Associtaion who were in the service. Other resolutions adopted placed the organization on record as in favor of the Owen-Dyer bill and also in favor of granting appropriate insignia and rank to women physicians who were giving war service equivalent to that of the men physicians. The Association relected its present officers for another year. They are Dr. George W. Kosmak of New York, president, and Dr. Joseph MacDonald, Jr., of New Jersey, secretary and treasurer.

Physician Visits Convention in Airplane.—Captain H. M. Strong, M. R. C., Post-Surgeon, Chanute Field, Rantoul, Ill., made the trip to Chicago to attend the meeting of the American Medical Association in an aeroplane. This is the first known instance of a physician being so anxious to get to Chicago that he could not wait for train or trolley.

Cornell University Confers Degrees.—The commencement exercises of the Cornell University Medical College took place on June 12, at which time the degree of Doctor of Medicine was conferred on thirty-two students. Major Charles L. Gibson made the address to the graduating class. Nine of the graduates have received commissions in the United States Navy and have entered the service.

Ask Government to Stop Disorganization of Hospitals.—The Hospital Conference of the City of New York recently passed a number of resolutions among which was one advising that arrangements be made for the training of a large reserve of non-professional nurses. It was also resolved "that the President of the United States be urged to take such action as in his judgment will preserve the hospitals of the country from the further disruption of their organizations and the abandonment of their indispensable public tasks."

Opposition to Medical Enlistment.—At the annual conference of the Health Officers of New York State, Dr. Hermann M. Biggs, State Health Commissioner, according to newspaper reports, expressed the opinion that physicians should remain at home in sufficient numbers to care for the civil population rather than to enlist except upon special demand for their services. He emphasized the fact that no nation can produce a fit army unless its people are fit.

Dinner in Honor of British Doctors.—About fifty physicians of New York City gave a farewell dinner at the Metropolitan Club, on the evening of June 25, to Sir William Arbuthnot Lane, Sir James Mackenzie, and Colonel Herbert A. Bruce on the eve of their departure for England. All three of these men made brief addresses.

Dr. Edward H. Bradford, for six years dean of the Harvard Medical School and connected with the teaching staff for thirty-eight years, has resigned.

Dr. David Linn Edsall, since 1912 Jackson professor of clinical medicine in the Harvard Medical School, has been appointed dean of that institution in succession to Dr. Edward H. Bradford.

Dr. Walter James of this city has been appointed chairman of the new commission for the feeble-minded, which body, under an act of the last legislature, became effective July 1.

Dr. Samuel E. Fletcher of Chicopee, Mass., has been appointed medical examiner for the Fifth Hampden District.

Dr. Martin S. Budlong of Providence, R. I., has been appointed to the State Board of Health of Rhode Island to fill a vacancy caused by the death of J. Hillman Bennet.

Dr. Joseph S. Neff, formerly Director of Public Health and Charities of Philadelphia, has been appointed by Governor Brumbaugh a member of the Advisory Board of the Pennsylvania State Department of Health.

Dr. Elmer H. Funk has been elected Medical Director of Jefferson Hospital of Philadelphia, succeeding Dr. Henry K. Mohler, who has entered the military service of the United States with the Jefferson Base Hospital Unit No. 3.

Another Anthrax Patient Cured.—A patient who was operated on for anthrax at Bellevue Hospital, New York City, on June 14, was discharged as cured on June 29. This is the fourth of a series of eleven cases of anthrax treated successfully at Bellevue Hospital.

The New York and New England Association of Railway Surgeons will hold its twenty-eighth annual session at the Hotel McAlpin, New York City, on October 21, 1918. A symposium will be presented on the Modern Treatment of Infected Wounds. The president of the association is Dr. J. S. Hill of Bellows Falls, Vt., and the secretary is Dr. George Chaffee of Little Meadows, Pa.

Medical Society Elections.—The MAINE MEDICAL ASSOCIATION, at its meeting in Portland, on June 7, elected the following officers: *President*, Dr. George H. Coombs of Waldoboro; *First Vice-President*, Dr. John Sturgis of Auburn; *Second Vice-President*, Dr. Charles W. Bell of Strong; *Secretary and Treasurer*, Dr. B. J. Bryant of Bangor.

The MAINE HOMEOPATHIC MEDICAL SOCIETY, at its meeting in Bangor, on June 11, elected the following officers: *President*, Dr. F. A. Ferguson of Portland; *First Vice-President*, Dr. W. A. Ratters of Pittsfield; *Recording Secretary*, Dr. E. S. Abbott of Bridgton; *Corresponding Secretary*, Dr. Carrie E. Newton of Brewer; *Treasurer*, Dr. W. S. Thompson of Augusta.

The California State Homeopathic Society, at its annual meeting in San Bernardino, on June 5, elected the following officers: *President*, Dr. M. W. Kapp of San Jose; *First Vice-President*, Dr. H. A. Atwood of Riverside; *Second Vice-President*, Dr. Anna D. Chapin of Los Angeles; *Secretary*, Dr. Guy E. Emming of San Francisco; *Treasurer*, Dr. T. C. Low of Los Angeles.

The South Dakota State Medical Association, at its annual meeting, held at Mitchell on May 24, elected the following officers for the ensuing year: *President*, Dr. D. L. Scanlon of Volga; *First Vice-President*, Dr. H. T. Kennedy of Pierre; *Second Vice-President*, Dr. G. S. Adams of Yankton; *Secretary-Treasurer*, Dr. R. D. Alway of Aberdeen.

The Vermont State Homeopathic Medical Society held its annual meeting on May 30, in Montpelier, and elected the following officers for the coming year: *President*, Dr. E. D. Kirkland of Bellows Falls; *Vice-President*, Dr. G. E. Morgan of Burlington; *Secretary*, Dr. G. I. Forbes of Burlington; *Treasurer*, Dr. F. E. Steele of Montpelier.

The Maine Medical Association, which held its annual meeting on June 7, elected the following officers: *President*, Dr. C. M. Coombs of Waldoboro; *Vice-Presidents*, Dr. John Sturgis of Auburn and Dr. Charles W. Bell of Strong; *Secretary and Treasurer*, Dr. B. L. Bryant of Bangor.

Obituary Notes.—Dr. Thomas Cook Stellwagen died of diabetes at his home in Media, Pa., on June 7, aged 76 years. He was a graduate of the Medical Department of the University of Pennsylvania, in 1868, a Fellow of the Philadelphia Academy of Surgery, and formerly a professor in the Philadelphia Dental College and the Dental Department of the Medico-Chirurgical College.

Dr. A. I. Holsonback, a graduate of the Maryland Medical College, in 1860, died at his home in Graniteville, S. C., on June 8, aged 88 years. He formerly practiced medicine in Augusta, S. C.

Dr. M. Osborne Christian, a graduate of the Harvard Medical School in 1878, died at his home in Irvington, N. J., on June 15, aged 69 years. He was connected with the Geological Survey and the Smithsonian Institute.

Dr. Frank Chase Richardson, a graduate of the Boston University School of Medicine, in 1879, died in Roxbury, Mass., on June 20. He was for many years professor of neurology at the Boston University School of Medicine.

Dr. J. Hervey Buchanan of Plainfield, N. J., a graduate of Jefferson Medical College, in 1896, a Fellow of the American Medical Association, and a member of the Medical Society of the State of New Jersey, died on June 11 at the age of 45 years.

Dr. Gwilym G. Davis of Philadelphia died of pneumonia at Kineo, Me., on June 16, aged 61 years. He was a graduate of the Medical Department of the University of Pennsylvania in 1879, and later professor of orthopedic surgery in that institution. He was a Fellow of the American Surgical Association and the American College of Surgeons, a member of the American College of Clinical Surgeons, the Pathological Society of Philadelphia, the Philadelphia Pediatric Society, and other medical organizations. Dr. Davis was surgeon to St. Joseph's, the Episcopal and the Orthopedic hospitals, and to the Children's Seashore House in Atlantic City.

Correspondence.

ROTARY MICROTOMES DESIRED FOR THE ARMY.

To the Editor of the Medical Record:

Sir:—At the present time there is a considerable scarcity of rotary microtomes, and a marked need for them at the various camps, where it is desired to make pathological examinations of lung tissue in differentiating the broncho from the lobar pneumonias. A number of the firms who formerly made this apparatus are now working on signal corps and ordnance material, and we are, therefore, handicapped.

Might I ask you to make a request through the columns of your paper to the effect that the Medical Department is anxious to purchase a number of rotary microtomes for use on paraffin sections? Any one having a rotary microtome to dispose of should communicate with me at the address given below.

I prefer not to borrow these instruments, as I would have to assume a responsibility for instruments which would pass out of my possession, and misunderstandings would doubtless occur.

M. A. Reasoner,
Lt. Colonel, Medical Corps, N.A.

Field Medical Supply Depot, U. S. Army, 21 M Street, N. E., Washington.

WOMEN PHYSICIANS AND WAR SERVICE.

To the Editor of the Medical Record:

Sir:—It ought to be a matter of regret that the admirable qualities now being displayed by women, and causing such unbounded surprise by their unexpected presence, were not allowed expression before, for the qualities referred to are always desirable and necessary. Women's present response to opportunity is a frequent topic of discussion. The medical women in the countries of our allies found it necessary to create even the opportunity.

The Women's Hospital Corps, now established in the big military hospital of 600 beds in Endel Street, London, found their proffered service refused by the British Government in 1914, and it was not until this organization of women surgeons had demonstrated their ability in caring for wounded and dying Frenchmen that Britain invited them to return home to care for their own wounded. The surgeon in charge of the Endel Street Hospital is Major Louisa Garrett Anderson, daughter of the second woman physician of modern times. Every member of Dr. Anderson's staff is a woman, and from the battlefields across the Channel ambulances of wounded men are brought to her and her aides to patch up and make over again.

While in France the W. H. C. cared for wounded Tommies as well as Frenchmen, and it was said by one of them to Sir Alfred Keogh that word was abroad in the trenches that when a man was wounded the Woman's Hospital was the place to go to; "that women surgeons took more pains, and were less hasty about cutting off legs and arms, and that the women were quite all right."

Another organization of British women is known as the Scottish Women's Hospitals, and it has won for itself world-wide fame. This organization was

in charge of Dr. Elsie Inglis, who aimed to place a hospital wherever it was most needed. She has had as many as twelve operating simultaneously. These hospitals have had service on five battle fronts. It has sometimes been necessary to pack up the equipment and retire with the retreating army. They have even been captured. One of them, on its way to Serbia, was requisitioned by the British Army at Malta to aid in caring for the wounded being brought in from Gallipoli. When they departed the military authorities at Malta wrote home for sixty more medical women to be sent to them; and when the Home Office read the report which accompanied this request they decided to send sixty to Malta and eighty more to other military hospitals.

One of the Scottish Women's Hospitals in the Rue Archimède, Calais, in charge of Dr. Alice Hutchinson, had the lowest percentage of mortality in typhoid fever of any hospital in France. Another of these hospitals at Troyes, in charge of Dr. Louise McElroy, was one of the few hospitals to receive official command to pack up and proceed to Saloniki to be regularly attached to the French army, furnishing one of the few instances where a voluntary hospital was so honored.

The S. W. H. faced almost insurmountable difficulties in Serbia. They braved dirt, infection, and cold; they found it necessary at times to carry the wounded themselves, and their endurance was put to the most severe tests. The chief of the Serbian command said of them: "Their capacity for work and for suffering seems incredible, and while they equal the Serbian soldier in endurance, in morale no one is equal to them." Dr. Inglis led an army herself through frozen passes in Serbia and Russia to safety a short time before she yielded up her life in the service of humanity.

The French woman physician has also been winning laurels. Dr. Gerard-Mangin became an army doctor by stratagem, and necessity caused her services to be retained until she had proved her value. In the first three months of her service she performed six hundred open operations without losing a single patient. She afterward established a temporary hospital at Verdun, where she was under fire for seventeen months. At first, her hospital was without equipment or convenience, and she was almost destitute of assistance. For six weeks her clothes were not once removed from her body. One of her feet was frozen. A man was shot at her side one day, and she was slightly wounded. This woman was recalled from the front to take charge of the Hôpital Militaire Edith Cavell, in the Rue Desmouettes, Paris, for Dr. Gerard-Mangin is an expert in tuberculosis. The rank of major has been conferred on this little, rosy-faced expert. Dr. Gerard-Mangin did a two-years' service at the front without an hour's absence from her post, and she is the only surgeon in the French Army of whom this statement can be made.

Women physicians of the allied peoples have by their professional ability, initiative, resource, energy, and endurance won from reluctant governments a recognition long denied them, to the prejudice of the people who might have been benefited by their ministrations. Women are now in charge of big London hospitals, where formerly no woman was permitted on the staff. Five of these hospitals are entirely staffed by women. Women have demonstrated over and over again professional skill and ability of the highest order, and during the four years of the World War no woman has ever been dismissed for professional incompetency or physical disability.

Britain's change of heart on the woman-physician question has been so complete that she is now urging her eligible women to study medicine, and is even providing, when necessary, funds for this purpose, and an increased number of women medical students is now found in the medical schools. American women physicians are capable of rendering aid as valuable as that given by their sisters abroad. Over 33 per cent., we are told, have already gone to the front or registered for war service.

Although it is but a short time since we began to participate actively in the war, the shortage of physicians has grown markedly and is bound to increase. The fact that fewer students are entering medical colleges will, in the not far-distant future, still more affect the shortage. As, on account of the draft, women are available in larger numbers than men for medical study, eligible women should be urged to take up the study of medicine in order to be ready when the need for them arises. It is an error of judgment, as well as an economic waste, to urge women eligible for entrance to the higher professions to take up nursing, for the nursing material is relatively abundant, while the pre-medical material is not. Physicians are needed quite as much as nurses, and are more valuable and more difficult to secure.

It goes without saying that rank and salary should depend upon ability and service and not upon sex. It is a travesty on democracy to fight autocracy with one hand and carefully shield it with the other, as we so often do. That Prussian attitude should be swept away to make a place for the square deal to which every American citizen has a right. When burdens are laid without stint upon *all*, privileges should be dealt out equally.

A committee of the Women's Medical Association of New York City has been formed to encourage and assist eligible young women to take up the study of medicine as a patriotic duty, and the broad-minded physician who realizes the country's need cannot do better than assist in this worthy object.

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PRESCRIPTIONS FOR VENEREAL DISEASES.

To the Editor of the Medical Record:

Sir:—The result of the recent amendment to the public health law to which the State Commissioner of Health has publicly called attention will be to hamper, if not to penalize, both doctor and druggist in their professional relations with patients using medicinal agents which may be construed to be remedies for venereal disease. Already the New York State Department of Health has made itself, under the law, the sole executant of the right to advertise either remedies or forms of treatment for

these diseases, even to the exclusion of reputable medical journals. It has even gone so far in this respect as to appropriate the publicity privileges hitherto exclusively enjoyed in public lavatories by quacks. If this be a form of "public service" at the expense of the taxpayers, the sooner it is proclaimed from the more reputable places, now so generally impounded for public service of all character, the better. As a friend and well wisher, no less than a coworker with the members of the profession of pharmacy, I would advise them for their self-protection to disregard certain provisions of this law. For a druggist to refuse either a copy of a prescription or to renew a prescription containing a remedy for venereal disease, unless ordered to do so by the physician, is to stigmatize those presenting such a prescription for compounding which may have no such purpose. This is an act for which the druggist could be held responsible, as tending by implication to degrade the purchaser with whom he is dealing. Both by the ethics of his profession and by the law the druggist is not to take cognizance of the character or purposes of the remedies he dispenses, or to use the knowledge thus gained, except under process of criminal law when compelled to do so by the court.

If the law under consideration demands this service it should be exacted of the physician, not the druggist. The latter alone can decide whether his prescription is intended for a case of venereal disease. This the framers of the law could not demand of the physician, but they felt from past experience that they could accomplish the same purpose by making a cat's paw of the druggist. Before the druggist thus discriminates he should demand this protection from the doctor, in writing, on his prescription. Despite the threats and penalties held over his head by the State Department of Health, his refusal otherwise to stigmatize this one class of patients would be upheld by any court or jury in this State.

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STUDY OF CEREBROSPINAL LOCALIZATION.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—I should like to suggest a determination of the distribution of cerebrospinal lesions and localization of structural changes by the study of vascularity through injection of blood and lymph vessels. The method has, to my knowledge, been applied to the study of lesions in various organs, as, for instance, the kidney and liver. Injections very frequently show in these organs the vascular changes and their localization, and even permit of a quantitative estimate of them and a comparison of vessel and tissue volume. The work is of distinct interest and value.

It certainly seems that in the case of an organ such as the brain or cord, in which each unit plays an important part, and vascularity is of the highest importance, the same method must yield results equally interesting and of real interest. In point of fact, I have seen very little in the way of reports on such work.

Results are certainly to be expected in sclerosis, such as multiple sclerosis and the atrophies, and vascular scleroses, such as senile psychosis and arteriosclerotic conditions. Such work must also throw light, whether the results be positive or negative, upon the wide array of psychoses, choreas, epilepsies, etc., which invite pathological investigation.

Such work, when correlated with clinical material, would afford a method of cerebral and cord localization. If, by chance, it affords any knowledge of unmapped areas, the time spent at it might even be regarded as entertainingly spent.

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OUR LONDON LETTER.

(From Our Own Correspondent.)

THE CALLING UP OF MEDICAL MEN FOR MILITARY SERVICE—A NEW MEDICAL DIRECTOR IN FRANCE—TRENCH FEVER INFECTION—HONOR FOR HARVEY CUSHING.

LONDON, June 13, 1918.

MEDICAL men, though liable, of course, to ordinary conscription, practically are never taken now for purely military service, the gross waste of scientific material implied in such an action being fully recognized. It being on all hands allowed that the right duties for a medical man to perform are medical duties, the question of exemption from medical military service has to be decided on two grounds only: (1) Is the medical man physically able to undertake the responsibilities which a commission in the army may entail? And (2) is the medical man, exemption not being claimed on physical grounds, doing more valuable service to the state by remaining in a civilian capacity than could possibly be expected from him if he were with the colors? A Central Tribunal decides questions of exemption for the whole country and for all classes, but it is in the nature of a supreme appeal court, and so far as medical men are concerned is asked to give no decisions until every individual case has been thoroughly sifted by bodies chosen for the purpose. Regulations or instructions which have been recently published dealing with applications by medical men for exemption make it possible that this central tribunal will have more work to do, especially as the Ministry of National Service is considering the whole question of man power in the country and its proper employment. The new instructions which have just been issued with reference to the calling up of medical men institute a special medical tribunal to which in future all applications for exemption are to be made, but this tribunal is simply "The Local Arrangements Subcommittee" of the Central Medical War Committee renamed "The Medical Tribunal." In my letter of February 23* I explained the elaborate constitution of the Central Medical War Committee and its affiliated bodies, to whom the recruiting of the medical profession have been intrusted by the War Office almost since the outbreak of hostilities. As each area of the country now comes under review, notification will be sent by the Ministry of National Service to the practitioners affected, informing them of the time within which they may apply for exemption if they desire it. The Medical Tribunal, in association with the Committee of Reference of

*MEDICAL RECORD, March 16, 1918, p. 469.

the English Royal Colleges will give every applicant for exemption an opportunity of being heard before a report on his case is made, and if it is decided by the Medical Tribunal that it is the duty of a medical man to accept a commission, he can still appeal to the Central Tribunal, like any other citizen, on grounds of serious hardship, of ill health, or of conscientious objection. But it is not intended that cases should come before the Central Tribunal unless important questions of principle are involved or unless some special reason can be fairly alleged. The Medical Tribunal is representative, through the various local war committees of the Central Medical War Committee, of the whole of the medical profession of the country, and is now in possession of full and detailed information of the professional position of every medical man on the register, and of the local professional needs of every area. The Committee of Reference which acts with the Medical Tribunal has been selected by the Royal Colleges in order to deal with the institutional needs of various areas. It is the duty of this body to provide that the hospitals, general and special, and all infirmaries shall not be unduly depleted of their medical officers, and along these lines the work of the Committee of Reference is partially military, for there is not one of these institutions which has not since the outbreak of war put its beds and the services of its honorary staff at the disposal of the sick and wounded of the war. The demand for medical practitioners is now so great both for military and civilian purposes that it is only by carefully considered distribution of the available medical men that the requirements of the country can be met. The special position of the medical profession has been recognized by granting its members, for exemption purposes, a court composed of themselves. Great trust in the patriotism and bona fides of the profession has thus been shown by the nation, and the result in times of unthinkable stress has been on the whole satisfactory. The new instruction will be administered consistently with the national interests, but with a consideration for particular medical cases which could not possibly have been extended to candidates for exemption by any tribunal composed of laymen.

At a moment when the German offensive has recommenced with particular vigor against sections of the Western line held by British troops, either alone, or in conjunction with the American contingents, the retirement of the Director General of Medical Services on the Western Front appears to be inopportune. Sir Arthur Sloggett has been the Medical Director General in France since the outbreak of the war and although he has reached the age limit for active service, there are undoubtedly many who would have liked to see him remain at his post during these particularly critical times. He has discharged his manifold and far-reaching duties well, he has been quick to see where developments were needed and willing to trust the right men to carry them out. He has made intelligent use of the different branches of expert medical service which have been placed at his disposal; and—crowning distinction for an officer in a supreme position—he has earned the reputation of fairness in his various selections and promotions. Lieutenant General Burtchaell who succeeds him has, it will be admitted, the strongest possible claims to the office which circumstances have made vacant. He is at home with army administration in the War Office and in foreign lands both in times of peace and times of activity. He has been a staff officer in Indian Commands and in the South African War. He has had an appointment under the Irish Command, and for the period immediately preceding the war he was employed by the War Office as Assistant Director General of the Army Medical Service. Since the war broke out General Burtchaell has been in France and closely associated under Sir Arthur Sloggett with the reorganizations required to meet the needs of a growing army. In this way to a knowledge of the medical needs of the British soldier he has added close association with the Over-seas Forces—American and Colonial—to whom his appointment is noticeably welcome. His appointment to the supreme command on the Western Front at this juncture of the war will entail upon him immense responsibilities, but his record shows that he will be able to meet them and that he can rely upon the hearty cooperation of his professional colleagues.

Trench fever, after having been identified under a good many names and after the name had been applied to a good many varying conditions and phases of numerous diseases, is now recognized as an entity and the latest investigation carried out on behalf of the War Office has thrown light on the mechanism of its infection. The work has been carried out by Major Byam, Captain J. E. Carroll of the United States Army Medical Service, Captain Lyn Dimond, and an enthusiastic band of volunteers and the result is an important chapter in the epidemiology of parasite-borne disease. Lice as carriers of the infection had been identified, of course, long before this latest investigation was undertaken, but some points have now been established of great scientific interest. The voluntary workers, to whom allusion is made, were the subjects who submitted themselves to the bites of infected lice, and the first point established was that trench fever could not be produced by the bite alone of infected lice. One man who received no less than 9,518 bites by lice fed on trench fever cases did not sicken, nor did another who was bitten 13,224 times over a period of fifteen days. It was noted that while the younger patients with lice upon them always yielded to the desire to allay irritation by scratching, the older volunteers, in whom infection more frequently missed, were those who did not scratch. This observation led to the suggestion that infection might be due to the scratching in of the lice or of their excreta, and the successful result of the experiment of scarifying the skin and rubbing in crushed lice or the excreta of lice fed some time before on trench fever patients at once confirmed this view, the volunteers so treated developing the disease after an incubation period averaging eight days. The lice appear not to be infected immediately after feeding upon a patient with trench fever, but to become so after the lapse of a week, and in no case was infection carried by

excreta which had been passed within a few days after the feeding of the louse. These facts suggested to Major Ryan and his coadjutors that the parasite might complete its life-cycle within the body of the louse. That the louse is the carrier and that spontaneous infection cannot be considered, is proved by the fact that with the crushed bodies of normal lice, as with their excreta, no evidence of infection or its spread could be obtained. It is an important point to note with regard to prevention that in these experiments the infective louse excreta remained virulent for more than a fortnight when dried at the ordinary temperature of the room, and retained that virulence after exposure not only to direct sunlight but to a temperature of 56° C., whereas it is usually assumed that dry heat at this temperature suffices to prevent infection by lice. Lastly the conclusion curious, even if it has no pathological bearing, was arrived at that the louse cannot transmit infection to its own offspring. At the last meeting of the Society of Tropical Medicine, when Major Byam presented the report of his experiment Sir William Leishman stated that the conclusions reached by the work of the Trench Fever Committee in France were similar to those arrived at by Major Byam. One clear message of this work is that civilian populations run the risk of infection from soldiers discharged from the army or returning on leave, unless hygienic precautions are rigidly taken.

The Royal College of Surgeons in Ireland has conferred on Prof. Harvey Cushing, Harvard University, the honorary Fellowship of the Corporation, imitating thereby the action already taken by the Royal College of Surgeons of England. The Irish College is particularly chary of presenting anyone with their honorary diploma of the highest rank.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

FIGHTING TUBERCULOSIS—JIU-JITSU AGAIN—THE RED CROSS EVERYWHERE.

PARIS, May 14, 1918.

ONE more sanatorium to help meet the problem of tuberculosis in central France will be established as the result of a gift of 200,000 francs, just made by the Tuberculosis Bureau of the American Red Cross to the French Comité de Secours aux Blessés Militaires at Tours. This contribution, together with a fund raised by the local committee, makes possible the purchase of a large property known as "Bel Air," which the French society will convert into a large sanatorium for tuberculous civilians and réformés.

The Red Cross has already established tuberculosis hospitals of its own at Yerres and Plessis-Piquet, near Paris; at Lyons and elsewhere; has made a gift to St. Joseph's Hospital in Paris, which enabled it to remodel a building acquired by it for a tuberculosis sanatorium of 125 beds at a cost of 285,000 francs, and is constantly aiding tuberculosis hospitals in almost every department of France. In February alone it made grants of furniture, food, clothing, and medical supplies valued at nearly 100,000 francs to scores of hospitals outside Paris. Its grants of this kind from November through February total 575,000 francs and were made to 188 hospitals, with a total capacity of 15,385 beds. Its representatives are constantly in the field visiting tuberculosis hospitals and studying their needs.

Its diet kitchens erected in the yards of Paris hospitals serve more than 650 people a day. Since September, when it undertook the work of providing extra comforts—games, phonographs, colored bedspreads, books, and supplementary food rations—the total number of the voluntary exiles, many of whom entered the pavilion without hope of cure, merely to avoid the risk of spreading contagion, has increased 258 per cent.

One of the most interesting tuberculosis hospitals operated by the Red Cross is in the Hospital Sainte-Eugénie at Lyons, in a chateau presented to the city of Lyons by the Empress Eugénie and loaned by the city for the period of the war to the American Red Cross. This hospital is solely for tuberculous women repatriates sent back by the Germans as useless mouths. Until this hospital of 200 beds was opened there was very inadequate hospital provision for tuberculous women. Forlorn relics of undernourishment and depression, for the first time in three years they find at Lyons comfortable beds and adequate care.

Through the generosity of Mrs. Robert Woods Bliss two wagonloads of hospital equipment and supplies have been donated to the Bureau of Tuberculosis. The gift includes an *x*-ray machine, anesthetizer, autoclave, dental chair, etc., and the things are being distributed to the three hospitals operated by the Tuberculosis Bureau in and about Paris, the Edward L. Trudeau Sanatorium at Plessis-Robinson, the Chateau de la Fontaine Bude, Paris, and the Hospital Bénévole 19 bis, at 46, rue Docteur Blanche, Paris, and a certain amount of surgical equipment is being turned over to the general Red Cross supplies. This was part of the equipment at a hospital now discontinued.

When Lieutenant Desouches of the French Mission attached to the American Army, was in Paris last, he expressed surprise that Dr. McCurdy, head physical instructor of the Y. M. C. A. for the American Army, was not aware that jiu-jitsu was taught in both the French and British Armies. He said: "Go to the Ministère de la Guerre and see Commandant, or, as you say, 'Major,' Royet, directeur de l'infanterie. He is at the head of the physical instruction."

Commandant Royet received me courteously and at once spoke of jiu-jitsu in the French Army. "Why, we have had this going on for more than half a year, and all the men in the French Army have to learn jiu-jitsu, adapted to our requirements, and the feature is an enormous success. We encourage the men in every way to perfect themselves in what we call "corps-à-corps fighting," and this feature is of immense use. Before the war the method of combat was with the bayonet and was simply a system reduced to movements, manual exercises, and fencing. But since the war we have gone into the thing with entirely new motives. We have adopted real

hand-to-hand fighting, such as is imposed by the circumstances of this war. We require our men to kill their adversaries in this new corps-à-corps work. The bayonet is all right, but suppose you have no bayonet—which sometimes happens—well, a man can clutch his knife and attack his adversary. But suppose he has no knife, or, for some reason, cannot make use of it, at the psychological moment? What then? Why, he simply relies on his knowledge of jiu-jitsu. Jiu-jitsu is an art which takes time to learn thoroughly, but a soldier can learn enough in a month to give him complete confidence in himself when he has nothing but his hands, head, and feet to help him out, minus his gun, bayonet, grenade, or sword, as the case may be. What we teach enables our men to master their adversaries in almost all circumstances—even when the adversary is armed. He can disarm his adversary. You can see this in our schools. You simply kill a man with this jiu-jitsu properly applied.

"The one thing above all, in this jiu-jitsu work is that a soldier has complete confidence in himself. We have found it a splendid thing for the morale. When they advance at the front they are sure they can grapple with their adversary. Is not this a good thing to learn? The English Army has taken this up and it has found its value, and I can heartily recommend it to all the Allied Armies. The Minister of War is getting out a brochure containing this system of instruction and it will soon appear with illustrations and at the same time our Ministry will issue an English translation.

"Boxing is all right, so is the savate, or French substitute for boxing, so is wrestling, and so is also, of course, the Japanese jiu-jitsu. All come into our system of instruction. Let us take an example: Suppose a man boxes his adversary, knocks off his helmet. There is a fraction of a second of surprise. Then is the time to disarm him and finish him off with jiu-jitsu. Our system does not give jiu-jitsu the monopoly to the exclusion of all other means of getting rid of one's enemy, but it is an adaptation to our requirements. We use bayonet, knife, savate, boxing, and jiu-jitsu, all combined for practical purposes. When I say one month is sufficient for a man to learn our army physical development exercises, I do not mean any one at random; I mean a man who has had some physical development to start with. A man who never had physical development exercises cannot be expected to pick up jiu-jitsu in a short time. He takes longer to get the required skill. But he gets it. Believe me, our men are delivering the goods all right."

Recent air raids at Nancy have given the American Red Cross another chance to show its eagerness to make as bearable as possible the difficult living conditions of the women and children in the villages behind the army lines. The organization has just sent 2,000 francs to M. Mirman, Prefect at Nancy, for the emergency fund for victims of the last raid, in addition to providing twenty-two cases of clothing and several cases of foodstuffs to relief societies which were meeting the emergency. Members of the Red Cross staff at Nancy were the first to come to the rescue of the victims caught in the débris of a café on which a bomb had fallen.

The proprietress of this café lived in Belfort until 1914, when all the members of her family except two baby daughters lost their lives in an aerial bombardment. She made her way to Nancy and finally succeeded in getting a little capital together and starting this business to support the children. The bomb which struck this café killed the two little daughters and destroyed everything she had in the world, leaving her completely alone and penniless. The Red Cross is helping her make a third start.

Cooperation between M. Mirman and the American Red Cross in work for the harassed civilian population of Meurthe-et-Moselle has been carried on since last July, when almost the first work of the department of Civil Affairs was to help the French authorities in the direction of a refuge for 350 young children and mothers suddenly ordered out of the villages where there was continually danger of gas attacks. The refuge established in a former barracks near Toul is now sheltering about 500 children, too young to be trusted to wear gas-masks, and mothers of young babies, and the American Red Cross and the American Fund for French Wounded, acting together, have established in connection with the refuge a general dispensary, a children's hospital of 110 beds, of which 40 are reserved for maternity cases, and traveling dispensary service which carries American doctors and nurses to fourteen villages of Meurthe-et-Moselle. Some idea of the service which America is rendering to these unfortunate little French citizens can be obtained from the figures showing the work done in the month of February, when 189 children were treated in the hospital, 4,310 in the clinics, held in factories, schools, and town halls.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

June 20, 1918.

1. The Massachusetts Medical Society, Annual Discourse—The Socialization of the Practice of Medicine. Myles Standish.
2. Massachusetts Anti-Tuberculosis League, Fourth Annual Meeting, Boston, April 11, 1918.
   Introductory Remarks by the President. Vincent Y. Bowditch.
   Adequate Community Organization for Health Educational Work. Mary A. Abel.
   Relative Values in Anti-Tuberculosis Work. C. M. Hilliard.
   Annual Report of the Massachusetts Anti-Tuberculosis League, 1918. Ethel M. Spofford.
   Follow Up Work in Tuberculosis in the Small Towns and Villages in Massachusetts. Bernice M. Billings.
   War and Tuberculosis. Charles J. Hatfield.
   Conservation of Man Power in Industry. Anna M. Staebler.
3. Idiopathic Epilepsy a Sympathicopathy. Edward A Tracy.

New York Medical Journal.

June 22, 1918.

1. Some Unusual Surgical Experiences. Albert Van Der Veer.
2. The Relation Between Lupus Erythematosus and Tuberculosis. Fred Wise.
3. Prognosis in Pulmonary Tuberculosis. Maurice Fishberg.
4. Diagnosis and Treatment of Anthrax. Nathan Schwartz.
5. Otogenous Temporal Abscess with Hemiplegia. Otto Glogau.
6. X-ray as a Diagnostic Aid in Backache. Mulford K. Fisher.
7. A Plan for the Prevention of Venereal Diseases in New York State. E. H. Marsh.

8. Occupational Mercury Poisoning. George Schuyler Bangert.
9. Treatment of Compound Fracture of the Femur at Casualty Clearing Stations.

Journal of the American Medical Association.

June 22, 1918.

1. Investigations of Swimming Pools at the University of Minnesota. H. A. Whittaker.
2. Removal of Brain Tumor: Report of a Case in Which the Patient Survived for More than Thirty Years. W. W. Keen and Aller G. Ellis.
3. Chronic Myocarditis: A Clinical Study. Henry A. Christian.
4. Hypertrophic Pyloric Stenosis in a Two-Year Old Child: Report of a Case. Alfred J. Scott.
5. Report of a Case of Pseudoleukemia Infantum (von Jaksch's Disease). David A. Roth.
6. Agglutinin Response After Army Triple Typhoid Vaccination. Eric A. Fennel.
7. The Psychoneurotic Factor in the Irritable Heart of Soldiers. B. S. Oppenheimer and M. A. Rothschild.
8. Prophylactic Treatment in the Prevention of Venereal Diseases. Morris C. Thrush.

3. Chronic Myocarditis: A Clinical Study.—Henry A. Christian presents the results of a clinical study of 230 cases of chronic cardiac disease carried out in the wards of the Peter Bent Brigham Hospital in 1917. Of these 120 were positively diagnosed as chronic myocarditis and 5 questionably so, while 150 were regarded as cases of chronic valvular disease. The figures in 1916 were proportionately the same, being 156 of chronic myocarditis and 141 of chronic valvular disease; and in 1915 these cases were respectively 91 and 113 in number. The author summarizes the results of his observations as follows: There is a common chronic cardiac condition, in a general hospital for adults equal in frequency of occurrence to chronic valvular disease of the heart, which, for want of a better term, may be called chronic myocarditis. By this term is meant cardiac insufficiency from myocardial disturbance without organic lesion of the heart valves. A very large proportion (366 out of 407) of these patients on admission to the hospital are over forty years of age, and somewhat more are men than women. The heart is nearly always enlarged, and usually there is a cystolic murmur at the apex; but whatever its intensity or transmission, thickening or distortion of the valve flaps or chorda tendineæ is rarely found. Acute rheumatic fever and syphilis are both relatively uncommon in these cases, and neither plays any considerable part in the etiology. Chronic use of alcohol occurs in about one-third of the cases. High blood pressure is often found, but is absent in more than half of the cases. Chronic nephritis is often present, as is hypertension; but in seventeen out of forty-one cases at necropsy, the kidneys showed no chronic nephritis. Coronary sclerosis is an important factor in only about half of the cases. Increase of interstitial connective tissue is the lesion most found in the heart muscle, but in numerous cases the heart muscle seems practically normal except for hypertrophy of the fibers. Electrocardiography often gives evidence of disturbed muscle function. About half the cases show auricular fibrillation or flutter or the distortion of the ventricular complex, indicating some disturbance in the conduction system; but in even advanced cases the electrocardiogram often shows no significant disturbance. As to treatment, digitalis in the earlier breaks in compensation is a very efficient drug, and diuretics produce marked diuresis. He adds, however, that we have no certain knowledge of what really produces this type of cardiac insufficiency, and further study of these patients during life and after death is needed before we can have any adequate understanding of the mechanism and the causes of this condition.

The Lancet.

May 25, 1918.

1. The Milroy Lectures (Abstracts of) on the Teaching and Training in Hygiene: Some Criticisms and Suggestions Lecture III. H. R. Kenwood.
2. A Contribution to the Technique of Infected Wound Closure, More Especially Compound Fractures. Captain Fraser B. Gurd. Remarks by Sir Robert Jones.
3. Two Fatal Cases of Estivo-Autumnal Malarial Fever Occurring in England. Major Arthur J. Hall, Captain Egerton H. Williams, and Captain J. Sholto C. Douglas.
4. A Method for the Drainage of Deep Wounds of the Thigh Captain W. Sampson Handley and Dr. P. J. Hanlon.
5. Skin Grafting in the Treatment of War Burns. Surgeon C. P. G. Wakeley.
6. Three Cases of Epidemic Stupor—I., J. Anderson Smith; II., F. Parkes Weber; III., T. H. Parke.
7. A Case of Congenital Deformity of Hands and Feet. Barbara G. R. Crawford.

2. A Contribution to the Technique of Infected Wound Closure, More Especially Compound Fractures.—Captain Fraser B. Gurd believes that a more aggressive and direct method of treatment of infected compound fractures than is commonly employed in English hospitals is indicated. The techniques introduced by Rutherford Morison and Carrel, when properly employed, have each proved their usefulness in the hospitals in France. In a series of thirty characteristic cases, Captain Gurd has applied a modification of these methods with gratifying results. He describes in detail his method and divides the cases to be treated into: (1) Acute suppurative cellulitis with slough formation; (2) Open granulating wounds communicating freely with exposed bone and discharging purulent material in moderate quantities; (3) More or less quiescent bone inflammation communicating with the surface by means of one or more sinuses. In the first class of case, he employs substantially the technique suggested by Morison with the addition of the paraffin-gauze pack. In the second type of case, as soon as the infectious process has become localized an effort is made to approximate the tissues and skin edges and so mirimize the ultimate formation of new tissues with its accompanying sequelæ of adherent scars and nutritional disturbances. This is done by insertion of mattress sutures of heavy silk (No. 12-16) smeared with B. I. P. P. and protected by small rubber tubes or buttons. The wound is dressed with spirit or Dakin's solution. At each dressing, at six to twelve days' intervals, new sutures are inserted and the tissues gradually approximated. Invagination of scar is avoided by undercutting the skin. At each dressing the bone edges are carefully palpated with the B. I. P. P. pack brought in accurate contact with bare bones. Loose white bone fragments are removed and bone ends not covered with granulations within six weeks from time of injury are nibbled away. Once the bone is obscured by velvety granulations, the granulation tissue and as much as is deemed advisable of the scar tissue is excised and the wound tightly closed by means of superimposed layers of mattress sutures after B. I. P. P. has been carefully applied to the surface. In cases of the third type, the author advises excision *en masse* of as much scar tissue as possible. In the treatment of sinuses the value of passive hyperemia is emphasized and the danger of meddlesome packing with inert gauze. He points out that in the majority of these cases either bleeding has interfered with proper vision so that examination of bone is impossible or the wound edges are not easily approximated. In such cases he recommends that the exposed bone and soft tissues be mopped with alcohol and an excess of B. I. P. P. applied; paraffin gauze packs are pressed into position and the wound closed, as completely as may be, by means of protected mattress sutures. Such wounds are not dressed. In five or ten days the patient is anesthetized and sutures and packs removed. The wound surface is found clean, bright-red in color, and covered with granulations. There is no bleeding, examination is easy, and further interference readily carried out. The wound is again dried, "re-bipped," and closed by mattress sutures in layers. The author points out that, as Morison showed, frequent dressings of wounds, after closure, are unnecessary and harmful. Sutures should be left in position, if possible, for three weeks. The advantages of the method described are: Lessening of discomfort and pain to the patient, as a result of increase in interval between dressings and shortening of open wound period; improvement in functional result in consequence of less frequent disturbance of bone fragments during the dressing stage and earlier application of complete immobilization in cases in which this is indicated, a diminution in the number of adherent painful scars and nutritional disturbances, and earlier opportunity for secondary operations, such as nerve and tendon suture and massage, etc.; early transformation of patients from the "dressing" to "observation" class of men; shortening of hospital days per patient and consequent increase

in the usefulness of hospital beds; economy of dressing material, both by reason of the infrequency of dressings and shortening of the dressing period. Commenting on Captain Gurd's article, Colonel Sir Robert Jones points out the value of such a method as that described in that the rapid and successful closure of wounds, which otherwise might persist as sinuses for months, simplifies to some extent one of the greatest problems with which the army medical authorities are faced—the provision of hospital beds for the large numbers of wounded transferred to England.

The Lancet.

June 1, 1918.

1. A Contribution on Blood Transfusion in War Surgery. L. Bruce Robertson.
2. On the Acidosis of Shock and Suspended Circulation. Colonel Sir Almroth E. Wright and Captain Leonard Colebrook.
3. Pulmonary Fibrosis, Tuberculous and Non-tuberculous. G. H. Hebert.
4. Intrapelvic Abscess, a Complication of Gunshot Wounds of the Buttock. Colonel W. Thorburn and Captain G. Richardson.
5. A Note on Anaerobes in Soil Infected Wounds. Captain Henry Goodale.
6. A Case of Amebic Abscess of the Liver and Brain with No Previous History of Dysentery. Major T. D. M. Stout, D.S.O., and Captain D. E. Fenwick.
7. A Case Illustrating an Extreme Modification of Local Tetanus. Captain Cecil Worster-Drought.

5. A Note on Anaerobes in Soil Infected Wounds.—Captain Henry Goodale reports the conclusions reached in regard to anaerobes from evidence collected from a large number of cases in the Bacteriological Laboratory of Dartford War Hospital for Sir David Bruce's Tetanus Committee. He has found (1) That anaerobes or their spores persist in the deep tissues around bone and in scars after wounds have healed, or when they are covered with healthy granulations that give nothing but staphylococci on culture. (2) That anaerobes can find their way from an infected wound of the extremities to the serous cavities of the brain and pleura, and are found in these localities in connection with meningitis and pleurisy. (3) That anaerobes are found in metastatic abscesses of the lung resembling in type the organisms found in the soil-infected wound of the patient, and the symptoms of these patients are those of general septicæmia. He states that he has not entered into any speculations as to the precise way by which anaerobes find their way from one part of the body to another; it appears certain that they produce a substance that paralyzes the polymorphonuclear leucocytes and inhibits phagocytosis, this being one of the factors which accounts for the rapid progress of acute bacillary gangrene. Nor has he spoken of symbiosis, which is another important factor in dealing with anaerobes. He hopes, however, that in view of the importance of the subject the few observations he has made may be of some value.

The British Medical Journal.

June 1, 1918.

1. The Care of the Tuberculous Soldier. Major P. Horton-Smith Hartley.
2. Remarks on Roentgenographic Pelvimetry. W. R. Mac-Kenzie.
3. The Part Played by Concomitant Infection with Anaerobic Organisms (other than B. tetani) in the Causation of Tetanus. Captain William J. Tulloch.
4. Aneurysm of the Third Part of the Left Subclavian Artery. Successfully Treated by Ligature of the Second Part. Herbert H. Brown.
5. A Case of Cerebral Toxemia—? "Botulism." James Law Brownlie.

3. The Part Played by Concomitant Infection With Anaerobic Organisms (Other than B. Tetani) in the Causation of Tetanus.—Captain William J. Tulloch points out that (1) There is good ground for believing that the ancillary part played by *B. welchii* in the causation of tetanus is clearly defined. The capacity of this organism for doing harm in the connexion under consideration can be almost eliminated by the use of the antitoxin for *B. welchii*. (2) The capacity shown by the toxin of *Vibrion septique* for stimulating the growth of tetanus spores *in vivo* is more variable than is that of *B. welchii*. Experiment VII indicates, however, that it too may play a part in the causation of tetanus. (3) It follows from conclusions 1 and 2 that antibodies to the toxins of *B. tetani*, *B. welchii*, and *Vibrion septique* should be included in all serum employed for the prophylaxis of tetanus. (4) While such a polyvalent serum promises to reduce still further the incidence of tetanus it would be too optimistic to assume that it would absolutely eliminate that disease, for infections other than those dealt with in this communication may also play a part in stimulating the growth of *B. tetani* in wounds. One of these, *B. oedematiens*, the writer proposes to investigate immediately.

Berliner klinische Wochenschrift.

April 15, 1918.

The Disturbances of the Internal Secretions in Eunuchoids.—E. Voelckel gives a general survey of the question of testicular insufficiency and then gives the case history of a male aet. forty years, with hypoplastic testes. His secondary sexual characteristics were insufficient; in height he was below the average in relation to body weight, while lymphocytosis was insufficient. Voelckel was unable to find any change in the sympathetic or autonomous excitability. Likewise, he was able to note that the conditions of metabolism were normal by the following tests: (1) A mixed diet, at the rate of 3000 calories by weight, maintained the subject at his normal weight. A diet of 1800 calories resulted in a loss of weight, rapidly compensated by a return to the diet of 3000 calories. There was, consequently, no disturbance in oxydation. (2) There was no alimentary glycosuria nor hyduria. This subject can, therefore, demonstrate either theory concerning the relationship of the endocrine glands between themselves.

Is There a Disease of Aviators?—W. Hirschlaff comes to the conclusion that there is no clinical picture belonging properly to aviators. The phenomena that they may offer is quite as well met with in the case of mountain sickness. The writer mentions, among others, the following phenomena: pain in the ears in rapid changes of altitude, particularly in the descent. The aviator automatically deals with them by making movements of deglutition or yawning (the presence of a tubotympanic or sinunasal obstruction may cause violent pain in the blocked-off cavity). The want of oxygenation does not usually give rise to any trouble, as the aviator is provided with a tank of oxygen. The blood pressure is usually increased by about 20 mm. Hg. at the end of the flight, as compared with the initial pressure. Likewise, the pulse rate increases from 20 to 30 per minute. Organic cardiac disturbances are unusual. The most frequent, and at the same time the most serious disturbances, are of a nervous nature: restlessness, insomnia, functional cardiac disturbances. Aviators easily become the prey of neurasthenia, while on the other hand, psychopathic disturbances (for example, traumatic neuroses) are rarely encountered among them, this fact being explained by the selection of the men taken into the air service.

Deutsche medizinische Wochenschrift.

April 4, 1918.

The Diagnosis of Fluid Collections in the Knee Joint.—Pels-Leusden has come to the conclusion that the present methods of diagnosis which, as far as he is concerned, are limited to the patellar shock, are wanting in "finesse" and are insufficient, and in this we agree. This procedure, which, according to Pels-Leusden, is the only one resorted to (in his country), but can very well be completed by a method more apt for detecting small fluid collections in the knee. This consists in placing the leg in complete passive extension, and in this position the hands of the examiner being placed one above the other below the knee joint, can produce fluctuation of the fluid contents on either side of the patella.

The Cure of Cutaneous Ulcers and Bone Fistulæ Following Wounds from Missiles, by Immunized Skin Flaps.—M. Katzenstein has noted that grafts of healthy skin often die in their struggle with the infected wound which they covered. Katzenstein proposes to overcome this difficulty by immunizing the flaps, and to attain this end he treats the skin which shall serve as a graft

by the application of the dressings coming from the wound. An inflammatory process ensues which renders the skin more apt to grow over the grafted area. This procedure has been utilized in cases of cutaneous ulcers treated in the first place by Thiersch's grafts, a fixation of the epidermic bits occurs in spite of the local suppuration; the pus can be given exit through the graft, or may even be eliminated spontaneously. The pedunculated flaps destined for closing the musculocutaneous ulcers or bone fistulæ will likewise hold much more readily if they are first treated by the septic products of these ulcerative processes. The writer insists on the fact that numerous wounded men who had undergone long and varied hospital treatments rapidly recovered after the application of the method advised.

Deutsche medizinische Wochenschrift.

April 11, 1918.

Sealed Dressings.—F. Härtel, taking into consideration Bier's researches on the conditions of tissue regeneration, criticises the absorbing dressings which are almost universally employed. These viciate the conditions of existence of the deeper tissues which habitually live in a fluid medium. The absorption by aspiration of the gauze dressings interferes with the development of the granulations, without mentioning the inconveniences attendant upon change of dressings (pain, tearing of the wound tissues, etc.). In certain conditions, pus is a useful adjuvant to the process of cicatrization. The technique employed by Härtel consists in the use of impermeable material which covers the wounded surface completely. The surrounding skin is covered with a dermatol-zinc oxide ointment, after which the impermeable dressings are held in place by gauze, and the whole retained by a roller bandage. If retention of fluids is too great, drainage of the declivitous parts of the wound cavity may be resorted to. The result of this method is, that after a few days under the free production of pus will be found granulations in full development. This procedure is to be used in all cases of clean, open wounds, but in irregular, doubtful wounds it is contraindicated.

The Presence of Virulent Tubercle Bacilli in the Blood After the Exhibition of Tuberculin, in Cutaneous and Other Tuberculoses.—W. Schönfeld finds that the passage of bacilli into the circulation in cutaneous tuberculosis is infrequent. The production of this bacillemia was not made evident by injections of tuberculin or the intravenous use of cyanide of gold. Finally, Schönfeld considers as doubtful the attribution of an atypical tuberculous reaction to a tuberculosis in the given subject. These conclusions have been come to from results derived from a series of injections made in the guinea-pig of blood taken from patients before and after treatment with tuberculin.

Münchener medizinische Wochenschrift.

April 9, 1918.

The Cause of Essential Night-Blindness.—L. Koeppe again brings up the question of hemeralopia on account of its present importance in military medicine. In opposition to those who attribute this visual defect to lesions of the nervous system, retinal malformations, circulatory disturbances, etc., the writer places the cause in a diminished transparency of the cornea and lens. Evening light produces cecity, because the relative opacity of these structures intercepts the light rays, so that the point of retinal excitation is not reached. Koeppe has been able to demonstrate these anomalies in transparence by means of a Nernst lamp provided with a slit thus giving a centuple enlargement. Hemerolopic patients frequently offer these changes, while by an ordinary visual examination no change of the cornea or lens will be detected. The writer believes that his method is a means of verifying hemerolopia in subjects who claim to have night-blindness and that any simulation on the part of the subject can be detected.

Frequent Diagnostic Mistakes, Particularly in Physical Diagnosis.—A. Heinecke, who is the director of an observation clinic to which all doubtful cases or those in which the diagnosis is difficult are sent, as well as soldiers requiring expert opinion as to their military aptitude, offers this paper. He has been able to send back to active service 77.6 per cent. of the cases submitted to his examination, 47.9 per cent. returning to the front. He has been able to note that the most general diagnostic error has been that of pulmonary tuberculosis which did not exist. He has become very critical in regard to the physical diagnostic means generally employed. Thus, of all findings by auscultation, he looks upon râles as the only certain sign (when all characteristic evidences of pulmonary tuberculosis are absent) of tuberculosis. Comparative percussion of the apices may cause erroneous interpretation when there exists a slight scoliosis, even when the spinous apophyses are perfectly in line. Asymetry of the claviculæ and ribs is also a source of error in physical diagnosis. To conclude, the writer opposes the modern tendency to make a too fine physical examination as this only tends to increase the number of mistaken diagnoses.

Correspondenz-Blatt für Schweizer Aerzte.

March 2, 1918.

Epidemic of Diphtheria in Basle.—Massini refers to an epidemic which prevailed during the late winter. A number of the victims were treated by the author in the Civil Hospital. The incidence was rather cumulative than epidemic, and in the last month five of the interned children died from laryngeal diphtheria. There were no deaths from the pharyngeal and nasal localizations. All the recovered children received their serum either early (pharyngeal cases 2.5 days) or late (nasal cases 20 days). The dead children did not receive serum until an average of more than 6 days had expired; while in children who recovered from laryngeal diphtheria the interval was but 2.3 days. It is very rare for death to occur in diphtheria when the membrane has been expelled in the first two or three days, and this result we see when serum is given early. Serum sickness in the form of a rash was seen 12 times, while anaphylactic phenomena were quite absent. The author would not term this epidemic a severe one, for the measure of severity is high morbidity and mortality in adults. It is, of course, conceivable that in such cases virulence can attain such a pitch that the action of serum becomes problematical.

Is Salvarsan of Value in Amebic Dysentery?—Heim asks if salvarsan may not be the equal of emetine as an antiprotozoan remedy. A study of recent literature shows that this practical subject seems to have received little attention. The author having treated a patient, without success, with emetine, obtained his chance to test arsenobenzol. The case was eminently amebic in clinical characters, relapses occurring from time to time over a period of years. The Wassermann was negative, so that no claim could be urged of a syphilitic substratum. Amebus were present in the stools in small numbers only. The patient, whose relapse had at first been mild and controllable with emetine, had become much worse, and was confined to his bed with many daily evacuations. The author chose to use neosalvarsan in the form of an enema, and benefit was at once apparent. After six of these enemas during a fortnight the patient was practically well. He had a mild relapse six months later which yielded to a single enema of neosalvarsan. Similar results were obtained in other cases, so that the author does not hesitate to use salvarsan whenever emetine proves unequal to the task of controlling the disease.

Night Blindness in Troops.—Landott has separated these into three classes. In false hemeralopia or nocturnal amblyopia we have to deal with refractive errors including lesions of the cornea. In true hemeralopia we have to deal with retinochoroiditis, retinitis pigmentosa, choroiditis, etc., the effects of which on visual acuteness had been latent before the night life of the war. The first class may require only glasses, while the second should be transferred to the auxiliary services. Finally we have the hemeralopia due to poor food and malhygiene which yields rapidly to regimen.—*La Presse Médicale.*

Book Reviews.

Blood Transfusion, Hemorrhage and the Anemias. By Bertram N. Bernheim, A.B., M.D., F.A.C.G., Instructor in Clinical Surgery, the Johns Hopkins University; Captain, Medical Officers' Reserve Corps, U. S. Army; Author of "Surgery of the Vascular System," etc. Price, $4.00. Philadelphia and London: J. B. Lippincott Company.

Bernheim has rendered a genuine service to the profession in writing this book at the present time. The work is the logical outcome of the author's large practical experience in blood transfusion during the past few years; in fact, since the procedure became recognized as an invaluable adjunct to the therapeutic armamentarium in the treatment of the anemias. He begins with an introductory note containing an interesting historical résumé of transfusion from the earliest times down to the present. Four periods are demarcated. The first comprises the early abortive attempts of archaic interest only. The second is the period initiated by Carrel's work on blood vessels, which was the beginning of modern research into the problem. This period includes Crile's arteriovenous direct transfusion technique. The third period is that of indirect transfusion of whole blood by means of the syringe-cannula technique, introduced by Lindeman, and which is in reality a revival of von Ziemssen's old method long forgotten. The fourth period is just beginning, according to the author, and may well be termed the Period of Anticoagulants. The book contains twelve chapters with the following captions: Blood and the phenomenon of bleeding; diagnosis of hemorrhage; control of hemorrhage, factors involved in a determination of danger limits, blood pressure; indications for transfusion; dangers of transfusion, hemolysis and agglutination; selection of donor for transfusion, dangers to donor, treatment of donor after transfusion; methods of transfusion, technique; transfusion for acute hemorrhage and shock, etc., etc.; transfusion for anemic and debilitated conditions in general; primary pernicious anemia; transfusion for hemophilia, melena neonatorum, purpura, jaundice; leucemia, splenic anemia, certain toxemias. Each subject is treated in a thorough manner without dwelling upon irrelevant details. The indications for transfusion are considered at length and numerous clinical citations are included to emphasize its value. A list of references is given at the end of each chapter, pertaining to the topic under discussion. The book is concluded by an appendix containing hemolysis and agglutination tests to be carried out before transfusion. To anyone interested in the subject of blood transfusion, Bernheim's work will appeal as being a sound, practical treatise well worth perusal.

The Medical Clinics of North America. New York Number. November, 1917. Vol. 1, No. 3. Published Bi-monthly. Price, $10.00 per year. Philadelphia and London: W. B. Saunders Company.

This number of the Medical Clinics is replete with much valuable and up-to-the-minute information on a well selected list of subjects. A few of the more important ones might be mentioned as illustrating the general high level of the contents. Dr. Warfield T. Longcope, in his clinic at the Presbyterian Hospital, adds a case of Vaquez's Disease to the literature of this rather rare malady. Prof. Graham Lusk gives a very practical dissertation on "Calories in Common Life," being an estimate of food requirements in health and disease. Dr. Warren Coleman has a contribution on typhoid diet with an exposition of the high calory principle, rules for calculation of such a regimen, ménus for the different stages of the infection, cautions to be observed, and the question of hemorrhage in its relation to diet. The writer states that he believes the principle underlying the high calory diet is applicable to other febrile diseases than typhoid fever. Dr. Rufus Cole contributes an excellent article on the treatment of lobar pneumonia, in which the importance of identifying the type of infecting organism is emphasized. Detailed directions are given by Cole regarding the use of antipneumonic serum. Dr. Alfred E. Cohn on the clinical pharmacology of digitalis gives many useful suggestions as to the use of this all-important drug. The newer ideas on protein sensitization in the human is considered by Dr. Robert A. Cooke in two lectures, during the course of which he takes up the diagnosis of bronchial asthma and hay fever, and discusses the value of protein injections in these conditions. The value of the fluoroscopic method of diagnosis in digestive diseases by Dr. Arthur L. Holland, and a symposium on diabetes by Dr. H. R. Geyelin are two contributions of decided merit.

Vagotonia. A Clinical Study in Vegetative Neurology. By Dr. Hans Eppinger and Dr. Leo Hess of Vienna. Authorized translation by Drs. Walter Max Kraus, A.M., M.D., and Smith Ely Jelliffe, M.D., Ph.D. (Second, revised and corrected edition.) Nervous and Mental Disease Monograph Series, No. 20. Price, $1.00 net. New York: The Nervous and Mental Disease Pub. Co., 1917.

Just as the broad term "epilepsy" is coming to be applied to a smaller and smaller group of patients, so increasing knowledge of the obscure regions of neuropathology will decrease the ranks of patients whom we have been in the habit of labelling simply "nervous." The autonomic nervous system is probably the least understood of any part of the human body, and the existence of a disease syndrome consisting of abnormal irritability of this system is little enough appreciated by the large majority of the profession to make the present volume very welcome. The first edition was rapidly exhausted, and this one is practically a reprint, although some minor changes have been made. It is a remarkably clear presentation of the known facts of the subject, with suggestions for future research, the whole bound in the Continental method—that is, heavy paper covers, a custom at which many American doctors are wont to carp.

A Treatise on Regional Surgery by Various Authors. Edited by John Fairbairn Binnie, A. M., C.M., F.A.C.S., Kansas City, Mo. Vol. III. Octavo of 830 Pages with 521 Illustrations. Price $7.00 net. Philadelphia: P. Blakiston's Son & Company, 1917.

This is the final volume of this set and while, according to the announcement opposite the title page, it is supposed to cover only the surgery of the extremities, there is also a section on thoracic surgery which should have appeared in the first volume along with the articles covering the surgery of the heart, pericardium, diaphragm, and breast. Lilienthal and Gerster's section on thoracic surgery, although hidden away at the back of the book, is not only one of the most important, but one of the most scholarly in the volume.

The standard set by the articles in the second volume perhaps led us to expect too much of this one, and possibly that is one reason why this seems somewhat disappointing. In this volume particularly there is entirely too much overlapping of material. There seems to be no good reason why such subjects as traumata (exclusive of fractures and dislocations, which require individual consideration), osteomyelitis, tumors, and numerous other subjects could not have been covered by one author, who might point out any occasional differences arising when one or the other extremity was concerned, rather than for one author to describe, for example, boils, carbuncles, bone cysts, etc., etc., as affecting the upper extremity and then for another author to duplicate the process for the lower extremity. A great deal of space could have been saved without loss of anything essential.

The following authors have contributed to this volume: Drs. James F. Mitchell, J. W. Perkins, A. F. Jonas, Dean Lewis, E. H. Bradford, Robert Soutter, J. F. Binnie, W. J. Frick, Charles Herbert Fagge, Emmet Rixford, Stanley Stillman, David McCrae Aitken, Howard Lilienthal, John C. A. Gerster, Sir W. Arbuthnot Lane and Sir Robert Jones. Among the sections that deserve special mention are those on fractures and dislocations, both of the upper and lower extremities, by Perkins, Jonas, Lane, and Fagge; the long section on diseases of the upper extremity by Dean Lewis; the sections on deformities of the lower limbs, congenital dislocation of the hip, and infantile paralysis by Jones and Aitken, and the section on thoracic surgery by Lilienthal and Gerster.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Sixty-ninth Annual Meeting Held in Chicago, June 10-14, 1918.

(Special Report to the MEDICAL RECORD.)

SECTION ON THE PRACTICE OF MEDICINE.

First Day—Wednesday, June 12.

(*Continued from Vol. 93, page 1149.*)

Neurocirculatory Asthenia.—DRS. WILLIAM H. ROBEY, JR., of Boston and ERNST BOAS of New York presented this communication, which was read by Dr. ROBEY, and in which they said that the condition to which the name "neurocirculatory asthenia" had been recently given had been previously described under the names of "soldier's heart" and "effort syndrome." The symptoms of this condition were breathlessness on exertion, tachycardia, palpitation, precordial pain, vertigo, fatigue on slight exertion, lassitude, high blood pressure, and general nervous instability. All the symptoms were exaggerated by a slight amount of exercise. The condition was known in civil practice, but because the individuals suffering from it spared themselves and took up certain work compatible with the condition it was not so frequently observed by the civil physician; but in the Army, where everyone must do the same work and must adapt himself to the work, it was quite frequently observed and was responsible for a certain degree of invalidism. The condition was often diagnosed as organic heart disease, because of the precordial pain usually present and the elicited thrills which suggested mitral stenosis. The thrills, however, in the condition described, were systolic in time. In some soldiers the condition was present before entering the service, in others it occurred after entering the service, and in still others only the greatest stress gave rise to that condition. Until recently there had been no category of light work in the army and the men presenting the symptoms described had been usually discharged. Lewis treated these cases with calisthenic exercises, progressing slowly from one form of exercise to another, and those that could not go through with the entire series were discharged. In the essayist's experience that form of treatment had no value as a cure, but was of some diagnostic value. They had become convinced that the condition was due to an inherent nervous instability. A vast number of the patients gave a family history of nervous disease and their personal histories indicated that they had always been somewhat unstable; they could not stand any extra strain and could not meet conditions requiring special effort; many gave a history of enuresis in childhood, objectively they showed twitching of the fingers and emotional instability, and were subject to crying. Some writers mentioned hyperthyroidism in connection with that syndrome, but the authors had not observed any changes in the thyroid.

Sir JAMES MCKENZIE of England, who was introduced by the Chairman as the man who had made the study of cardiovascular disease popular here and abroad, said he wished to preach the gospel of clinical investigation. Instead of spending so much time in studying what happened when the patient was dead, the time should be devoted to the study of the patient's symptoms. The sensations of the patient should be studied accurately. Such symptoms as fever and pain had not been studied sufficiently. Pain was often described as diffuse. In his opinion, however, there was no diffuse pain, but it was governed by definite laws. During the Civil War he had read descriptions of "soldier's heart," but when he had visited the hospitals nobody was able to demonstrate that condition to him. In England he had grouped 500 soldiers who were discharged from the service because of valvular disease of the heart and disordered action of the heart, and in 90 per cent. of the cases there was no organic disease. The murmurs which had been elicited were functional or, better, physiological. When a murmur was found the question should be, What deficiency did the murmur produce? The entire problem was that of the myocardium and not murmurs. He had followed a case with a presystolic murmur for eighteen years and then the murmur had disappeared. He had never been able to hear a Flint murmur nor a Steel murmur. He did not object to the name of effort syndrome or the new name neurocirculatory asthenia, but the trouble was that many stopped at names, as soon as a condition was labeled that seemed to solve the problem. The symptoms should be more carefully studied. The asthenia was not confined to the nervous system, but the entire system was asthenic. In many cases of functional heart condition, by careful questioning of the patient, one frequently elicited a history of cough, diarrhea, malaria, etc., a week or ten days previously, and these patients were simply convalescing from some form of an infection. He had sent a man with an aortic murmur into the trenches with a certificate that he was able to do easy work, and whenever that soldier wanted a rest or a little vacation he would go to the division surgeon and the latter, upon listening to his heart, would shake his head and immediately send him to the hospital. Any man when subjected to strong physical exertion gave way somewhere—some got tired in their legs while others got short of breath. The symptoms of exhaustion, in his opinion, deserved very careful study. He did not suggest the particular exercise Dr. Lewis was using in the heart conditions mentioned; all he wanted was that the patients should do something in which they were interested. Any man who was able to take exercise and enjoy it was doing his heart good and not harm.

Dr. WARFIELD of Milwaukee said he was very much interested in this subject. He had been in Camp Jackson, where 50,000 men passed. He had seen all the heart cases and he wished to know how the condition described could be determined. The exercises given were in many cases sufficient only to bring out the gross lesions; many patients could perform various exercises, return to normal easily, and still have a murmur. He thought such men should be retained in the service. He wished to know if there was a way whereby in the recruiting station it could be told who was going to break down. He had only seen one case that he was able to diagnose as "effort syndrome." Some were cases of hyperthyroidism, some cases were called by the psychiatrist psychoneurosis, and some turned out to be tuberculosis, but there were many cases with trivial heart lesions. The question was an important one for those who were doing recruiting duty.

Dr. LITCHFIELD of Pittsburgh wanted Sir James MacKenzie to say something about the influence of tobacco on the heart. With the outbreak of the war the tobacco trust, through adroit advertising, had impressed the public with the importance that tobacco played in keeping the soldier in good spirits, and as a result everybody—from friend, relative, to various charitable organization—had made a special effort to see that the soldier was well supplied with tobacco. The excessive supply of which the soldier found himself to be the possessor resulted in its excessive use, in consequence of which various functional heart conditions had developed. When the smoking was stopped, as upon admission to a hospital, the condition quickly disappeared.

Sir JAMES MACKENZIE said that at the beginning of recruiting in England many young men were shocked to know that they had murmurs; many had consulted him because they had been turned down by the recruiting officer. He wished to impress upon the hearers that perfectly physiological hearts might have murmurs and a murmur systolic in time might be perfectly normal. If there was no enlargement of the heart, if the rhythm and rapidity were normal, and there was good response to effort, one should forget about the murmur. In his opinion there was no such thing as mitral regurgitation of first or second degrees; he had kept records of the rejected cases and had become convinced of the harmlessness of murmurs. One man who had had a rough systolic murmur at the apex had been rejected by the army six times, but upon Dr. MacKenzie's personal recommendation had been finally accepted and, after three years' hardest work in the trenches, was as vigorous as ever. Hyperthyroidism was another craze. He had examined three hundred cases that were diagnosed so and in none was he able to find an enlarged thyroid. Tobacco in many cases might be a predisposing cause, but was only one symptom and one should

never depend on one symptom alone. In his book he had described an X type. He called it X because he did not know what the condition was due to. Patients suffering with that type of heart condition were poorly nourished, their peripheral circulation was poor, they did not respond to cold, were afraid of a cold bath, were red-nosed, and of an irritable temper. Such people had irritable hearts and under army life would easily break down. Some would call them psychasthenia, but it was more probable that the condition was due to an ileostasis or some other gastrointestinal condition.

Dr. Oppenheimer of New York said that last summer the Surgeon-General had sent six American officers of the Reserve Medical Corps to the British Military Heart Hospital, with which Sir James MacKenzie had been connected since its inception. After serving there for several months they had written an independent report in which they suggested the new name, neurocirculatory asthenia, for the now familiar symptom complex. After the completion of the report Dr. Thomas Lewis had written a brief but valuable foreword showing its military bearing in relation to the young American forces. By some mistake, however, the paper was printed in the April issue of *The Military Surgeon*, with Dr. Lewis as the author; the names of the six American officers really responsible for the report and also for the introduction of the name were entirely omitted. This explanation he thought might make certain parts of that paper more intelligent. Several other names had been used, such as "disordered action of the heart," "irritable heart of soldiers," "effort syndrome," "athletes' heart," "cardiac neurosis," etc., but the use of any term which directed the soldier's attention to his heart handicapped him and the officer who dealt with him. Neurocirculatory asthenia overcame that objection; moreover, the name was not meant to imply any theory of the fundamental pathology, which was still unknown. It was purely a descriptive term, indicating that in this syndrome there were nervous and circulatory symptoms associated with an increased susceptibility to fatigue. Since returning to America there had been an opportunity to compare the cases among the American recruits who had broken down in training with such symptom with the British soldiers who were invalided from the front with "D. A. H." The condition as seen in England and America was identical, but the cases here were milder and, as Major Robey and Captain Boas pointed out, belonged almost entirely to the constitutional group; *i.e.* to the group that had symptoms prior to entrance into service. The question of fundamental pathology, especially that of hyperthyroidism, was here complicated by the great prevalence of thyroid enlargement in the "thyroid belt" of the Great Lakes. Some of these men had a simple thyroid enlargement, some suffered from thyreotoxic hearts, but it was exceptional to find a typical case of Graves' disease. As to the question of nervous instability which Major Robey had emphasized, Captain Rothschild and the speaker had taken in detail the family and the personal histories of one hundred soldiers in Colchester, and found that 46 per cent. had predisposing neuropsychic factors in their family and previous histories, but that thirty-nine had absolutely negative histories and had given valuable military service before breaking down. Dr. Warfield had asked a very important question. In answer, one might say that only a certain percentage of cases could be picked out in the initial examination of drafted men, for the disorder might not develop until the soldier was exposed to the conditions of modern warfare. In view of the abundance of perfectly normal recruits in this country, every man who was sent overseas should be fit, and, for the present at least, it was sound to reject doubtful or borderline cases.

Dr. Jacobi of New York said in addition to the mitral murmur the presence of hypertrophy or dilatation, or both, was also necessary in order to make a diagnosis of organic heart disease. Some murmurs were changeable, they were present one day and not the other; some appeared only after exertion. Many conditions called myocarditis were due to nervous irritability as a result of excessive use of tobacco. In some patients murmurs appeared after running up and down stairs, but disappeared after ten minutes' rest. Such people could very easily do a certain amount of good work and need not be rejected from the service.

Dr. Robey, in closing the discussion, said that out of 26,000 men examined only a few cases of organic disease had been found; the entire question was that of muscular efficiency. Out of the 26,900 men examined only 200 were diagnosed as subjects of circulatory asthenia, and as they had not been pressed for men and it was a real condition, it was thought best to reject them. There was no way of telling at the recruiting station who would break down as a result of such a condition.

Newer Aspects of Digitalis Therapy.—Drs. Joseph H. Pratt and Hyman Morrison of Boston presented this communication, which was read by Dr. Pratt. They stated that the usefulness of digitalis was not appreciated until recent times, although in 1785 Withering called attention to its therapy in a very exhaustive paper called "The Truth About Fox Glove." His thesis was to continue administration until the drug acted on the heart, kidney, pulse, or stomach and MacKenzie a hundred years later recorded the same postulates. The essayists stated that most of the digitalis on the market was of poor quality and variable in strength, of thirty samples tested, twenty-four of which were native grown, seventeen were below U. S. P. strength and the extreme of variation was 700 per cent. Physicians feared unjustifiably large doses of this drug; weak preparations were given and the use of the infusion should be condemned. One c.c. of a good tincture of digitalis produced a physiological effect in three days. Regarding strophanthin they considered the drug intravenously a life-saving measure. Unpleasant results which followed its administration were due to large doses; they never gave more than one-half milligram per dose. They were convinced that in some cases strophanthin produced therapeutic effects which could never be obtained by digitalis. They emphasized the importance of using an active preparation and in sufficiently large doses to obtain results.

Sir James MacKenzie said he could give support to everything Dr. Pratt had stated; he, however, never found a weak preparation in England. It grieved him in years bygone to see medical men from the United States pass through England jump over to Germany and come back with some kind of an instrument, carrying it as a false-god. They might have waited a little to see what England was doing. Undue importance was given to laboratory investigation and the clinical side was neglected. In England they had followed more the system of clinical investigation and men like Hunter and others who were known in this country as surgeons were primarily clinicians. Withering, under the system of clinical observation, had been able to write a better paper one hundred and twenty years ago than anyone had written since with all the laboratory methods at hand.

Second Day—Friday, June 14.

Symposium on Pneumonia: Unique Findings Gathered from the Observation of Eleven Hundred Cases of Pneumonia in a Base Hospital.—Dr. Arthur A. Small of Chicago presented this paper. The cases studied comprised 857 lobar and 208 bronchial pneumonias. The ordinary lobar type, as seen in civil practice, prevailed during September and October, but in November and December the incidence became greater with proportionately more bronchial cases and a higher mortality. Thus in the last two named months the mortality was 29 per cent. and this continued during January, and during that month the mortality of the bronchial cases rose to 53 per cent. This high mortality was difficult to account for unless it was attributed to the fact that many of the cases were secondary to measles. A surprising feature of the so-called streptococcic bronchial pneumonia cases was the paucity of symptoms both subjective and objective. A slight cough, a few rales, and perhaps no subjective complaint often formed the entire clinical picture at first, twelve to twenty four hours later there would be a small consolidated area with tubular breathing, usually in the scapular region. A malignant type sometimes occurred, the patient would be slightly ill in the morning, admitted to the hospital in the evening, and a fatal result would occur the following morning. Post-mortem findings would reveal lymphadenitis, acute pleuritis, bronchial and lobar pneumonia in the same patient. Empyema had occurred in 9.25 per cent. of

all cases. The condition was very hard to diagnose. *X*-ray pictures revealed pocket formation of pus in locations that could not be detected by exploratory puncture or from physical signs. Forty-eight per cent. of the empyemas were due to streptococci. Many cases were diagnosed as meningitis on account of the presence of Koenig's sign, stiffness of the neck, and headache. Others presented symptoms of appendicitis. Jaundice was not infrequent especially in the negro; another frequent complication was pericarditis. The high mortality might be attributed to the fact that during the first four months the physical condition of the men was poor, there was a great deal of dust in the camps, the men frequently went to bed with wet clothes on, the prevalence of measles. Tonsils were enlarged in many cases, which in turn predisposed the men to many respiratory infections as coryza, bronchitis, etc., which in turn contributed to the development of pneumonia.

An Epidemic of Streptococcus Pneumonia and Empyema at Camp Dodge.—Drs. JOSEPH L. MILLER and FRANK B. LUSK of Chicago presented this communication which was read by Dr. Miller. They stated that they had observed 740 cases of pneumonia of both types in Camp Dodge between the months of September and April. Between the months of September and March the pneumonias were mostly of the pneumococcic type with the same mortality as observed in civil life, but along the month of March the streptococcic type developed. This type of pneumonia gave an unusual high mortality and in a large per cent. of cases developed empyema in which the mortality had reached about 60 per cent. The colored troops, however, were less liable to empyema but the mortality from uncomplicated pneumonia was higher in the colored than in the white. The patients appeared very ill. Marked toxemia was present but physical signs were less definite. The rapidity of the occurrence of empyema was remarkable, frequently following within twenty four hours after patient's admission to the hospital. The greatest difficulty was encountered in the detection of fluid. Physical signs would show good breath sounds, bronchial breathing with some rales, the patient frequently dying twenty-four hours later and presenting upon autopsy large amounts of fluid which was due to the peculiar pocket formation, rendering it almost impossible of detection by means of physical signs and even by exploratory puncture. The *x*-ray was resorted to frequently, every case admitted to the ward was *x*-rayed within the first twenty-four hours and every five days while the temperature continued to show any elevation. Many cases of bronchitis with a temperature of 101°, under *x*-ray examination proved to be pneumonia; but while the *x*-ray was of value in detecting consolidation it was of far less value for the detection of fluid, and frequent aspiration had to be depended upon in order to make a diagnosis of fluid. Empyema developed in 33 per cent. of the pneumonia cases and many empyemas were complicated by peritonitis, suppurative pericarditis, and arthritis. While the mortality from non-complicating pneumonia was higher in the negro than in the white, the mortality from empyema in the negro was lower than in the white. The contributing causes of the epidemic were the dry, warm, and exceedingly dusty month of March, the frequent drills, the prevalence of coryza and bronchitis, overcrowded condition of the sleeping rooms, cots being too near one another, and the fact that the windows were not kept open, which was especially true of the colored troops who in addition to closing the windows frequently covered up their heads with their blankets. The treatment during the epidemic consisted in the administration of 1 c.c. of a carefully standardized tincture of digitalis every three hours until the crisis occurred, the administration of morphine for cough or restlessness and the administration of camphorated oil in bad heart cases. The streptococcic empyemas did not respond well to early surgical interference; the first thirty-two cases were operated upon early with quite disastrous results. Repeated aspirations until the fluid became purulent when operation was resorted to was the plan later on adopted and better results were obtained. The improvement in the results, however, was only apparent, as of the thirty-two cases operated on early 56 per cent. resulted fatally, and of eighty-one cases with later operations 51 per cent. were fatal. The patients operated on early, however, died much sooner than the cases of later operations. The death in many cases was due to the intense toxemia and not empyema. When localized pockets of pus remained undiscovered the patients died eventually. Whenever the pus was localized in one pocket he got well no matter what manner of treatment was followed.

A Clinical Study of Eight Hundred Cases of Pneumonia.—Drs. WILLARD J. STONE of Toledo, Oh.o; BRUCE G. PHILLIPS and WALTER P. BLISS of New York presented this communication, which was read by Dr. Stone. The study embraced all cases of pneumonia treated during the period of eight months, of which approximately 650 were primary lobar pneumonia and 150 pneumonias following measles. The infection had been of a severe type. In only a small number of cases was the Pneumococcus Type I present. In a far larger number of cases the *Streptococcus hemolyticus* prevailed. The occurrence of empyema was unusually frequent and the mortality as a result of that complication was high. The pneumonias following measles were of both the lobar and bronchopneumonic type. Empyema occurred in twenty-one per cent. of all cases. The mortality of empyema due to the pneumococcus was 25.8 per cent., while that due to the streptococcus mortality was 74.2 per cent. Early operations for empyema resulted in a high mortality which had been reduced by preliminary aspirations and intrapleural lavage until the pneumonic process had subsided when operation followed.

Streptococcus Pneumonia.—Dr. JAMES G. CUMMINGS of Ann Arbor, Mich., read this paper. He stated that during the winter months at Fort Sam Houston they had a large number of cases of pneumonia which was of a severe type complicated very frequently with empyema. The investigation showed *Streptococcus hemolyticus* was the cause of the epidemic. The germ was isolated from the throat sputum and from pleural fluids. The germ was frequently spread through the use of milk into which it had gotten from the udder of the cows infected by humans. This organism was frequently found in tonsillitis and in areas to which the tonsils had been removed and the swabs from throats of patients suffering with measles showed a large percentage of *Streptococcus hemolyticus*, and of those many developed pneumonia of the streptococcio type. Out of 12 per cent. of pneumonias which developed following measles 90 per cent. were carriers of the hemolytic streptococcus, while in healthy people this organism was present in only six per cent. The hemolytic streptococci prepared the way for measles and later on for pneumonia. Sixty-one per cent. of the pleural exudates following contained the hemolytic streptococcus. In thirty-four autopsies of patients who died of pneumonia nine cases were of lobar and twenty-eight of the bronchopneumonic type. The hemolytic streptococcus was found in about eighty per cent. and was obtained in pure culture from bronchial pneumonia cases. In the lobar pneumonias the streptococcus was found in pure culture or combined with pneumococcus Type I. In only one pneumania case following measles was the pneumococcus Type I found alone. In pneumonia due to hemolytic streptococci the mortality was 82 per cent. It was important therefore to determine in a given case of pneumonia whether the cause of the organism was the pneumococcus or the streptococcus. Instead of dividing the pneumonias in the lobar and bronchial pneumonic types we should speak of pneumococcic and streptococcic pneumonia. All patients who were carriers of streptococci should have their tonsils removed; the milk supply should be sterilized and patients should be isolated or protected from one another by masks. The development of a streptococcic vaccine offered vast hopes for the successful treatment of that form of pneumonia.

The Pathology of the Pneumonia of the Army Camp.—Dr. WILLIAM G. MACCALLUM of Baltimore read this paper. He said a study of pneumonia in an army camp was undertaken during February and March. There were numerous cases of lobar pneumonia due to one or other type of pneumococcus. There were, however, still more cases of a peculiar bronchopneumonia due to infection with a hemolytic streptococcus. This condition frequently followed directly on measles which was very prevalent, but occurred also after scarlet

fever and in many cases in which there was no history of measles. The rapid interstitial infiltration of the tissues and organization of the exudate suggested the name interstitial bronchopneumonia for this type. Modifications of this lesion were found in cases of overwhelmingly violent infection. Combinations of lobar pneumonia and interstitial bronchopneumonia occurred. No septicemia had been found in the interstitial type of pneumonia except a few hours before death and after death. During life the germ was found in the sputum, in pleural effusions, and frequently in pericardial fluid. Streptococcic infection produced a marked congestion and inflammation of the respiratory tract; laryngitis with ulceration and tracheitis were common. Infection was rather localized, distant regions becoming involved by extension. Empyema was of extremely frequent occurrence. The conclusion as a result of the pathological studies was that though the infection caused by the hemolytic streptococcus was due to some predisposing cause such as measles, so far as pneumonia was concerned it was a distinct disease with as distinct a pathology as the primary pneumonia due to the pneumococcus.

Practical Consideration of Epidemiology Drawn from a Classification of Streptococci.—Dr. RALPH A. KINSELLA of St. Louis read this paper, in which he stated the previous work on classification of non-hemolytic streptococci indicated that this variety was highly variable. This variability seemed to depend on the existence of two opposite elements in the group, the individuality of any one member being determined by how much of one or the other element it displayed. Recent work on the classification of hemolytic streptococci indicated lack of variability, all strains studied being identical. The complement fixation reaction was the criterion on which the classifications were based, it being considered that the best basis for classification was an immunologic one, since bacteria owed their importance in medicine to their presence in man and their pathogenicity. His studies of the various groups of streptococci had demonstrated that no disease was shown to be due solely to one type of non-hemolytic streptococci, which lived under many conditions and were widely distributed, while the hemolytic streptococcus was rare in normal man, had a highly invasive capacity, was milk borne, and its presence in empyema was demonstrated in pure culture. The more widespread a bacterium was the greater was its variability and the less was its pathogenicity. This was best illustrated by the colon and typhoid bacilli. Of the pneumonias Type I had little variation, was not found in normal man, and was therefore highly pathogenic, while Type IV, which was widely distributed, was frequently found in normal man and was least pathogenic. The conclusion was that widespread heterogeneous bacteria were least invasive and rarely spread infection.

Dr. WELCH of Baltimore said one year ago such a discussion would have been an impossibility; a new problem had arisen; a new knowledge had come. When many cases of pneumonia appeared in camps they were thought to be entirely secondary to measles or due to other predisposing causes, as lack of warm clothing, cold weather, overcrowding, a great amount of dust and wind. Such was then the conception of the etiology of pneumonia; physicians were aware as to the peculiarities of pneumonia, but the experiences in the camps was something new. In this connection he wished to emphasize the importance of laboratory methods without which the problem could not have been solved. He wished especially to emphasize that it was the cooperation of the clinician, anatomical pathologist, and bacteriologist which formed the best method for the study of disease. The relationship of the streptococcus infection to the antecedent measles was not known yet. It was known that the same type of infection occurred in camps where there had been no measles. There was a great field open for further study, and the Surgeon General had appointed a pneumonia board which was to act as a clearing house for all the information obtained on the subject. The *Streptococcus hemolyticus* was still very little known; it was not known whether the germ, like the tubercle or the typhoid bacillus, was a definite type with a definite pathogenesis, or whether it had acquired a virulence by having passed through susceptible individuals. Measles might have enhanced its virulence, but now it was highly virulent by itself.

Dr. RUSSELL of Washington, D. C., said that the study of the mortality in the various camps presented many interesting features. Next to meningitis pneumonia was the principal cause of death. In Camps Pike, Beauregard, and Wheeler there was a mortality of 22 per cent. and over, while in other camps the mortality had been under 8 per cent. If, however, we considered the mortality with relation to the localities where the men came from it would be found that the high mortality camps were composed of men who came from Georgia, Arkansas, Alabama, and other Southern States, while the camps with the low mortality were composed of men coming from the Northeastern States. In camps where the death rate was low the rural population was low, as instanced in New England States, while where the mortality was high 78 per cent. of the men had come from rural communities. Pneumonia had occurred in troops who had not come from thickly settled cities. The picture was so clear that the condition was almost self-evident. Another interesting feature brought out was the fact that the more men were put on the sick list the lower was the mortality; hunting out light cases and caring for them early reduced the death rate. Camps Upton, Mead, and Logan had about the same mortality as New York, Baltimore, and Chicago, the cities where most of the men came from. In Southern camps the mortality had been higher than in the nearby cities. The explanation was that men coming from the country contracted various diseases very easily, while the men from the large cities appeared to be immune to measles and other disease and therefore had a low mortality. During the Civil War the same had been observed. Northern troops were healthier in Southern camps than the Southern troops no matter where located.

Dr. COLE of New York said he wished to emphasize one point about the two types of pneumonia: one was due to the pneumococcus and was endemic; the other, to the streptococcus, was epidemic, prevailing at a certain time and then disappearing. In animals streptococcus infection was a secondary disease and, fortunately, self-limited. The streptococcus was a variable organism and could become very virulent under certain conditions. Measles was a predisposing condition to streptococcic infection, after which the streptococci became more virulent. To prevent the spread of the infection early diagnosis and careful isolation of patients harboring streptococci were important, which in turn would tend to prevent the spread of measles. It was necessary to have hospitals for infectious diseases in every camp. Infectious diseases could not be treated successfully in a hospital organized on general basis. The two hospitals should be separate with separate personnel, should have observation wards and sufficient wards to be able to care for various kinds of infection. It was not so much a question of building as of organization.

Dr. BLISS of New York said that the subject had been very exhaustively discussed and his experience had been the same as in all camps. The percentage of empyemas was great, the mortality high, being usually due to pocket formation. The diagnosis for empyema had to be revised. Physical signs, blood counts, *x*-ray examinations could not be depended upon. If high temperature, pulse, and respiration continued after five or six days they looked for fluid, they did not spare the exploratory needle. High mortality after operation was often due to the spreading of the infection to the opposite side. They found daily irrigation of the pleural cavity with Dakin's solution following operations for empyema of great value. Costectomy was much preferable to thoracotomy. The treatment of pneumonia was along the customary lines but they used a standardized tincture of digitalis of which every 0.17 c.c. per pound of body weight produced the desired physiological effect within forty-eight hours; thus a man weighing 120 pounds received 20 c.c. of that tincture within the first forty-eight hours. Serum therapy for Type I pneumococcus was very beneficial in his experience, but with the other sera he did not have sufficient experience to be able to pass judgment. There appeared, however, to be a considerable lessening of toxic symptoms.

Dr. MCKENNA discussed this question from the surgical standpoint. He stated that after fourteen days

every case was examined with the *x*-ray and if pus was present surgical interference was resorted to. He had used the method of draining the pleural cavity instead of opening it and the results were very satisfactory. The draining of the pleural cavity was performed by the introduction of a No. 14 French catheter, by means of a trocar and cannula; if the fluid was found to be too thick a small quantity of Dakin's solution would dissolve it; as much as possible of the pus was removed and a corresponding amount of Dakin's solution was introduced. This procedure was repeated every three hours during the day and several times during the night. The fluid obtained from the pleural cavity was examined every day and cultures were made in order to determine the occurrence of mixed infections. This operative procedure minimized the danger of infecting the pleural cavity and prevented the collapse of the lung which occurred in the older operations. It could be repeated with ease and the fluid could be under constant bacteriological examination. Out of nineteen cases treated by this method all cleared up without sinus formation. In the presence of a lung abscess treatment with this method resulted in a sudden cough and a taste of the solution in the mouth. Out of 130 cases treated with the old method 42 per cent. died; the last nineteen patients treated with this method were still living. This form of treatment was not going to save all empyema cases, as a certain percentage were going to die no matter what the treatment was; but was of great value and had many advantages over the older methods.

Dr. DICK of Chicago said that he had had an opportunity to observe the case information in Camps Pike and Dodge; in the latter the nonhemolytic streptococcus was present in many lobar pneumonia cases. In Camp Dodge many patients suffering from pneumonia gave a history of exertion, as long hikes. Many cases of streptococcic pneumonia had suffered previously from coryza and bronchitis. The disease had not been carefully watched. The severity of the epidemic differed at different times, though the treatment was the same and one should not therefore lay too much stress on the methods of treatment because apparently more favorable results had been obtained by changes in treatment.

Dr. LICHTY of Pittsburgh said that he had observed two types of pneumonia during the past winter at the Mercy Hospital at Pittsburgh. One occurred in colored people who had come from the South; it was a typical lobar pneumonia. The patients were admitted to the hospital during the later stage of the disease and the mortality was very high. The social service should be informed so that they might instruct people who were moving from one part of the country to another. The other group of pneumonias occurred when cold began to break up and corresponded with the streptococcic cases observed in the Army camps. The course of the disease was atypical, there were many empyemas and the mortality was very high. This disease developed among the more intelligent part of the population but the people considered it grippe and did not take enough interest in it until too late. He thought laymen should be instructed as to the importance of the early signs of pneumonia just as they were taught in reference to cancer and appendicitis.

Dr. LOVEWELL of the Army said that his experience had been similar to that of the various authors of papers read. In Camp Snelling they had a number of cases of pneumonia during December, but nothing unusual was observed until during the month of February 800 cases had come on from Texas, after which he had seen respiratory diseases he had never seen before. Every physical sign obtained had been disproved by autopsy. In many cases the pleuritic exudate was of a gelatinous type making it impossible to obtain any by puncture. A large percentage of the cases developed tuberculosis. Another interesting point was the occurrence of purulent peritonitis and empyema in the same case.

Dr. RYAN of Des Moines wished to call attention to the usefulness of intravenous injections of glucose in cases of pneumonia. The subject had been discussed during the early part of the session by Dr. Litchfield, but his experience had been with 10 per cent. glucose to which sodium bicarbonate was added. Many excellent results were obtained by this form of treatment in pneumonia.

Later Results of Intraspinous Treatment of Cerebrospinal Syphilis Based on Four Years' Observation.—Drs. CLYDE L. CUMMER of Cleveland and RICHARD DEXTER of Toledo, Ohio, presented this communication which was read by Dr. Cummer. They said that their experience during the period of five years with the method of intraspinous treatment of neurosyphilis as suggested by Swift and Ellis was of great benefit in a certain type of cases. Careful clinical observation, together with laboratory findings, had convinced them that results could be obtained by the intraspinous method which could not be obtained in any other way. Some patients could not stand intravenous injections very well and tabetics often developed severe gastric symptoms under that form of treatment. Such cases frequently responded to the intraspinous method. They did not claim that the intraspinous method had done everything that was expected of that method nor was the method indicated to supersede other methods, but it was merely a good addition for certain types of cases. In the experience of the essayists, cases of tabes and of syphilitic meningitis were specially amenable to that form of treatment. Anatomical cure was not claimed in cases of tabes, but in the best cases the ataxia completely disappeared, they were free from gastric pains, and were able to attend to their previous occupations without any difficulty. In cases of paresis where degenerative changes had taken place this form of treatment was of no avail. In the early stages, however, it might be of benefit.

Dr. FORDYCE of New York said that the subject of neurosyphilis was a very important one. When the nervous system was involved during the floral stage of the disease it was very important to recognize the condition early, as, during that time, it responded well to the intraspinous method. Observation of twenty groups of familial and conjugal neurosyphilis had proven that a highly virulent spirochete was present which frequently affected the meninges during the early stage of the disease and even during the administration of salvarsan and mercury. In one case 960 cells per c.mm. were counted in the spinal fluid, in another 400 cells. Both patients had received intravenous and other form of syphilitic treatment; they were in a stage of delirium as a result of meningeal involvement; both recovered under intraspinous treatment. Early meningitic syphilis was specially favorably influenced by the intraspinous method, while the degenerative type of cases responded to the treatment less favorably. Disseminated and localized cerebrospinal types which did not respond well to other methods of treatment in his experience had responded well to the intraspinous treatment. Cases of optic atrophy might be arrested by the intraspinous method. There were no untoward effects as a result of that treatment if a proper technique was carried out. During the past four years he had had no bad results from this method.

The Relation of Mastoiditis to Acute Infectious Conditions.—Dr. GEORGE H. LATHROPE of Morristown, N. J., read this paper. He said that during the past winter Camp Shelby was invaded by an epidemic of pneumonia which was caused by the *Streptococcus hemolyticus*. Empyemas were few, but out of 300 pneumonia cases 123 cases of mastoiditis developed, on either one or both sides. The onset was rapid, beginning with pain one night, bulging of the drum the next morning, which was followed by incision; but within 72 hours the mastoid was involved and filled with thick pus. In some cases development of the disease was even more rapid. There seemed to have been a virulent type of germ which had a spcial predilection for the mastoid. The epidemic of mastoid disease seemed to have followed the epidemic of measles. Measles alone appeared to have been responsible for 38 per cent. of the mastoid cases. Bacterial examinations showed that of 132 cases 81 gave positive cultures. The cultures were from pus taken from the mastoid and not from the middle ear. The *Streptococcus viridans* predominated. Many patients with streptococcic infection died from a complicated basilar meningitis, which was proven also by culture. Twenty-seven cases were complicated by measles, respiratory disease, and otitis media. Contrary to the experience of other camps the streptococcus found in the cases which had followed measles was of the viridans type and not of the hemolytic. The obser-

vation of those cases led to the conclusion that Camp Shelby suffered from an epidemic of mastoiditis which was the result of a streptococcic infection, which, in turn, was the expression of a streptococcic invasion of other Southern camps. The predominating organism was the *Streptococcus viridans* and not *S. hemolyticus*, and measles apparently started the epidemic and contributed to its development.

Dr. FOWLER of the Army said that during a period of six months approximately 140 cases of mastoid disease had been operated upon at Camp Shelby, of which number very few were free from pus. It was his experience in the surgical department during four months, that when the patients were operated upon very early the results were good. Later cases developed complications, severest of which was basilar meningitis. There did not appear to be any definite pathway for the infection to travel from the mastoid to the basal meninges. Preventive treatment consisted in the early incision of the drum of any case of otitis, isolation, and disinfection of the wards. His opinion was that the occurrence of basal meningitis in cases of mastoid was probably accidental. The cumulative evidence of the cases observed was that a special virulent organism was present which was communicable and had a specific tendency to involve the mastoid.

Dr. SMALL of Chicago said he saw many cases of mastoid developed in Camp Pike. Quite a number developed after pneumonia and they were specially characterized by the absence of objective and subjective symptoms, being discoverd mostly upon autopsy. Middle-ear disease in pneumonia gave little pain until suppuration occurred. Complications following a careful operation for mastoid were frequent.

Dr. SCOTT of Iowa said the cases discussed resembled those frequently observed in children. Mastoiditis in children was usually diagnosed when the ear stood out too prominently. There was usually no pain and the otitis media was frequently overlooked. It seemed quite likely that the middle ear and the mastoid normally contained bacteria, but only under certain conditions the bacteria developed and produced disease.

Dr. POTTS of the Army said he was in Camp Shelby when the epidemic had developed and the experience in camp had been different from that he had seen in civil life. Formerly the onset was called to the attention of the physician by a great deal of pain which was usually followed by a reddened ear-drum, and which was an indication for a paracentesis of the drum, and a case was frequently obtained as the result. In Camp Shelby, however, the onset of mastoid disease was very rapid, frequently without any appreciable symptoms. In his opinion there was no question that the mastoid infection in Camp Shelby was of an epidemic type. The meningitis which frequently occurred in these cases was in his opinion due to general toxemia and was not transmitted from the mastoid.

Dr. LATHROPE, in closing, said that the pathway from the throat to the meninges had not been definitely proved. There was a direct path from the throat to the mastoid. He did not think that there were dormant bacteria in the middle ear or mastoid as Dr. Scott had suggested. In one case of basilar meningitis nothing was found except an infection of the ethmoid cells. The relationship of the meningitis to the mastoid deserved further study.

A Study of Diaphragmatic Movements in Acute Abdominal Inflammations.—Dr. LLEWELLYN SALE of St. Louis read this paper, in which he said that the limitation of the movements of the diaphragm had been previously recognized as an important sign, which bore a relationship to various inflammatory conditions in the neighboring organs. His first attention to that sign was called by a case following an appendical operation. There was absence of breath sounds on the left lower side which disappeared in several hours. A study of value of the limitation of diaphragmatic movements had been undertaken. All abdominal cases admitted to the surgical ward were examined for that sign. It was noted that in 16 cases of appendicitis the movements of the diaphragm on the right side were diminished and breath sounds were absent. In some cases where the diaphragmatic sign was positive, though diagnosis of appendicitis was doubtful, the cases turned out to be appendicitis, while in cases were a diagnosis of appendicitis was made but the diaphragmatic sign was negative, a normal appendix was found upon operation. In normal conditions there was practically no difference in the movements of the diaphragm on the two sides, but their continued investigations had shown them that there was a limitation on the right side of the diaphragm in cases of appendicitis, gall-bladder disease, and other inflammatory abdominal conditions. All the cases were studied by physical diagnostic methods and were verified by the fluoroscope. As to the cause for the limitation of diaphragmatic movement the essayist thought it might be due to the voluntary inhibition of the diaphragmatic muscle similar to the muscular contractions of the other abdominal muscles. The actual mechanism, however, of this phenomenon was by no means certain.

Dr. GUTHRIE of the Army said the new application of the diaphragmatic sign was very interesting; *x*-ray workers were used to look for it in thoracic diseases. They usually took it to be due to the disturbances of the phrenic reflexes. He thought there was nothing mysterious in the limitation of the movement of the diaphragm. It was due to a spastic reflex limitation similar to the reflex limitation of muscles in the case of an infected joint. He was satisfied that that was the proper explanation, but application of the diaphragmatic signs to abdominal conditions was a very useful and helpful procedure.

Dr. POTTINGER of California said that whenever there was any inflammation of the lungs the diaphragm was limited in its movements. In inflammation of the liver such a limitation of motion might be due to the phrenic nerve. In abdominal cases, however, he thought this was due to the lower intercostals which helped to innervate the diaphragm. Internal reflexes were very important and he hoped that more attention would be paid to them.

Dr. MCDONALD of Detroit stated that he had come across five or six cases which were operated upon for appendicitis but in which a normal appendix had been found, though typical symptoms of pain, tenderness, and rigidity of the abdominal muscles were present. In some cases basilar pleurisy was found. In one case a limitation of the diaphragm was observed in the screen, but he had also noticed a shadow and became suspicious of pleural effusion which later proved to be the fact, and he thought this should be remembered in connection with the positive diaphragmatic sign.

Dr. SALE, in closing, said he was glad of the information he had obtained through the discussion. He thought Dr. Pottinger's explanation as to the cause of the diaphragmatic phenomena had a great deal of value, though not explaining it completely. Dr. McDonald's point was very well taken, and he felt that in such conditions the diaphragmatic sign would be of very little help in making a diagnosis.

The Control of Cross Infections by Masking of Patients.—Dr. JOSEPH A. CAPPS of Chicago presented this communication, which was read by Dr. JAMES S. MCLESTER of Birmingham, Alabama. The epidemic of pneumonia and other streptococcic infections which had occurred in various camps raised the question of the prevention of the spread of respiratory diseases. It had been discovered that milk, cream, and ice cream were as important in spreading streptococcic infection as in spreading typhoid fever. In Camp Grant many diseases were traced to the milk, and when that was boiled the number of infections was decreased. The streptococcus caused more diseases than any other organism and certainly deserved active preventive measures. Many respiratory diseases were transmitted by nasal secretions, coughing and sneezing, and crowding in camps, receiving wards and ambulances. The best remedy for this was individual isolation by means of masks. They had carried out this experiment in Camp Grant with very satisfactory results. During the epidemic of grippe they first isolated the patients; later, due to lack of accommodations, they had placed some of the patients in the general wards. The result was that everyone developed grippe. Later on, under the mask system, they placed a number of grippe cases in the psychiatric department and no grippe cases had developed. Dr. McLester himself, who had carefully followed out the plan of the mask, had escaped grippe, though he had attended hundreds of cases and was

rather susceptible to this disease. In Camp Grant every case of contagious disease was masked. Everyone entering an ambulance or receiving ward was masked.

Dr. McLester further added that his personal experience had been the same as that of Dr. Capps. He had used the method at Camp Sheridan with very satisfactory results. They had an unusually large number of cases of coryza and bronchopneumonia. When the masked system was adopted these diseases were checked.

(To be continued.)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

NEW YORK STATE BOARD OF MEDICAL EXAMINERS.

January, 1918.

(Concluded from Vol. 93, page 1014.)

OBSTETRICS AND GYNECOLOGY.

1. Give the symptoms and the signs of pregnancy. Define positive signs.
2. Name the fontanels of the fetal head. How are they determined before birth? State the significance of the position in which they are found.
3. What is determined by urinary analysis during pregnancy?
4. Give the etiology and the treatment of inflammation of the mammary glands.
5. What gives rise to an atonic condition of the uterus? What conditions may be dependent on it? How should it be managed?
6. Give methods of resuscitation of an asphyxiated infant at birth.
7. Describe kraurosis vulvae. What are the sequelae of this disease? Give treatment.
8. Give the treatment of gonorrhea in the female. What are the sequelae of this condition?
9. With what conditions may inversion of the uterus be confused? Give the differential diagnosis.
10. Name the constituent structures of the perineum. Of what importance is the structure as a whole?
11. What are the various forms of new growths of the uterus? How are the benign growths differentiated from the malignant growths?
12. What is endometritis? Name the varieties of endometritis, giving the microscopic appearance of each.

SURGERY.

1. Give the signs and the symptoms of psoas abscess. State where it usually points.
2. Describe the treatment by posture and saline drip of a severe case of purulent peritonitis.
3. Differentiate femoral hernia from other conditions simulating it.
4. Give in sequence the symptoms of fracture of the skull with rupture of the middle meningeal artery.
5. What surgical procedure may be instituted in chronic pancreatitis?
6. Give a clinical picture of palmar abscess. State the precautions to be used in making incision for drainage in palmar abscess.
7. Discuss spinal anesthesia, naming the agents employed and giving the technic.
8. What are the special dangers to be avoided in treating burns near joints?
9. What is ectropion? Describe an operation for its relief.
10. Give the symptoms and the treatment of acute otitis media.
11. What are the serious objections to breaking up an impacted fracture of the femur? When should this be done?
12. What are Lane's kinks?

HYGIENE AND SANITATION.

1. What purposes are served by the registration of deaths?
2. Describe in detail the tuberculin test and explain its application in public health work.
3. What is a deodorant? Name two reliable deodorants.
4. What measures are necessary for the prevention of diphtheria in an orphan asylum?
5. Give in detail a method for the prevention of rabies in a person bitten by a mad dog.
6. Give in detail a method for determining the sanitary quality of well water.
7. Name three sanitary methods for the disposal of garbage on a farm.
8. What parasitic conditions may be produced by the ingestion of raw beef?
9. Give in full a list of the reportable diseases as established by the New York State Sanitary Code.
10. Name five metallic substances that may become factors in occupational diseases.
11. Name a disease that may be transmitted by the rat flea.
12. How may the presence of a typhoid carrier be detected?

ANSWERS.

OBSTETRICS AND GYNECOLOGY.

1. *Subjective signs of pregnancy*, in the order of their appearance, are: Cessation of menstruation, morning sickness, increased frequency of urination, active fetal movements.

Objective signs of pregnancy, in the order of their appearance, are: Softening of the cervix, changes in the mammary glands, discoloration of the vulva and vagina, pulsation in the vaginal vault, Hegar's sign, active fetal movements, ballottement, palpation of the fetus, intermittent uterine contractions, hearing the fetal heart beat, rate of growth of the uterine tumor.

The *positive signs of pregnancy* are such signs as are found in pregnancy only, and which are absolutely diagnostic of that condition.

Positive signs of pregnancy: (1) Hearing the fetal heart sound; (2) active movement of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpation, and (5) the umbilical of funic souffle.

Doubtful signs of pregnancy: (1) Progressive enlargement of the uterus; (2) Hegar's sign; (3) Braxton Hick's sign; (4) uterine murmur; (5) cessation of menstruation; (6) changes in the breasts; (7) discoloration of the vagina and cervix; (8) pigmentation and striæ; (9) morning sickness.

2. The *fontanels of the fetal head* are: (1) The anterior, or frontoparietal; (2) the posterior, or occipito-parietal. There are four other fontanels, two on each side, situated at the inferior angles of the parietal bones, but they are unimportant. They are determined before birth by the touch of the examiner's finger against the presenting fetal head.

In L. O. A. positions the small, posterior fontanel is found towards the left acetabulum. In R. O. A. positions the small, posterior fontanel is found towards the right acetabulum. In R. O. P. positions the large, anterior, fontanel is found towards the left acetabulum. In L. O. P. positions the large anterior fontanel is found towards the right acetabulum.

3. "The *urine* should be examined at regular intervals throughout pregnancy. This examination should be both chemical and microscopical, and made at least once a month for the first six months, and once a week during the last four. The presence of albuminuria, the evidences of toxemia, edema, renal insufficiency, or nephritis, demand daily examinations. This examination should determine the amount of urine passed in twenty-four hours, its specific gravity, the total amount of urinary solids, the percentage of urea, the presence or absence of albumin or sugar and of tube casts.—(Polak's *Manual of Obstetrics.*)

4. INFLAMMATION OF THE MAMMARY GLANDS. *Etiology:* Infection, generally due to handling; cracked or sore nipples and overactivity of the gland with retained secretion are predisposing causes.

Treatment: Prophylactic measures consists in not touching the breasts (by doctor or nurse or patient) without thoroughly clean hands; by washing and drying the nipple before and after nursing, and by proper attention to hygienic conditions before labor, and the nipple and breasts being preserved from pressure. *Treatment* before suppuration occurs consists in sup-

porting the breast with a bandage, emptying the gland regularly with a breast pump, and applying a belladonna plaster over the gland to stop the secretion and allay the pain. Nursing from the affected breast should be stopped at once. When pus is present an incision should be made at once, or the abscess may burrow extensively and riddle the breast. The incision should be made in a line radiating from the nipple, so as not to cut the ducts; it should be free, and all pockets opened up with the finger. Then a large drainage tube is inserted and shortened daily, as the wound heals by granulation. If necessary, several incisions are made.

5. *Autonic condition of the uterus* may be *caused* by: Debilitated constitution, exhausting disease; uterus weakened because of congenital malformation, inflammation, or too frequent child-bearing; tumors of the uterus or neighboring tissues; displacement of the uterus; age (pregnancy in an old primipara), hydramnios; twin pregnancy; fright or mental emotion.

It may predispose to delayed labor, prolonged labor, lacerations, infection, post-partum hemorrhage, and subinvolution.

Treatment consists in removing the cause if possible; the bladder and bowel should be emptied; opium, morphine and chloral may be given so that the patient may get a little sleep, at the same time food may be administered; the uterus may be massaged through the abdominal walls; hot vaginal douches are sometimes helpful; the vagina may be distended with a rubber bag; if the membranes are ruptured a Champetier de Ribes bag may be placed in the lower part of the uterus; an anesthetic may be necessary; quinine, strychnine, and ergot have been recommended by some, and condemned by others; the newest remedy is pituitrin, which may be injected into the muscles in doses of from one to one and a half cubic centimeters, provided that the cervix is dilated and that there is no obstruction to delivery.

6. *Methods of resuscitation of an asphyxiated infant at birth.*—In every case, foreign matter must be removed from the air passages; then any of the following may be tried: (1) *Holden's method* of direct insufflation with oxygen. (2) The use of the *pulmotor.* (3) *Direct* (mouth to mouth) *insufflation.* (4) *Schultze's Method*—For inspiration the child should be suspended by the shoulders, face from the operator, by placing an index finger in each axilla, holding the thumb in front and two fingers extended over the posterior aspect of each shoulder, expanding the chest, while the head is kept steadied and extended between the ulnar surfaces of the hands. For expiration the position is inverted by swinging the trunk and lower limbs upward and toward the operator's face, flexing the body in the lumbar region. *The first movement should be one of expiration,* which helps to rid the trachea of mucus. The objections to this method are, first, the chilling of the body; second, the shock involved, so that in feeble infants, if used at all, it must be done with great caution. This, and direct insufflation with oxygen, or by mouth to mouth, are the most effectual methods in asphyxia of the newborn. (5) *Sylvester's Method.*—The child is placed in a supine position, with the head well extended by a fold of blanket under its neck. For inspiration, the arms are drawn well above the head; for expiration, they are placed by the sides and the thorax gently compressed. The value of this method is increased by making forward traction on the tongue during inspiratory movement. (6) *Byrd's Method.*—The child is held supine upon the hands of the operator at right angles to the forearms. For inspiration the radial borders of the hands are lowered. For expiration they are raised. The child is successively folded and unfolded. (7) *Laborde's Method.*—With the child lying in a supine position on a table, or in a warm bath, with the head extended, gentle intermittent traction is made on the tongue about eighteen times to the minute. (8) When respiratory movements have been established *but remain persistently feeble,* a weak Faradic current, one pole of which is applied to the nuchal region and the other over the epigastrum, combined with the continued inhalation of oxygen, may induce deeper and stronger respiratory efforts. (9) Should all of the foregoing methods fail, and the fetal heart, however slow, continue to beat, an injection into the umbilical vein of 30-50 cm. of sterile normal salt solution, containing 0.5 per cent. of fructosate of sodium, may be given. The salt solution dissolves CO_2.—(From Polak's *Manual of Obstetrics.*)

7. KRAUSOSIS VULVÆ is a condition in which the tissues of the vulva undergo atrophy and contraction. The patient may suffer little or no inconvenience, but as a rule she complains of itching, burning, pain, impossibility of coitus; there may be a discharge, or the parts may be dry. The vulvovaginal orifice is narrowed, the pubic hair is dry and broken, and the parts look shiny and smooth. The *sequelæ* are dyspareunia, dystocia, extensive lacerations in labor, and general discomfort. *Treatment* consists in the application of sedative and cooling lotions, or an ointment containing opium or cocaine; nitrate of silver and phenol have been recommended. Operative procedures, such as forcible dilatation, cauterization, and excision, have afforded relief.

8. *Treatment of gonorrhea in the female:* Rest, if possible, in bed; freedom from alcoholic or sexual excitement; a mild and unirritating diet; salines and diuretics; plenty of water to drink; a warm sitz bath; douching of vagina with about a gallon of a 1:5000 bichloride solution, or of borax (1 dram to the quart), or of potassium permanganate (1 per cent. solution); the douche is to be taken in the recumbent position. *Sequelæ:* Cystitis, urethritis, vulvitis, endometritis, salpingitis, septic peritonitis, sterility, condylomata of vulva, abscess of Bartholin's glands.

9. *Inversion of the uterus may be confused with:* Procidentia, or polyps, or myoma of the uterus.

The *differential diagnosis* is shown in the following tables (from Dudley's *Principles of Gynecology*):

COMPLETE INVERSION OF UTERUS.	UTERINE POLYPUS OR MYOMA
1. No pedunculated attachment to uterus.	1. Attached to uterine wall by broad surface or by narrow pedicle.
2. Uterine cavity being obliterated, sound can be passed but short distance, in incomplete and not at all in complete inversion.	2. Sound passes by the side of the mass through external os far into uterine cavity.
3. Vaginal or rectal conjoined examination shows a ring or depression where the uterus should be, and fails to show the uterus above the vagina.	3. Uterus felt above vagina.
4. The inverted uterus is a symmetrical pyriform body.	4. Not usually symmetrical and may be very asymmetrical.
5. Orifices of the Fallopian tubes usually demonstrable.	5. Not present.
6. Muciparous glands of the uterus present and microscopically demonstrable.	6. Not present, or if present less perfectly developed.

INCOMPLETE INVERSION OF THE UTERUS	INTRA-UTERINE MYOMA
1. The uterine cavity as measured by the sound will be diminished.	1. Cavity enlarged.
2. Development sudden.	2. Development gradual.
3. Bimanual examination shows rig-like depression in wall of uterus.	3. Uterus symmetrical or asymmetrical, but no ring-like depression.
4. Usually dates from parturition.	4. No parturition.

INVERSION OF UTERUS.	COMPLETE PROCIDENTIA
1. The protruding mass is wider below than above.	1. Mass wider above.
2. External os uteri absent and tubal orifices present at lower end of mass.	2. External os present and tubal openings absent.
3. Sound in urethra goes upward into bladder. *Exception.*—When the vagina is concurrently inverted the sound may pass downward.	3. Sound goes downward into anterior portion of mass.

10. The *perineum* or *pelvic floor* is composed chiefly of fascia, muscles, and connective tissue. Its superior surface is lined by peritoneum. Next below, and in close contact with the peritoneum, comes the "internal pelvic fascia." Immediately below the internal pelvic fascia are two thin muscles, viz.: (1) The *levator ani*, each half of which arises from the body and horizontal ramus of the pubes and from the arcus tendineus, and passes downward and inward to meet its fellow of the opposite side in the median line, where it is inserted into a tendinous raphe extending from the coccyx to the rectum, while some fibers pass between and to the sides of the bladder and rectum, and to the vaginal and rectal sphincters. (2) The *coccygeus*, which is a narrow, triangular slip, situated parallel with and posterior to the levator ani, closing in a little space which the latter muscle failed to cover. Below these muscles the pelvic floor is further strengthened by the *perineal fascia*. Its posterior portion consists of a single layer, while its anterior part is divisible into three layers. Within these latter layers are lodged the pudic vessels and nerves, and the superficial muscles of the perineum. These muscles are the *constrictor vaginæ*, the *sphincter ani*, and the *transversus perinei*, and to these structures must be added the integument and the very numerous interstitial layers of elastic connective tissue, which latter weld the parts together and add strength and elasticity to the whole fabric.—(From King's *Obtetrics.*)

The perineum helps to support and compress the pelvic viscera, enabling them to maintain their normal relationship. It also surrounds and supports the lower end of the rectum, the vagina, and the urethra, and so enables them to perform their functions properly.

11. *New growths of the uterus:* Cysts, adenoma, polyps, myoma or fibroid, sarcoma, carcinoma, endothelioma, papilloma, deciduoma malignum.

Malignant growths of the uterus are diagnosed by the history, symptoms, physical signs, and microscopic examination. It is a disease of advancing years, and generally occurs after the menopause; nulliparæ and multiparæ are equally liable. The chief symptoms are hemorrhage and discharge with an offensive odor, pain, and cachexia. The cervix is soft, the uterus enlarged, and tender. The uterus must be curetted, and the scrapings examined by the miscroscope.

12. *Endometritis* is an inflammation of the uterine mucosa. The *varieties* are: Acute and chronic; noninfectious and infectious; the latter are septic, gonorrheal, tuberculous, and syphilitic.

Septic endometritis: There is a necrosis of the superficial endometrium and a barrier of granulation cells in the deeper layers of the mucosa. The necrotic endometrium is exfoliated, the microorganisms perish (except in the puerperium, when the cocci may penetrate the lymph channels, blood spaces and myometrium). *Gonorrheal endometritis* is an inflammation of the mucous membrane in which gonococci are found in and under the epitnelium, and penetrating the myometrium perhaps to the perimetrium. The surface epithelium is exfoliated or shows a transitional stage to the many layered squamous type. The glands are unaltered except that they are distended with secretion, and the cells may be increased in number. There is edema and a round cell infiltration of the interglandular tissue with a few pus cells. There is also a cellular infiltration of the myometrium, which may lead to abscess formation in the uterine wall. *Tuberculous endometritis* may be miliary, interstitial or ulcerative. Tubercle bacilli are the infecting agents, but their presence is difficult or impossible to demonstrate. The interior of the uterus may be covered with a caseous material. The underlying layer of surface cells is unbroken. Beneath them are masses of epithelioid cells, occasionally giant cells, or round cell infiltration, and possibly typical tubercles. There may be a caseous mass in the myometrium.

Chronic hyperplastic endometritis. The glands may be increased in number, acquiring a corkscrew form, and display a dilatation of the gland-spaces, with excrescences of epithelium in their lumen. There is also a proliferation of epithelium upon the surface of the endometrium, but nowhere a duplication of the single epithelial layer in the glands or on the surface, except in elderly women. In the interstitital form there is at first a round cell infiltration of the interglandular connective tissue. The glands are widely separated and compressed; there may be exfoliation of the surface epithelium; in the later or chronic stage the round cells are converted into spindle cells; scar tissue is formed; the glands are so compressed that they atrophy and disappear; the uterine mucous membrane is reduced to a single layer of epithelial cells on the surface of the uterine cavity. There is frequently a mixed form of interstitial and glandular endometritis, and varying gradations may be observed between the purely glandular and the interstitial hypertrophy.—(From Hirst's *Gynecology.*)

SURGERY.

1. *Signs and symptoms of psoas abscess:* "There may be none, old unsuspected psoas abscess being often found at the autopsy. Early symptoms depend upon irritation of the lumbar nerve roots—namely, sciatica, cruralgia, or neuralgia of the anterior crural. Aching across the hip and back and the base of the sacrum; cramp, and at times paralysis. Inability to extend the thigh. Children merely complain of a pain down the thigh, and always carry it flexed. Deep pressure in the abdomen, along the semilunar line, reveals a vertical, sausage-shaped, tender, fluctuating, elastic tumor (mistaken for loaded bowels, but which does not roll from under the fingers). It may or may not reach Poupart's ligament and may be accompanied by a tumor of similar character in the iliac fossa. The abscess may run its course without any subjective symptoms, the extra-abdominal tumor first attracting attention. When extra-abdominal the usual physical signs show it to be abscess; and the impulse on coughing that it has intra-abdominal connection; combined pressure above Poupart's ligament and over the tumor in, *e.g.*, the thigh, reveals fluctuation. Psoas abscess is most likely to be overlooked when symptoms of spinal or sacroiliac disease are not coexistent."—(Heath's *Dictionary of Surgery.*)

Psoas abscess usually points in the upper and anterior part of the thigh, below Poupart's ligament, external to the femoral vessels; but occasionally it may point above Poupart's ligament, or over the great trochanter of the femur, or over the iliac crest into the gluteal region, or elsewhere.

2. *In case of severe purulent peritonitis,* "the patient is placed in the 'Fowler position,' that is, with the head of the bed raised about eighteen inches, or he is propped up on pillows in the sitting posture, so that any fluid in the abdomen may gravitate into the pelvis. Saline solution should be introduced in sufficient quantity to restore the blood pressure and to increase the excretory action of the kidneys and skin. It may be run continuously into the rectum through a catheter and rubber tube connected with a douche-can placed at a level of about six to twelve inches above the pelvis; the solution at a temperature of 100° Fahr., is allowed to flow at the rate of about three-quarters of a pint per hour."—(Thomson and Miles' *Manual of Surgery.*)

3. A *Femoral Hernia* may be mistaken for an inguinal hernia, an enlarged lymphatic gland, a lipoma (especially in women), a psoas abscess, and a varix of the saphena vein.

From an *enlarged gland* diagnosis is made by the absence of an impulse on coughing, by the increased feeling of resistance, and by the irreducibility of the gland. An enlarged gland is, however, often found

associated with a femoral hernia. In a fat subject diagnosis between a gland and an omental hernia may be very difficult.

The *lipoma* is differentiated by its mobility and absence of attachment. There is no impulse on coughing, and it is dull to percussion. Again the difficulty is increased in cases of omental hernia.

A *psoas abscess* is reducible, and has an impulse on coughing. It returns to the abdomen much more slowly than the hernia, and never with a gurgle. It lies to the outer side of the femoral artery, while the hernia is internal, and fluctuation can often be felt between it and the iliac fossa. If there is doubt the spine should be carefully examined.

A *varix of the saphena vein* has an impulse on coughing, and disappears on recumbency. The impulse on coughing is, however, quite different to that of a hernia. A varicose saphena vein is generally associated with varicose veins *below the knee*, the thigh being free.—(*Aids to Surgical Diagnosis.*)

An *inguinal hernia* has its neck *above* Poupart's ligament; a *femoral hernia* has its neck below it.

4. *Fracture of the skull with rupture of the middle meningeal artery.*—"After the injury there is generally a 'free interval,' in which the patient recovers to some extent from the concussion, and may even appear to be well. If there has been no concussion he may even have gone about his work for a time, and severe bodily or mental excitement have caused recurrence of the bleeding. If shock is a prominent sign, it generally diminishes with cessation of bleeding, on account of circulatory weakness and formation of thrombus in the vessel, or of excess of intracranial pressure. This recovery may set up bleeding again, and the same series of symptoms are repeated. As effusion increases symptoms of compression begin, with unconsciousness, slowing of the pulse, and stertor. The most common local signs are paralysis of the head and upper limbs, and, in left-sided injuries, aphasia. Owing to the small size of the branches of the middle meningeal artery, hemorrhage is not so severe over the upper Rolandic area, hence the trunk and leg muscles are less severely implicated. Impairments of sensation are not as a rule easily determined, on account of the mental condition of the patient, but they are useful when positively noted. The general course is that of progressive compression of the brain."—(Buchanan's *Handbook of Surgery.*)

5. *Surgical procedures in chronic pancreatitis* may include: Removal of gallstones if any are present; cholecystostomy (for indirect drainage of the pancreas), cholecystenterostomy.

6. In *palmar abscess* the hand is swollen, both on the dorsum and on the palmar aspect. The fingers are bent and stiff. The pain is severe, and constitutional symptoms are marked. If the thumb and little finger are involved (or their synovial sheaths) the forearm may be affected as well as the hand.

In making incision, the cut should be below the palmar arches, in the line of the metacarpal bones, and the sides of the fingers should be avoided if possible. If incision has to be made above the palmar arches these latter are to be avoided.

7. *"Spinal anesthesia* is produced by the injection of a local anesthetic into the subarachnoid space. Cocaine and eucaine are seldom used at the present time. Stovaine has a strong affinity for the motor nerves, and may, in high anesthesia, cause paralysis of the respiratory muscles. Tropacocaine and novocaine possess less of this affinity, hence are safer; the usual dose is from one-half to one grain. The solution is prepared by dissolving the drug selected (previously sterilized) in cerebrospinal fluid, which is drawn into the syringe containing the anesthetic, after the introduction of the needle into the subarachnoid space. In order to make the solution of a higher specific gravity than the spinal fluid and so remain in the lower part of the spinal theca, Barker uses distilled water 1 c.c., glucose 0.05 gram, and stovaine 0.1 gram. The syringe should be boiled in plain water, as the soda solution employed for other instruments may diminish the efficacy of the anesthetic. The patient lies on the side, or assumes the sitting posture; in either case the back should be bent forward in order to increase the space between the vertebral arches. The operator places one finger upon the spine of the fourth lumbar vertebra, which is on a line between the two iliac crests, and enters the needle fitted with a stylet, just below and to the right of this point, in a slightly upward and inward direction, until the dura has been punctured, which in the adult is usually at a depth of two and one-half inches. The stylet is withdrawn and 1 dram of the cerebrospinal fluid allowed to escape. The anesthetic solution is then slowly injected, the needle withdrawn, and the puncture sealed with collodion. The patient is then placed in proper condition for operation, but never should the head and shoulders be on a lower level than the lumbar vertebræ, as the fluid may gravitate towards the medulla and cause respiratory paralysis. Anesthesia results in about five minutes and lasts from one to three hours or longer. No attempt should be made to induce anesthesia above the diaphragm. Headache, nausea, and vomiting are frequent sequelæ, and evidence of transient and permanent cord injuries has been noted. The chief dangers are infection, injury to the cord, and poisoning from the anesthetic employed. The mortality has been estimated at 1 in 200. From what has been said it may be gathered that the method is destined to pass into desuetude."—(Stewart's *Manual of Surgery.*)

8. *In treating burns near joints, the special dangers to be avoided* are: The formation of cicatricial contractions, deformities, loss of motion of the joint.

9. *"Ectropion* is an eversion of the lid with exposure of more or less conjunctival surface. It may affect the upper or the lower lid, or both. *The V-Y operation* (*Wharton Jones*).—A V-shaped incision is made with the apex directed away from the palpebral margin, the incision including the cicatrix. The skin is freed from underlying parts, not only in the V-shaped area, but also to either side. The V-shaped area is slid upward until slight inversion of the lid margin is produced. The margins of the incisions are then brought together by sutures in such a manner that the figure Y results."—(May's *Diseases of the Eye.*)

10. *Acute catarrhal otitis media* is frequently caused by acute coryza and the infectious fevers. There is a painless obstructed sensation in one or both ears, impairment of hearing, and tinnitus. The inflammation causes closure of the eustachian tube. Inflation and aspiration of the middle ear and syringing and douching the nares and nasopharynx must be avoided. A moderate spray of Dobell's solution may be used. If pain is present, dry heat, in the form of hot-water bottle, hot stone wrapped in flannel, etc., may be applied. A few drops (100), warmed, of a carbolic acid solution (1:40), or one of formalin (1:2000), may be instilled into the ear.

11. *The objections to breaking up an impacted fracture of the femur* are: (1) Such a procedure might cause a gap between the fragments, and so hinder repair; (2) it might cause undue mobility between the fragment, which would also hinder repair. The *impactions should be broken up* only when the patient is young and healthy and active; and if the deformity is great, and there is excessive shortening.

12. *Lane's kinks* are bends or twists of the intestine which are due to the upright position maintained by the body and also to the descent of the cecum from its early embryonic position: adhesions attached to the lower end of the ileum, or accessory peritoneal bands, are often responsible for the condition.

HYGIENE AND SANITATION

1. *Purposes served by the registration of deaths.* "Death registration serves a number of highly important purposes. Its functions are legal, economic, and social. Death registration is useful in preventing and detecting crime through the restrictions placed upon the disposal of dead bodies. It serves as evidence in the inheritance of property and in the settlement of life insurance contracts and policies. Death registration makes it possible to show by mathematical computations and statistical methods the extent and rate of change in population produced by deaths; the average duration of life, and, to the extent that the certified causes of death have been correctly stated, the relative frequency with which the several causes produce death. Death statistics by comparison with birth statistics give useful information regarding popu-

lation increase or decrease."—(Rosenau's *Preventive Medicine and Hygiene.*)

2. "The *tuberculin reaction* has been made a cardinal feature in the diagnosis of tuberculosis in cattle, and to some extent in man. Its chief practical application is in detecting the disease in dairy cows. The test on cows is made by injecting subcutaneously from 20 to 40 centigrams of tuberculin and noting any change in the temperature of the suspected animal. The normal temperature should be taken every two hours on the day prior to the injection, and after the injection should be taken on that day and on the following day at least every two hours. The normal temperature of the cow may vary considerably, and should always first be determined; a rise of from 1.5° to 3° C. warrants the inference that the animal is tuberculous; the tuberculin reaction has been often controlled by autopsy, and for all practical purposes is specific and unequivocal. The information afforded by a positive outcome, as a rule, can be relied on implicitly, but a negative reaction is not always proof of the absence of infection. Failure of the test is most likely to occur in advanced and clinically recognizable cases."—(Jordan's *Bacteriology.*)

3. A *deodorant* is a substance which is able to destroy or to neutralize the disagreeable odors which result from the putrefaction or fermentation of organic matter. *Two reliable deodorants:* Charcoal and formalin.

4. *Measures necessary for the prevention of diphtheria in an orphan asylum:* The isolation of all cases and carriers; all who show cultures containing organisms which morphologically resemble the diphtheria bacillus should be isolated, whether the strains are virulent or not. Cultures should be taken from both nose and throat. Convalescents should not be released from quarantine until at least two cultures taken from both nose and throat are negative. All persons within the institution, both inmates and administrative force, should then be tested to the Schick reaction. Those reacting positively should be given a prophylactic dose of diphtheria antitoxin (1000 units). The immunizing dose may be repeated every ten days or two weeks as long as the danger persists. Those who react positively to the Schick test may be immunized with a toxin-antitoxin mixture. Each cubic centimeter of the mixture contains from 80 to 90 per cent. of the L+ dose of toxin, and one unit of antitoxin. One cubic centimeter of this mixture is injected subcutaneously and repeated three times at intervals of six or eight days. The results as determined by the Schick reaction produce an immunity in about 25 to 30 per cent. of injected individuals within four weeks; the remainder react slowly, in four months to two years. In addition to the above-mentioned measures care must be taken that the infection is not spread by the use of cups, spoons, dishes, toys, towels, handkerchiefs, and other articles used in common. The infected discharges should be rendered harmless at the bedside, and all objects that come in contact with the discharges from patients or carriers should be disinfected. A general fumigation with formaldehyde may be practised, but in a well-ordered institution special cleanliness of floors, walls, and other surfaces, will suffice.—(From Rosenau's *Preventive Medicine and Hygiene.*)

5. *To prevent rabies in a person bitten by a mad dog:* The bite should be cauterized with the actual cautery, with fumic nitric acid, or pure carbolic acid followed by alcohol. "*Preventive inoculation*, which was originated by Pasteur, consists of intensifying the action of the virus by passing it through successive rabbits, until the period of incubation is reduced to seven days. The spinal cords of these rabbits are preserved in dry air for twelve to fifteen days, and a small quantity of the emulsion prepared by triturating the cord with physiological salt solution is injected into the person to be immunized. This is followed by injections on the following days of emulsions made from cords which have been preserved for fewer and fewer days, the contained virus being stronger and stronger. This method has given the most gratifying results, and where it is undertaken promptly is rarely unsuccessful."—(Gardner and Simond's *Practical Sanitation.*)

6. "A complete sanitary analysis of water includes: (1) A *physical examination* to determine odor, turbidity, color, and taste; (2) a *microscopic examination* to determine the number and character of particles in suspension, especially algæ; (3) a *chemical analysis* to determine the nature and amount of chemical impurities; (4) a *bacteriological examination* to estimate the number and kind of bacteria; (5) a *sanitary survey* of the watershed, including the methods of collecting, storing, handling and distributing the water; and (6) *clinical experience*, which, after all, is the final test, for water may contain impurities that are not recognizable by any other method."—(Rosenau's *Preventive Medicine and Hygiene.*)

7. *Three sanitary methods for the disposal of garbage on a farm:* The garbage may be (1) burnt, (2) buried, or (3) fed to the hogs.

8. *Parasitic condition which may be produced by the ingestion of raw beef:* Tapeworm infection (Tænia saginata).

9. *Reportable diseases of the New York State Sanitary Code:* Anthrax; chickenpox; Asiatic cholera; diphtheria (membranous croup); dysentery, amebic and bacillary; epidemic cerebrospinal meningitis; epidemic or streptococcus (septic) sore throat; German measles; glanders; measles; mumps; ophthalmia neonatorum; paratyphoid fever; plague; poliomyelitis, acute anterior (infantile paralysis); puerperal septicemia; rabies; scarlet fever; smallpox; trachoma; tuberculosis; typhoid fever; typhus fever; whooping cough.

10. *Five metallic substances that may become factors in occupational diseases:* Lead, mercury, arsenic, brass, and copper.

11. *A disease that may be transmitted by the rat flea:* Plague.

12. *The presence of a typhoid carrier may be detected:* (1) by making a Widal test on all suspected persons; this reaction is almost constantly present in the blood of typhoid carriers. (2) The bacilli should then be sought in the urine and feces of those giving a positive Widal reaction.

Books Received.

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BULLETIN OF THE MASSACHUSETTS COMMISSION ON MENTAL DISEASES. Vol. I, Nos. 1 and 2. Published Quarterly. 303 pages. Illustrated. Published by Wright & Potter Printing Company, State Printers, 32 Derne Street, Boston.

LES PLAIES DE GUERRE ET LEURS COMPLICATIONS IMMÉDIATES, LEÇONS FAITES À L'HOTEL-DIEU. Par HENRI HARTMANN. 200 pages. Illustrated. Price, 8 francs. Published by Masson et Cie., Paris.

AMBULANCE DE "L'OCÉAN" LAPANNE. Travaux publiés sous la Direction du Dr. A. DEPAGE, Dr. A. P. DUSTIN et Dr. G. DEBAISIEUX. 381 pages. Illustrated. Price, 14s. Published by Masson et Cie., Paris.

NINE HUMOROUS TALES. By ANTON CHEKHOV. 60 pages. Price, 25 cents. Published by the Stratford Company, Boston, Mass.

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THE SOLDIER AND TUBERCULOSIS.*

BY EDWARD O. OTIS, M.D.,

BOSTON.

WE are all familiar with the efforts that have been and are being made to eliminate tuberculosis from the Army before the soldiers are sent overseas. The startling statements with regard to the extent of tuberculosis in the French Army, since shown to be greatly exaggerated, were an additional incentive to such efforts. Both phthisiologists of long experience and those recently trained by short intensive courses in the diagnosis of tuberculosis have been engaged in the work. The plan was as comprehensive as the army itself, namely, to examine every soldier in camp. Two classes of cases came under consideration: One, the open active cases which were to be rejected without question; and the other, the closed, latent, or arrested cases which were either rejected or referred for some service in the non-combatant force at home or abroad.

Excellent rules and formulæ have been given the examiners as to methods and procedure in the examinations, but it must be confessed that the judgment and experience of the seasoned diagnostician transcends any fixed rules, and he will make the diagnosis, when it can be made, in his own accustomed way better than when he is restricted or hampered by the methods of other men or by rules prepared by anybody else who may be his equal in skill and experience but who also arrives at his results in his own personal way.

Obviously but few of the evident open progressive cases will be, or in my experience were found, for such are generally detected either by the exemption board if drafted men or by the examining surgeon if volunteers. Some slip by, however, through either the carelessness or the inadvertence of the examiner, as the following cases illustrate.

Quite recently a young man came to me whom I had seen eleven years previously and who then had unmistakable signs of tuberculosis. He now had active advanced disease, the left lung entirely involved and likewise the upper lobe or more of the right lung. He had so little free lung that any exertion caused dyspnea. Moreover, he had a temperature of 101.2°. A short time previously, upon April 5 of this year, he was examined by the exemption board of his city and placed in Class A, "qualified for special and limited service." It is difficult to imagine what kind of "special service" a man with far advanced active tuberculosis could perform.

A young man twenty-five years old came to me in the uniform of one of the services, in which the physical examination is supposed to be particularly rigid. Five years previously I had been called into the country to see him and found him in the third stage of active pulmonary tuberculosis, with extensive infiltration and softening throughout the right lung and inactive disease in the left and with the usual symptoms of active tuberculous infection. The examiner had evidently neglected to make him cough on auscultation; if he had done so, I am sure he would have detected rales in the left lung. On ordinary respiration, however, it was easy for one not especially experienced to overlook the condition, for the man in appearance was perfectly healthy and well developed.

On the other hand, a young man from Vermont came to me who had been anxious to enlist and who had been rejected by the examining surgeon of the Army on account of alleged tuberculosis. I was unable to find any physical evidence of the disease; the *x*-ray plate was negative, and he had a lung capacity of 250 cubic inches. I gave him a statement to this effect, and with this and his Roentgen-ray plate he appeared again for examination, and was again rejected with the statement that the lungs were suggestive of a pretuberculous stage. The man was somewhat under weight and rather poorly developed, it is true, but, in my opinion, there was no good evidence of tuberculosis. While we are taking every means of eliminating tuberculosis from the Army it would seem to be the part of wisdom to employ equally efficient means to prevent men from being rejected on account of tuberculosis without the clearest evidence of its existence.

As in civil life the border line cases or suspects present many difficulties and the decision for rejection or detention in the service must mainly be made upon the physical findings from the lack of time for observation and the rapidity with which the cases have to be determined. With the most experienced diagnosticians differences of opinion will occur as they always have occurred. It is inevitable that some non-tuberculous men will be rejected and some tuberculous ones passed.

The question is how to reduce so far as may be the possibilities in the case to probabilities or certainties. Careful re-examinations by several experts and a comparison of observations and opinions and the aid of the Roentgen ray may result in a definite decision. There is, and probably always will be, a difference of opinion as to the decisive value of Roentgen-ray revelations or lack of them. Many phthisiologists will, I think, agree with me that it is

*Read at the Annual Meeting of the American Climatological and Clinical Association, Boston, June 6, 1918.

unsafe to base one's decision upon this evidence alone, and many will differ as to which set of observations should be given the preponderance when they differ—those derived from the physical examination or those from the *x*-ray examination. For example, Capt. A. of the Medical Reserve Corps came to me for examination with the history that while on duty at one of the southern camps he began to show signs of failing health, and on being examined by a physician of experience in tuberculosis he was declared to be tuberculous and sent home on a furlough. I examined him several times at intervals and always found persistent fine rales at the left supraspinous fossa. In consequence of this and from the previous history I advised his resignation from the service, and accordingly he went to Washington to accomplish it with a statement from me as to my diagnosis. This, however, was not regarded as authoritative, and he was sent to the Walter Reed hospital for examination by an army surgeon of sanatorium experience. He was told that he had extensive disease in the left lung as well as some in the right one. Upon two separate occasions I had an *x*-ray taken by one of our most accomplished Roentgenologists, now a major in the service and the head of one of the Roentgenological army schools, who told me that in both instances the plates were negative and showed no evidence of tuberculosis. Which set of evidences shall we take, the physical findings, which, in my opinion and that of the two other examiners, indicated tuberculosis, or the evidence of the *x*-ray which showed no disease? In the one case the officer would be discharged, as he was, and in the other retained in the service.

Again a lieutenant in the M. R. C. came to me, somewhat perturbed, because, while in the Roentgenological School for Officers, he had an *x*-ray plate of his own chest taken which indicated some tuberculous infiltrations. I could detect no evidence of disease from the physical examination and evidently the examiner for entrance into the Army did not, and so far as the man knew he was in robust health. If the decision of his acceptance or rejection from the Army had depended solely upon the *x*-ray revelations he would have been rejected. I strongly favor, however, Dr. Brown's suggestion that roentgenograms be taken of at least 10,000 men of the National Army "for the benefit," as he says, "of future drafts and for the benefit of the whole civil population." A comparison of the physical signs, or lack of them, and the roentgenological findings of this large body of men would be most interesting and instructive. So far I am inclined to agree with Hawes[1] that "in adults the *x*-ray may give a certain amount of confirmatory evidence but never enough on which alone to base a diagnosis."

When one comes to the inactive, latent, or arrested cases, the "old tops," with no symptoms and only physical signs—and those perhaps indefinite—to indicate that a tuberculosis infiltration or fibrosis exists, the difficulties in both diagnosis and decision are often as great as in the border line cases. In the first place it is not always easy to determine the fact that "a very limited amount of tuberculosis" is present, "that is latent or arrested," as Biggs states it, from any evidence we can obtain from the physical examination. Equally skilled diagnosticians may differ as to the existence of modified respiration or deficient resonance. In the second place it is a debatable question whether all cases of "a very limited amount of tuberculosis that is latent or arrested is almost certain to break down under the physical strain of military training and army life,"—to quote Biggs again. Some will and some will not, in my opinion, just as some will and some will not of those whose amount of tuberculosis is not much more than that of their childhood infection and which no human skill can detect. Herein come the judgment and experience of the examiner to determine, so far as may be, which of the two contingencies is most likely to happen and to act accordingly. The family and previous history, the length of time the disease has been arrested, if it has ever been active, the present physical condition as to weight, strength, muscular development and nutrition, the way the soldier has performed his military duties up to the time of his examination,—are all more vital points in making the decision, it seems to me, than the physical findings alone. An old "very limited" fibroid condition of many years' standing which has never shown any symptoms of breaking down under the ordinary conditions of civil life, or has in no way affected the general health, has a more than equal chance, I believe, of remaining firm under the extraordinary conditions of military life, and would appear to be a justifiable risk. It is a significant fact which I learned from Dr. Miller, who has been studying the tuberculosis problem in France, that the French think that mild cases of tuberculosis, whatever they mean by "mild cases," are improved in the trenches and in war activities—an opinion supposedly based on observation and quite contrary to that of Dr. Biggs quoted above.

On the other hand, a dubious family and personal history with a tendency to lowered resistance under slight or moderate provocation, indifferent assimilation, unsatisfactory development, and failure to develop vigorous health under training, with the same amount of latent trouble, will indubitably break down under the continued strain of army life and would be an unjustifiable risk. To treat both cases alike because they both show the same physical signs or the same *x*-ray picture, and to reject both, would seem to be poor judgment on the part of the examiner and defraud the Army of some good men who would in all probability go through the ordeal without developing active disease. Of course it is obvious that the consequences of a wrong decision in these latent, arrested no-symptom cases both to the Army and to the individual are more serious than in civil life. With the soldier it is the question of the continuance or abandonment of his occupation,—that is, of his military life—while with the civilian no such decision ordinarily has to be made, or, if it does, such serious possibilities are not involved as in the former case.

It is generally believed, and the evidence at hand seems to confirm this belief, that almost every adult has acquired some time during his childhood a tuberculous infection, which has caused more or less deposition of tubercle in his glands or lungs. When such latent tuberculous infiltration is extensive enough to give definite physical signs, but with no symptoms, we are told that such latent disease

should disqualify a man from active service. On the assumption, to quote Biggs once more, that this inactive process "will almost certainly become active" —how do we know that the lesser infiltration or the deeply buried focus which we do not or cannot discover will not break down as well as the discoverable amount? Or that the discoverable amount will not remain latent and inactive under military life and conditions as well as the undiscoverable amount? We all know that a certain unknown number of men who are passed as without discernible signs of tuberculosis will later develop the disease in the Army; in this case it is the undiscoverable or undiscovered amount which has become active. It would be an interesting and instructive observation if some of these latent symptomless cases which could be discovered by physical signs or the *x*-ray should be permitted to enter the Army, and compare the results with those in whom no discoverable signs of latent tuberculosis were present. In other words how many greater infiltrations would break down and how many lesser ones.

After all, the "conclusion of the whole matter" in our present state of knowledge in regard to eliminating tuberculosis from the Army is to reject all obviously active progressive cases, and, secondly, to reject or refer to the non-combatant force all latent, inactive, arrested cases which one's experience and judgment decide would probably break down under active military life. When all this is done it is a fairly debatable question just how much it will lessen the incidence and development of tuberculosis in the Army, for the real test of the soldier's ability to go through the strain of military service without developing the tuberculous infection or latent focus he has, or may have, into activity is not whether or not he has some discoverable lesion, the "very limited amount" of Biggs, but it is dependent upon that illusive and unknown cellular response to infection and to his hidden lesion under varying conditions of life which we call *resistance* and whether or not the barriers which shut in the tubercle will withstand the drive. It is Hindenburg *versus* the Allies.

Do what we will to exclude tuberculosis from the Army, it is, of course, inevitable, as I have said, that a certain percentage of the men while in France will develop the disease and in consequence will have to be removed from the active force and placed under treatment. Already government sanatoria have been planned, or existing ones taken over, for the care and treatment of such invalided soldiers. Why not treat the curable cases in Europe where they are? In some favorable climatic regions of France? Such a plan would enable the men to be placed under treatment almost at once, and would avoid the long and weary journey overseas with its incident risks. We all recognize the capital importance of beginning treatment at the earliest possible moment after active disease is discovered. Moreover, the expense of the long transportation would be saved and accommodations and treatment abroad would probably be not more expensive than in this country, if as such. Furthermore, it is the desire of the Surgeon General's department, as reported by Dr. Pattison[2], that the returned tuberculous soldiers should give themselves entirely to the business of getting well, and consequently they should not be placed in sanatoria close to their homes on account of the distractions of visiting friends and relatives. This objection would, of course, be obviated if the treatment was conducted abroad. Of course, some men would prefer to return to America for treatment on account of personal considerations, but others, I believe, would be glad to embrace the exceptional opportunities that could be offered abroad. In France there are good climatic conditions for the curative treatment of pulmonary tuberculosis, and accommodations could be found in existing sanatoria and the various health resorts—now empty of guests—in the French Alps and Pyrenees, in the Riviera, at Pau, Cauterets, and many other places. They are but a comparatively few hours distant from the Western front, and the American soldier unfortunate enough to develop tuberculosis could be under treatment in a favorable climate almost at once after the discovery of his disease. I am unaware that such a plan has been proposed, but it seems to me a reasonable one to be considered.

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381 Beacon Street.

AN ANALYSIS OF THE WEAK FOOT WITH REFERENCE TO PRECISION IN THE USE OF DESCRIPTIVE TERMS IN TEACHING.

By ROYAL WHITMAN, M.D.,

NEW YORK.

In 1917, 2,736 new patients applied for the treatment of weak feet at the Hospital for Ruptured and Crippled and it has been estimated that from 30 to 40 per cent. of those examined by the exemption boards during that year presented either potential or actual disability of this character. Numerically, therefore, and particularly from the military standpoint, the weak foot is the most important of the orthopedic affections.

Many years ago I presented the proposition which I have since upheld, that the most direct of the predisposing causes of the so-called flat foot is a posture that simulates the deformity, which may be defined as a persistent attitude of abduction. In this attitude, the mechanism is functionally out of gear and is subjected to abnormal strain when in active use. Treatment, therefore, whether preventive, curative or palliative, depends for its effectiveness on the restoration as far as may be of the normal mechanical relations.

This proposition, once novel, is now, I think, generally accepted by orthopedic surgeons, but it is not understood by the profession at large as represented by the men sent to me for instruction in military orthopedics, nor is it clearly presented in the literature of the subject.

The first essential of effective demonstration is precision in the use of descriptive terms and since there is an evident confusion on this point as it relates to the weak foot, one may with advantage

analyze the attitude, that when persistent becomes deformity, before deciding on the term that best describes it.

When normal feet are placed side by side with the heels and toes apposed, an interval persists between them, caused by the slight outward curve of their inner borders. In this position the line of strain transmitted from the muscles of the calf passes through the center of the leg to the neighborhood of the second and third toes, and the weight is properly balanced on the foot.

The most important indication of the potential or actual weak foot is a bulging inward, so that the two feet when placed side by side are in contact throughout their entire extent or, if the bulging is more pronounced, it is impossible to appose the heels and toes simultaneously. If the heels are in contact, the toes diverge or vice versa.

The bulging is caused by the inward and downward rotation of the astragalus upon the os calcis, rolling the foot over toward the inner side, depressing relatively the arch, and, since the leg, resting on the astragalus must rotate inward with it, the line of strain is deflected from the center of the fore foot and falls over its inner border. Thus the most noticeable of the physical signs of the weak foot on inspection is the inward bulging; the most significant is the change in the relation of the power to the fulcrum; the least important, the incidental depression of the arch.

This attitude, characteristic of the weak foot, may be described by any one of three synonymous terms:

1. Eversion.
2. Abduction.
3. Pronation.

Eversion, to turn over, refers primarily to the relation of the sole to the base in which its inner border is depressed and the outer elevated.

Abduction refers primarily to the divergence outward of the foot in its relation to the leg.

Pronation, analagous to the movement of the fore arm that turns the hand over, refers primarily to the inward rotation of the leg and the effect upon the foot.

If the foot is well arched and compact, the outward deviation from the middle line of the leg will be more apparent than the inward bulging. If its structure is relaxed, the bulging and depression of the arch will be more noticeable. They are, however, component parts of a tilting of the foot as a whole beneath the astragalus and the terms are for all practical purposes synonymous because the movements are circumscribed by the same joints. One cannot abduct without everting, nor pronate without abducting. If authority is desired for a statement that can be so easily demonstrated, Rudolph Fick* may be quoted. Many, he says, in describing the outward and inward tilting of the foot, use abduction and adduction. The surgeons use pronation and supination, and the English, eversion and inversion.

Of these terms, eversion has the disadvantage that its meaning is sometimes confused with outward rotation of the limb, and since it refers primarily to the sole it is difficult to demonstrate when the foot bears weight.

Pronation is a German term, never used by English anatomists, and is from the standpoint of analogy, very difficult to demonstrate because the arrangement of the arm and leg bones is entirely different. Furthermore pronation signifies activity while the characteristic of the weak foot is passivity.

Abduction is, it seems to me, preferable to either because the change in the line of strain is most noticeable when the foot bears weight and the mechanical disadvantage of such an attitude for active use is very apparent.

I have found this preliminary exposition the more necessary because the meaning of the descriptive terms is usually confused by the student and often by writers on the subject. For example, in one of the authoritative Manuals of Orthopedics, eversion is used to indicate divergence of the feet caused by outward rotation of the limbs, whereas in true eversion of the foot the limb is relatively rotated inward and even the everted foot may be habitually turned inward, as is illustrated by the symptomatic pigeon-toed gait which is a common symptom of the weak foot in childhood.

Abduction is described as a free lateral movement in the medio-tarsal joint, where its range is so limited as to be negligible, as may be demonstrated by fixing the heel or by noting the contour of the external border of the foot in the contrasting attitudes of abduction and aduction.

Finally the weak foot is said to be a combination of pronation and abduction which, however accurate, is hardly intelligible from the foregoing descriptions.

The consideration of the weak foot from the standpoint of functional mechanics clears away much of the obscurity about what is in reality a simple subject. For example, a foot habitually used at a mechanical disadvantage is predisposed to injury and since the primary symptoms of all weak feet are those of strain, the immediate disability has no proportionate relation to the degree of deformity. In fact, the well-formed foot subjected to persistent strain provides the most favorable opportunity for progressive and irremediable disability, since stability (flatness) cannot be acquired without great lateral distortion and consequent disorganization of its structure. Whereas, the actual flat foot, an individual or racial pecularity, or one that is acquired in early life, may be perfectly competent because stability does not require excessive lateral distortion of its component joints.

From this standpoint one may estimate fairly the prospective ability of the weak footed recruit.

The most favorable type is the well-formed foot in which the normal relations can be voluntarily restored.

The next is the actual flat foot with but little lateral distortion.

The last is that, in which the changes of structure in accommodation to habitual deformity have advanced so far that the normal relations cannot be restored either voluntarily or by manipulation.

The treatment of the weak foot follows the same principle. The first indication is to relieve the symptoms of strain and injury, but the final purpose is to assure the normal relation between the power and the fulcrum, as the essential preliminary for the restoration of muscular power and balance

*Anatomie der Gelenke; Spezielle Mechanik.

upon which permanent cure depends. It is this purpose and the means employed to accomplish it that distinguish reconstructive treatment from the common routine, which is practically limited to the relief of the immediate symptoms.

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FEEDING IN MARASMUS.

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For centuries, men wasted useful lives in a futile attempt to find the elixir of perpetual youth and life. For many decades physicians have vainly tried to discover a feeding formula on which all infants would thrive. From time immemorial men have had visions which built bridges from dreamland to truth. Sir Launfal, in his search of the Holy Grail, traveled over land and sea without avail; he finally returned, an old man, and found it in the domain of his own castle. The essence of truth which this parable contains is applicable to every sphere of life; and so it has been in the feeding of infants. A page could easily be filled with the names of men who have devised formulas and milk mixtures for the feeding of healthy and atrophic infants; these new mixtures have had their entrances and their exits; they always attract attention, but seldom survive the test of time. The realization of the fact that in the proper modification of Grade A bottled milk, with the addition of suitable carbohydrates, we have found the object of our search, may sound prosaic, but it is true.

Infants need not die of marasmus. With the means we possess to combat it, infantile marasmus should be a disease of the past. The means and the armamentaria which we possess are the broader and the more rational application of knowledge we already have; no new mixtures, no new facts are necessary.

From an experience with over 1,000 atrophic infants we are thoroughly convinced that if an atrophic infant can be saved it can be saved by the use of properly modified, clean, bottled milk, with the addition of suitable carbohydrates; and if it cannot be so saved, then no manufactured food will save it. If the general practitioner would only realize how quickly atrophic infants respond to simple mixtures, and that the same principles laid down for healthy infants are applicable to marasmic infants, it is certain that the rate of mortality from this cause would be lowered tremendously.

In two previous papers we have discussed the fundamental principles of the art and the science of breast and artificial feeding of healthy infants. In this paper it is our aim to discuss the fundamental differences between healthy and atrophic infants, in the chemical composition of their bodies, and in their nutritional requirements.

Marasmus is not a disease entity; it is a condition. It simply implies that the infant is in a wasted state, without suggesting the cause of this wasting. It may be due to various causes, such as congenital debility, constitutional disease, institutional life, neglect, unhygienic surroundings, and, most frequently, it is a result of chronic nutritional disturbances.

In undertaking the treatment of a case of marasmus due to a nutritional disturbance we must always be sure that the other causative factors are excluded; we must be sure that the case is a feeding case only; it is evident how fruitless our efforts will be if we do not recognize and do not treat an underlying luetic infection, which may be the cause of the malnutrition, or if other causative factors are not corrected. Very often, multiple causes are operative in the same case, all of which must be corrected if success be desired.

When we are satisfied that the malnutrition is due to a nutritional disturbance we must go a step farther and determine the exact nature of the nutritional disturbance. The term nutritional disturbance also is a generic one, which does not specify the exact nature of the disturbance; it is only within the last 10 years that we have learned to differentiate the various factors which may be responsible for the marasmus. The various causes of malnutrition are given below. In every case we must determine all the causes which are responsible. In no two cases shall we find the same exciting causes, and therefore in no two cases will the treatment be the same.

Etiology of Nutritional Disturbances.

1. Constitutional inferiority.
   - A. Hereditary causes; congenital debility; lues; tuberculosis
   - B. Congenital causes: congenital heart; pyloric stenosis; Hirschsprung's disease; atelectasis; myatonia; harelip; cleft palate; adenoids.
   - C. Acquired causes: lues; tuberculosis.
   - D. Due to presence of diathesis: exudative; neuropathic; spasmophilic; anemic; hemophilic; etc.

2. Alimentary causes.
   - A. Formula proper.
     - (a) Quantity of food improper: overfeeding; underfeeding.
     - (b) Improper technique.
       - Too much or too little at a feeding.
       - Food given too fast or too slowly.
       - Food given too frequently or too infrequently.
       - Too many or too few feedings.
       - Food improperly administered.
       - Food improperly prepared.
     - (c) Poor milk—fat or solids too low.
   - B. Formula improper: Fats too high or too low; sugars too high or too low; too much flour; proteins too high or too low; salts too high or too low; water too much or too little; improper relations of elements to one another; insufficient vitamine content.
   - C. Improper and unsuitable breast milk.

3. Disturbances of motility and secretions of gastrointestinal tract.
   - A. Delayed motility: Fat too high in formula; Pyloric stenosis; Hirschsprung's disease.
   - B. Increased motility.
   - C. Deficient secretion of HCl; of lipase.

4. Intoxications.
   - A. Toxin introduced from outside.
     - (a) In milk: Boric acid; salicylic acid; Benzoic acid, etc.
     - (b) In breast milk, Hg, morphine, I, etc.
     - (c) Preformed in milk by bacteria.
     - (d) From nipples, pacifiers, toys.
   - B. Toxins elaborated in the gastrointestinal tract: By bacteria and intestinal juices from milk, the juices, and from bacterial bodies.
   - C. Toxins excreted in the intestinal tract—elaborated elsewhere

5. Infections.
   - A. Enteral—typhoid; dysentery; cholera, etc.
   - B. Parenteral—pneumonia; influenza; diphtheria, etc.
   - C. Due to abnormal virulence of normal flora (*Bacillus coli*, enterococcus).

6. Improper hygiene.
   - A. Neglect.
   - B. Insufficient or improper bathing, clothing, exercise
   - C. Overheating, chilling.
   - D. Overcrowding.
   - E. Lack of mothering, etc.

The most common cause of marasmus is improper alimentation. Intolerance for milk as a whole, or for any of its elements, is the least common cause; for every case of malnutrition due to intolerance there are nine due to over or underfeeding, irregular feeding, improper technique or method of preparation. Of the intolerances, that for fat is most frequent (70 per cent.), for sugar less frequent (20 per cent.), and for protein least frequent (10

per cent.). In this paper only those cases of marasmus due to improper alimentation will be considered.

Chemical Composition of Atrophic Infants.—From the earliest fetal development to the birth of the full-term infant, the human embryo becomes poorer in water and richer in ash; thus a fetus at 6 weeks is composed of 97.54 per cent. water and 0.001 per cent. ash; at 6 months, 89.20 per cent. water and 1.94 per cent. ash; at birth, 71.8 per cent. water and 2.7 per cent. ash. The same process of dehydration and enrichment in salts continues to adolescence and old age. The differences in the chemical composition of the adult and the infant are shown in the following table:

	Water, per Cent.	Fat, per Cent.	Carbohydrate, per Cent.	Protein, per Cent.	Ash, per Cent.
Adult	60.8	15 0	1 0	18 0	6 0
Newborn infant	71 8	12 3	. . .	11 7	2.7

Numerous chemical analyses of infants who had died of marasmus have shown that atrophic infants do not differ from normal infants in chemical composition to any appreciable extent; the only noticeable difference is the reduction of fat in the atrophic infants. The percentage composition in regard to protein, salts, and water is nearly the same as in normal infants (see table). It seems that the chemical composition of the body does not become altered in chronic malnutrition, and that it is impossible to effect such changes through the alimentary tract. In marasmus the infant's loss of weight is at first due to loss of stored fat, and then all elements seem to be equally involved. An atrophic infant weighs less than a normal infant of the same age, but the chemical composition of the normal infant is maintained. The impulse for growth in infants is so great that they continue to grow (not to the same extent as normal infants) even when they do not gain or lose in weight.

100 Gm. Ash Contains

	Water	Fat	Nitrogen	Ash	K_2O	Na_2O	CaO	MgO	Fe_2O_3	P_2O_5	Cl
Newborn infant	71.8	12.3	2.26	2.7	7.06	7.67	38 08	1.43	0 83	37 66	6.61
Atrophic infant	79.9	1 45	2 32	2.73	7.2	7.7	38 1	1.2	1.2	38 7	6.1

Fat Indigestion.—The symptoms which must be considered in the different types of indigestion are the appetite, the vomiting, and the stools. In fat indigestion the appetite is poor; the infant does not finish its bottle, and is not hungry at the next regular feeding time; this is due to the fact that there is some residual food in the stomach from the previous feeding. The fats are the last element of milk to leave the stomach. When milk is introduced into an infant's empty stomach part of the milk enters the duodenum in the same form in which it was introduced (without any digestion). This explains why infants often take greater quantities at a feeding than their anatomic capacity would indicate. Then the whey of milk—salts and sugar—pass into the duodenum; the next to pass are the proteins; the last to leave the stomach are the fats. It is evident why the appetite in cases which receive too much fat is bad, and why the vomiting in fat indigestion takes place some time after the feeding has been administered. The vomitus usually consists of creamy, rancid-smelling, curdled milk. The stools are gray or white, and are greasy or shiny; the stools smell strongly of butyric acid; they usually contain soft curds. When the soaps predominate they are dry and hard and are clay-colored and oily; the reaction of these stools is acid, and the odor is rancid. The gray stool is usually due to an excess of neutral fat; the white or soap stool is due to an excess of fat in the form of soaps. There are three requisites for the formation of soap stools: (1) A moderate amount of fat; (2) considerable amounts of casein and calcium salts; (3) an absence of large amounts of carbohydrates in the food.

Sugar Indigestion.—In sugar indigestion, the vomiting usually takes place soon after feeding, and is often repeated a number of times between feedings. The vomitus consists of sour-smelling watery fluid; flatulence and colic are usually due to indigestion of the carbohydrates, but may also be due to indigestion of protein or fat. The most marked symptoms in carbohydrate indigestion are intestinal, whereas those of fat indigestion are usually gastric. The stools are loose, green, and scald the buttocks; the odor is that of acetic acid or lactic acid. In severe cases, fever, glycosuria, and signs of intoxication are present; both sugar and starch may be present in the stool.

Protein Indigestion.—The vomiting in protein indigestion usually takes place some time after feeding, and the vomitus is cheesy, and consists of large, tough curds. The stools are loose, brownish, alkaline, and of putrefactive or fecal odor; very often they contain considerable amounts of mucus and hard or protein curds. It is the least common form of indigestion. The reaction of the artificially fed infant's stool is alkaline; that of the breast-fed infant is acid; the reaction depends on whether the nitrogen free elements (carbohydrates) or the protein predominate in the mixture; if the former is found in excess the reaction is acid; if the latter, it is alkaline. Thus an acid stool which scalds the buttocks may be changed into an alkaline stool by increasing the proteins and fats and by diminishing the carbohydrates; an alkaline stool may be changed into an acid stool by increasing the carbohydrates. Stools which scald the buttocks are usually acid. The carbohydrates are the laxative element of milk; regardless of which sugar is used, if a sufficient amount is administered, looseness of the bowels will be produced. The proteins are the constipating element of milk; this is brought about by the alkaline intestinal secretion which they call forth and on account of the putrefaction they undergo; the fats *per se* have no effect on the bowels; their effect depends on the amount administered; small amounts are constipating, large amounts are laxative. Their effect on the bowel movements is also dependent on the presence or absence of other elements of milk in the mixture. Thus, a high fat in the presence of a high protein content and a low carbohydrate and low salt content has a constipating effect; but in the presence of low protein and high carbohydrate content it has a laxative effect.

Curds make their appearance in the stool both

in fat and protein indigestion. The protein or casein curds are bigger, bean-shaped, hard, tough, and are white or yellow in color; the fat curds are smaller, softer, more easily broken down, and are of yellow-green color. The total loss of food in fuel value in the curds is, in the great majority of cases, very slight. The hard curds are derived from the casein, and usually disappear when the milk is boiled; the soft curds are derived from the fat of the food.

Mode of Onset.—The onset of the symptoms in fat indigestion is usually slow or subacute; only when the amount of fat in the milk mixture is very high is the onset sudden. In the mild cases there may be no symptoms present for a number of weeks, and they only make their appearance when the fat in the milk mixture is increased. Of all the different types of indigestion, that of fat is most apt to run a latent course at the beginning. In sugar indigestion the onset is subacute or sudden; in severe cases it may be fulminating. The symptoms are always manifest, even at the onset. This type of indigestion never runs a latent course. The symptoms of protein indigestion are the mildest of all the forms of indigestion, and are usually slow in development.

The appetite is always poor in fat indigestion; even when there are no other symptoms present; it is the premonitory sign of this type of indigestion, and unless heeded it means "trouble ahead." In sugar indigestion the appetite is good, except in severe cases with high fever; it is but slightly affected in protein indigestion.

The weight, in fat indigestion, may not be affected at the onset; in fact, for a time such infants may even be gaining slowly in weight. Stationary weight, in cases which receive sufficient calories in the food, should always lead one to suspect the presence of a mild type of fat indigestion. Big losses in weight in this type of case are only noted when the limit of tolerance for fat is overreached, and is usually associated with "fat diarrhea." In sugar indigestion, the weight depends on the number of stools which the infant passes and on the amount of water the stools contain. Very often, infants continue to gain in weight in spite of the presence of four to five loose, watery stools a day; however, in severe cases, with many watery stools, the loss in weight may amount to two to three pounds in one week; this is usually due to the fact that infants overfed with carbohydrates have their water in loose combination, which, in the presence of the slightest digestive disturbance is quickly lost. One should always look for edema in cases which receive a high percentage of carbohydrates and show marked gain in weight. In protein indigestion the weight is but slightly affected. The temperature, in cases with fat indigestion, shows at first more than normal oscillations; later the temperature has a tendency to become subnormal; in cases in which there is fat diarrhea it is apt to be elevated one or two degrees. In sugar indigestion the temperature is slightly elevated at first, and in severe cases may be as high as 105° F. In protein indigestion the temperature is not elevated except in cases which receive more than 6 per cent. protein in their food.

Metabolism.—Even in severe cases of atrophy, due to fat indigestion, the metabolism of the proteins is normal. In mild cases the absorption of fat is but slightly decreased—85 per cent. (normal, 95 to 98 per cent. absorbed); in normal stool, the calcium and the magnesium soaps constitute about 18 per cent. of the fat excreted in the stool; in mild cases of fat indigestion they may constitute 50 per cent. of the fat in the stool; the binding power of the calcium is so great, however, that this does not necessarily mean that there will be a negative balance of salts, but suggests that some of the calcium which would be excreted as calcium phosphate is now excreted in combination with fatty acids. In severe cases there is a loss of sodium and potassium salts in the stools, and this leads to increased excretion of ammonia in the urine, 15 to 20 per cent. (normally, ammonia forms 8 to 10 per cent. of the nitrogen in the urine). This is due to the fact that ammonia is called upon to neutralize the acids liberated by the withdrawal of the sodium and potassium bases.

In severe cases of marasmus due to fat indigestion the nitrogen retention is diminished, and there may be a negative balance; this is not due to deficient absorption, but to a loss of nitrogen from the disintegration of cellular tissue, as these infants excrete more nitrogen than they take in. When fat diarrhea is present the absorption of fat is very poor (25 to 50 per cent.), and the insoluble soaps of calcium and magnesium diminish in amount. Hess has shown a deficiency of lipase in these cases, and it is possible that part of the loss of fat is due to this cause. The tolerance for sugars in many of these cases is also diminished. The salt metabolism suffers most in these cases; there may be a negative balance. The loss of alkali bases leads to increased acidity of body fluids, and this in turn leads to increased ammonia excretion in the urine (15 to 20 per cent.).

In sugar indigestion the disturbances in the metabolism are due to the increased peristalsis and the abnormal secretion of the intestinal juices. In very loose stools there is a great loss of fat; the loss of fat runs parallel with that of the water; the greater the water loss the greater the loss of fat. In very loose stools there are hardly any soaps found at all (about 8 per cent.); most of the fat is in the form of neutral fat (65 per cent.) and fatty acids (27 per cent.). The amount of protein lost is about twice as great as in normal stools, but the relation of the nitrogen to the total residue is normal; most of the nitrogen excreted is derived from the intestinal secretions and not from the food. The actual amount of calcium in the loose stool is nearly the same as in the normal stool; the quantity of Na and K is very much increased. The residue (cellulose of bacterial origin) is very much increased in very loose stools.

The urine of infants overfed with flour shows no trace of chlorine; there is also a deficient salt content in the blood serum; the blood is hydremic; in the liver there is a deposition of salts and water; on the whole, the findings show an impoverishment of salts and an accumulation of water in the system. As the salts are not present, the water must be retained in a colloidal state.

In severe forms of sugar indigestion associated with acidosis due to retention of acid products, the

disturbances in metabolism are very marked. The nitrogen in the feces is much increased, due to the larger amounts of feces passed; the relative per cent. of nitrogen in the feces is not changed; the nitrogen in the urine is also increased, due to disintegration of cellular tissue. These infants seem to have lost the power to reduce the amino acids to urea, which is probably due to an insufficiency of the liver. The ammonia excretion is very much increased—40 to 50 per cent. of the nitrogen in the urine.

The fat resorption is diminished to 50 per cent. This is mostly due to increased peristalsis. Mellituria in these cases is due to disturbed carbohydrate metabolism, and is usually associated with hyperglycemia; the sugar is of alimentary origin, and the sugar which is introduced into the food is the one which is excreted into the urine. Glycosuria in these cases takes place long before the limit of tolerance for the sugar is reached. There is a great loss of water from the body in these cases, with severe diarrhea, and this leads to dehydration of the blood; and there is a corresponding increase in its viscosity. During the severe stages there is a great loss of salts, which can only be explained by the disintegration of cellular tissue. Sodium, potassium, and chlorine are lost in great amounts; only calcium and phosphoric acid are retained; the negative balance is due to increased excretion of sodium, potassium and chlorine in the feces; the bases are found in greater quantity than needed for the binding of the fatty acids, so that their increased excretion is probably due to increased peristalsis.

Clinical Findings.—In the early stages of fat indigestion the infant may appear well nourished, but in spite of sufficient calories in the food the infant does not gain in weight. For a time, anorexia is the only symptom; when the food is increased, gastric and intestinal symptoms make their appearance; general symptoms (pallor, diminished muscular tone, restlessness, disturbed sleep) soon make their appearance. If the fat in the food is not reduced, or if it is increased, acute symptoms supervene, and the infant may lose a pound in a few days; gradually they lose more and more in weight, until the complete picture of marasmus becomes manifest. The emaciation becomes extreme, the face looks senile and pale, the respiration is irregular and the expiration is prolonged, the pulse is small and slow, the temperature is subnormal, the tolerance for food and the resistance to infection are very much diminished; any erroneous change in diet may lead to a "weight crisis." These infants respond with very severe symptoms when subjected to starvation, and may suffer from collapse. On account of their lowered resistance to infection they are subject to influenza, bronchitis, etc., and very often a slight infection is the immediate cause of death. On account of their low resistance many of these infants are afflicted with various skin diseases (intertrigo, eczema, furunculosis).

The symptoms of sugar indigestion may appear in a previously healthy infant or in one suffering from fat indigestion; the weight is stationary, or there is slight loss of weight; when the stools are not too numerous there may be gain in weight for a time; slight fever is usually present; vomiting and diarrhea soon make their appearance; tympanites, increased peristalsis, and gas formation are prominent symptoms. In mild cases, if the symptoms are allowed to persist for any length of time, and the exciting cause is not corrected, the clinical picture of marasmus slowly but surely develops.

Infants who receive an almost exclusively flour diet are prone to develop a chronic nutritional disturbance which differs from overfeeding with sugars, and which usually leads to marasmus; this is particularly apt to happen in very young infants. The symptoms which these infants present may be of two different varieties: (1) The atrophic, which do not differ from other types of marasmus; (2) the hydremic. In this type, the emaciation is partly obscured by the retention and the accumulation of water in the subcutaneous tissues and in the tissues. Thus, in later stages edema is a prominent symptom. The face is pale and swollen; the eyes are puffy; less marked edema is present in the extremities; the urine is negative. The resistance to infection is very much diminished; any slight infection may prove fatal; the slightest disturbance causes great loss in weight. In both these forms there is often found marked hypertonicity of the musculature; often opisthotonus is also present. These infants are apt to develop tetany, and usually show other signs of spasmophilia. The stools in these cases may be of normal appearance; at times they have diarrhea; undigested starch is usually found in the stools.

When the diarrhea of carbohydrate indigestion becomes very severe, and when there is superimposed upon it an intoxication due to retention of acid inorganic salts, due to insufficiency of the kidneys, the whole clinical picture changes very quickly, and the symptoms of acidosis make their appearance. Hyperpnea is the chief symptom. The mental symptoms become marked; coma and unconsciousness are frequently present; the face is pinched; the eyes and cheeks sunken; the color is ashy gray, but no cyanosis is present; great loss in weight takes place; the fontanelle is depressed; the temperature is elevated, and there may be hyperexia (105° to 107° F.); vomiting, and especially diarrhea, are very marked; the breathing is toxic and deep; the pulse is flickering; the urine is diminished; and there may be complete anuria; albuminuria, and glycosuria of alimentary origin, are usually present; acetone breath is at times marked; at times only mere traces of acetone are found in the blood (in excess of normal amounts); no abnormal organic acids are found in the urine; but there is an increase of acid phosphates in the blood, due to insufficient excretion by the kidneys.

Differential Diagnosis.—The differential diagnosis is not always a simple matter. Extreme cases of acidosis, atrophy, or simple cases of fat indigestion, are easily diagnosed; the etiology is at times obscure; thus, acidosis and intoxication may be due to excessive fermentation and intoxication with bacterial products; it may also be due to excessive fat feeding (with diarrhea), or to severe intestinal infection, insufficiency of the kidneys, with diarrhea, and other causes. Atrophy, or marasmus, may be due to inanition, overfeeding, chronic fat indigestion, chronic sugar indigestion, secondary to

some constitutional disease or to some systemic or intestinal infection; it may also be due to improper hygiene and neglect. A careful history is therefore important. Of two infants, with soap stools, emaciation and stationary weight, one may improve on a fat-poor and carbohydrate-rich diet and another may develop diarrhea and lose weight; of two infants with marasmus, one may improve on large amounts of whole milk, and the other may lose in weight and die. Of two cases with loose stools, one may improve on starvation and reduced diet, the other may go into collapse, lose weight, and the diarrhea become aggravated.

One must be very careful not to misinterpret the findings in the stools. The examination of the stool may give valuable information, but undue importance should not be attached to them; slightly dyspeptic stools may accompany very severe as well as very mild cases, and, on the contrary, frequent diarrheal stools, with much mucus, may be present in mild cases as well as in fatal cases. When judging the nature or the severity of a nutritional disturbance, the findings of the stools must always be considered in conjunction with other symptoms. One must especially be careful not to misinterpret the findings in loose stools; in cases with increased peristalsis the food residue depends on the composition of the food introduced.

The history may clear up the etiology. A complete history of all the foods the infant had received from birth, and how he reacted to each, should be ascertained; every food formula should be reduced to calories and percentages, for it is only in this way that an accurate idea can be obtained whether the infant receives too much or too little food. It is only by carrying out this procedure, and by considering the findings in conjunction with the weight and age of the infant, that definite information can be obtained. A knowledge of all the diseases which the infant had suffered from birth is also important, because the nutritional disturbance may be secondary to some constitutional disease. Very often, in cases of fat indigestion, we obtain a previous history of overfeeding with carbohydrates; and on the contrary, in a small number of cases of sugar indigestion we obtain a history of overfeeding with fat. Tolerance and intolerance are relative terms, and the above statement may only mean that in those cases even small amounts of fat or sugar may produce symptoms of indigestion in susceptible infants. In severe cases of sugar indigestion, with numerous loose stools, one must always expect considerable fat indigestion, because the fat loss runs parallel with the water loss.

"General Principles."—The feeding of atrophic infants is simple, and can be made successful in the great majority of cases if one keeps in mind the underlying fundamental principles. These principles are few, clear-cut, definite, of almost mathematical exactness; disobedience of these rules leads invariably to ultimate failure. One can attain a successful result in the great majority of these cases by adhering to these principles. Attention to the smallest details is the key to success. The principles, which should guide us in the feeding of atrophic infants are:

1. A complete history and a complete physical examination of the infant to determine the cause of the malnutrition are essential.

2. Our first aim should be to prescribe a food which will preserve life and correct existing gastrointestinal symptoms. The first step must be a period of reparation. When the symptoms have subsided we must prescribe a food which will produce a regular gain in weight and proper physical development.

3. We must not keep an infant for too long a period on a food which is not well balanced, but which must be given at the outset to correct existing conditions. If we do, we may save the infant from the Scylla of marasmus and strand it on the Charybdis of scurvy and rickets.

4. When the gastrointestinal symptoms have subsided we must prescribe a formula in which the element for which there is an intolerance is reduced to a minimum, and in which the other elements are correspondingly increased to supply the desired number of calories. As radical as the first change in formula should be, so conservative must all further changes be (*e. g.* an infant who had been receiving 6 per cent. fat in its milk mixture, and developed an intolerance for fat, should be put on a mixture containing only $\frac{1}{2}$ to 1 per cent. fat; and when it has adapted itself to this amount of fat the next formula should contain only from $\frac{3}{4}$ to $1\frac{1}{2}$ per cent. of fat).

5. The more an infant is underweight the greater is the caloric requirement. Whereas healthy infants require from 40 to 50 calories to the pound, very few marasmic infants will thrive unless they receive 50 to 65 calories to the pound. No atrophic infant should receive its full caloric requirement at the beginning of treatment. No more than 35 calories to the pound should be supplied in the first formula.

6. The more an infant is underweight the greater is the water need. The quantity to be given at a feeding to an atrophic infant should be less than the age but more than the weight would indicate. A healthy infant requires about 2 to $2\frac{1}{2}$ ounces of water per pound in the second six months, whereas an atrophic infant would require 3 to 4 ounces per pound under similar circumstances.

7. No infant, whether healthy or atrophic, should receive more than seven feedings in the 24 hours; the intervals between feedings should never be less than three hours; in cases where vomiting is a prominent symptom the intervals should be 3 to 4 hours.

8. Never change the formula without a definite reason; never change the formula before the infant has had an opportunity to adapt itself to it; too many premature changes are the cause of many failures in the management of atrophic infants. All increases in the strength of the food must be more cautious and more gradual than in healthy infants.

9. As atrophic infants have a tendency to have subnormal temperature, normal bodily heat must be maintained by the use of cotton jackets and external heat.

10. A normal condition of the skin must be maintained. Proper airing and bathing are indispensable adjuvants of ultimate success.

11. One must always remember that in the feed-

ing of atrophic as well as healthy infants temporary success may mean ultimate failure and temporary (apparent) failure may mean ultimate success. In healthy infants, an improperly balanced diet may cause temporary gain in weight, especially if the carbohydrates are high, and may ultimately lead to scurvy or rickets; and on the contrary, in atrophic infants, a temporary but proper food may not produce immediate gain in weight. but leads to a correction of gastrointestinal symptoms. In healthy infants our aim is to procure regular gain in weight and proper physical development; in atrophic infants, however, our first aim is to relieve symptoms, even if the weight remains stationary, or if there be temporary loss of weight.

12. Frequent and regular observation of the infants (three times a week) is essential.

Treatment.—It is only after we have determined the exact cause of the marasmus that we are in a position to feed the infant rationally and scientifically; the treatment varies with the cause. We must have definite knowledge whether the marasmus is due to improper technique, to over or underfeeding, or to an intolerance for one or more elements of milk. The treatment also varies with the presence or absence of gastrointestinal symptoms.

We deem it advisable to wash the stomach of every atrophic infant when it comes to us for the first time. It is surprising how much mucus and products of fermentation are at times removed through this procedure. We then order a tenth of a grain of calomel (for every month of the infant's age) and allow only plain boiled water until the next morning. Great caution must be exercised in the starving of atrophic infants; these infants cannot withstand starvation for more than from 12 to 24 hours, and not infrequently show marked signs and symptoms of collapse as the result of it.

Our next endeavor is to correct existing symptoms. In cases where vomiting is a prominent symptom the infant's stomach should be washed daily, the intervals between feedings should not be less than 3½ to 4 hours, and the mother should be told to put the infant in an upright position immediately after feeding and gently to pat it on the back to assist it in the expulsion of any swallowed air. The formula should not contain a high percentage of fat, because of all the elements of milk this is most apt to delay the emptying of the stomach.

Infants in whom there is a tendency to looseness of the bowels, and who have from 4 to 6 loose green stools, with curds and mucus, should be put on a mixture which is low in sugar and which has a moderate amount of fat and a high percentage of protein. Such a mixture is conducive to the formation of soap stools which are solid and formed. Soap stools *per se* are not to be sought, nor are they desirable, except as a means to an end—from loose to normal stools.

This mixture controls the diarrhea by checking fermentation and by favoring putrefaction; the proteins produce an alkaline reaction in the intestines, and thus check the process of fermentation. For the formation of soap stools there are three requisites: A moderate amount of fat, a considerable amount of casein and calcium salts, and an absence of large amounts of carbohydrate in the food. We have only recently learned of the protective influence of fat on the intestines in cases with loose stools; it becomes evident why skim milk is contraindicated in cases with diarrhea, for under the circumstances there are no fatty acids present to unite with the alkaline bases to form soaps (the fatty acids are derived from the decomposition of fat). An excessive amount of fat in the mixture, on the contrary, may not only fail to control the diarrhea, but may aggravate it by producing an excess of fatty acids over bases. As no infant will gain in weight on a mixture which is low in carbohydrates, the infant should not be kept on such a mixture any longer than is necessary to control the intestinal symptoms; as soon as the intestinal symptoms have been controlled, carbohydrates in the form of dextrin-maltose, or flour, should be gradually added. When the infant is able to take 5 or 6 per cent. carbohydrates it should be put on a whole-milk mixture or on a skim-milk mixture with a high percentage of carbohydrates (if the infant is very much underweight).

A mixture which is low in carbohydrates, and contains moderate amounts of fat and a high percentage of protein, can be made from a bottle of whole milk, as follows:

L. S. Milk—Low Sugar Milk.—Take a bottle of Grade A whole milk and shake it so that the cream and the remainder are thoroughly admixed. To half a quart of this milk add two junket tablets; allow it to stand for half an hour; then strain, and discard the whey (which contains the sugar, the salts, and the lactalbumin); the curd is rubbed through a fine sieve into the other half quart of milk; enough plain boiled water is added to make one quart. The whole mixture is now brought to a boil (to destroy any further action of the junket tablet), under constant stirring, and is ready for use. Add no sugar to this mixture. No infant should receive more than one quart of this mixture in the 24 hours.

Atrophic infants who present no gastrointestinal symptoms (there are very few such cases) should be put on mixtures made from properly diluted whole milk, or if they are very much underweight on skim milk with a high percentage of carbohydrates.

Atrophic infants who have an intolerance for one or more elements of milk must be put on mixtures which contain the element for which there is an intolerance reduced to a minimum, and which contain a high percentage of the other elements which are necessary to make up the caloric requirement. Thus, in cases of fat intolerance, we use skim milk, with a high percentage of carbohydrates; in sugar intolerance we may use top milk dilutions (with no addition of carbohydrates) or we may use the mixture described above, made from whole milk, in which part of the sugar of milk is removed; in protein intolerance the casein may be removed by the use of whey and the amount of casein in the milk formula may be gradually increased by adding more of the curd to the milk mixture; protein digestion may be facilitated by the use of alkalies (no protein digestion takes place in the stomach in an alkaline medium, we must add 25 to 50 per cent. lime water), by the use of cereal diluents

(casein is precipitated in much finer flocculi), by the use of sodium citrate (1½ grain of sodium citrate to every ounce of milk used—the milk does not curdle under these conditions), by boiling, peptonizing, or homogenizing of the milk. In most cases all that is necessary is to bring the milk to a boil and all the symptoms of protein indigestion usually disappear.

Uses of Skim Milk.—In 1909 a study was undertaken to determine the value of different kinds of milk (skim, whole, or top milk) as proper substitutes for breast milk, in cases in which the latter was not available. A large number of infants were fed on each kind of food and they were observed for from one to two years, the effects of each kind of milk on the development, the morbidity, and the mortality of the infants being carefully noted. The results of our studies have conclusively proved to us that in the use of proper dilutions of whole milk we have the best substitute for breast milk; we were equally convinced that skim milk, although not suitable as a permanent food for healthy infants, was of great value as a temporary food in all chronic cases of malnutrition, in which the infants presented no gastrointestinal symptoms and were very much underweight. Skim milk with a high percentage of carbohydrates produces a more rapid gain in weight than any other mixture known.

The advantages of this method of feeding are:

1. It eliminates or reduces to a minimum the fat of the milk, an element which is the most difficult to digest, one which most frequently causes indigestion, and one which requires for its proper digestion a greater expenditure of energy than any other element of milk.

2. It makes it possible to furnish a high percentage of carbohydrate in the mixture; the carbohydrates are the most easily assimilable elements of milk; they require a lesser expenditure of energy for their digestion than any other element of milk. When the fats in a mixture are low, a much higher percentage of carbohydrates can be given to advantage than when they are high; to a certain extent the fats and the carbohydrates are interchangeable; when the fat in a mixture is not above 1 per cent. as high as 10 to 15 per cent. of carbohydrates will often be tolerated for a number of weeks without the slightest sign of indigestion. The carbohydrates have the greatest influence on the weight; they also have the greatest laxative effect; and when given in excess they are apt to cause a retention of abnormal amounts of water with resultant edema, and glycosuria may be present. The appearance of vomiting and loose stools in an infant who receives a high percentage of carbohydrates should always lead to an immediate reduction of this element. If the early symptoms of vomiting and diarrhea are not heeded the complete picture of acidosis with hyperpnea, anuria, glycosuria, and coma may develop within 12 to 24 hours.

3. The protein, an element which but seldom causes any indigestion and an element which is essential for growth, is found in a high percentage in skim milk; as infants suffering with chronic malnutrition are undersized, the presence of a high percentage of protein offers material for tissue building. The presence of a high percentage of protein makes it also possible to prescribe such high percentages of carbohydrates, without the production of loose stools. When the proteins in a milk mixture are abundant they call forth an alkaline intestinal secretion and in this way counteract the tendency of the carbohydrates to produce fermentation. The proteins seem to exert a beneficial influence in other ways also; when an infant who receives a skim milk mixture with a high percentage of carbohydrates is put on a mixture containing the same number of calories, but the proteins are made lower, and either the fats or the carbohydrates are made correspondingly higher, there is no gain in weight for a number of weeks (under the circumstances the salts are also made lower and it is possible that the deficient gain in weight is due to decrease in salts).

4. The salts in this mixture are high, and are, therefore, helpful in the retention of water; the infants for whom this kind of mixture is indicated are usually atrophic and dehydrated; the retention of large amounts of water is therefore helpful and desirable and becomes deleterious when it is retained only extracellularly (*i.e* when it gives rise to edema).

5. A greater number of calories can be supplied to an infant in the form of skim milk with a high percentage of carbohydrates than in the form of whole or top milk. Any one who has fed a large number of infants can recall cases which for a time were gaining in weight, then stopped gaining, and when the food was strengthened they immediately began to lose in weight and developed gastrointestinal symptoms.

At times marantic infants die of starvation because not enough food can be supplied to them without producing a gastroenteritis. In these cases more calories per kilo can be supplied in the form of skimmed milk with a high percentage of carbohydrates than any other milk mixture without producing a gastroenteritis, and with resultant gain in weight. In a number of cases we have been able to prescribe from 75 to 85 calories to the pound, with resultant gain in weight and with continued benefit to the infant, and without the development of any digestive disturbances. The prescribing of the same number of calories in the form of whole or top milk invariably led to severe digestive disturbances.

Skim milk mixtures with a high percentage of carbohydrates are especially indicated in cases of (1) fat intolerance; (2) malnutrition due to underfeeding; (3) malnutrition following acute infectious diseases; (4) all cases of malnutrition without gastrointestinal symptoms; (5) weaning. (They are contraindicated in all cases of sugar and protein intolerance.) (6) They are also indicated in infants born prematurely and congenitally debile. The fat-splittig ferment is the only ferment which is found in deficient quantities in prematurely born infants, in marasmus, and in febrile conditions. All the other ferments are present at birth (including starch-splitting ferment) and their concentration in the intestinal tract is not affected in marasmus.

Technique.—1. We must first determine the kind of milk which is indicated in the particular case (whole, top, skim, or "curdled low sugar" milk).

2. The next step is to determine the quantity to be given at a feeding, the number of feedings in the 24 hours, and the total quantity in the 24 hours.

3. Calculate the caloric requirement of the infant; in the first food it is seldom advisable to furnish more than 30 to 35 calories to the pound. Slowly but steadily increase the strength of the formula until the full caloric requirement is covered and the infant begins to gain in weight.

4. Never change the formula without definite reason. In the first few days after the infant had been put on a new formula our policy must be one of watchful waiting; our first aim must always be to abate symptoms and to improve the general condition; when this is accomplished we must aim to produce regular and sufficient gain in weight and proper physical development.

5. The quantity at a feeding should be increased by half an ounce every two or three weeks; no infant under one year should receive more than 42 ounces in the 24 hours.

6. As atrophic infants are apt to be anemic they should receive other articles of food (fruit juices, cereals, vegetables, beef juice, yolk of egg) before they reach the normal weight for their age.

7. As the flours are less fermentable than the sugars they have a greater field of usefulness in infants in whom there is a tendency to looseness of the bowels than in healthy infants. Of the sugars the dextrin maltose preparations are the most useful in cases of atrophy, because they are least apt to produce looseness of the bowel and because they produce the greatest gain in weight. Lactose seems to be the most laxative of the sugars and should therefore not be used in cases where there is a tendency to looseness of the bowels. In healthy infants it is never advisable to raise the sugar above 7 per cent in the mixture; when the food must be strengthened it is always better to increase the milk (not above one quart) than to raise the carbohydrates above 7 per cent. In cases of fat intolerance it is sometimes necessary to raise the sugar to from 10 to 13 per cent.; in these cases part of the carbohydrate must be given in the form of flour, and more than one kind of sugar must be used in the same mixture. In this way we can prescribe a high percentage without developing an intolerance. No infant should be kept on a mixture containing over 10 per cent. of carbohydrates for any length of time, because such infants usually have a diminished resistance to infection, even though they may be above normal in weight.

8. In cases in which skim milk is ordered the first formula should not contain more than 1 per cent. fat; to obtain a 1 per cent. milk we must remove the upper 8 ounces; as all the fat that rises as cream does so in the top 8 ounces, the percentage of fat in the remainder of the milk is of uniform composition (1 per cent. fat); it is thus not possible to obtain a skimmed milk of less than 1 per cent. fat by the gravity method. When a fat-free milk is desired the fat must be removed by a centrifuge or separator. When the infant is adapted to take 1 per cent. fat we should then order 1½ per cent. fat in the mixture (a skim milk containing 1.5 per cent. fat is obtained by removing the upper 6 ounces; the lower 26 ounces contain about 1½ per cent. fat); and then we gradually skim less and less (one ounce at a time) until the infant takes whole milk. As the fat in the mixture is raised the sugar is proportionately lowered.

9. In cases in which top milk is indicated, we begin with a 10 per cent. milk. A 10 per cent. milk means that the fat in the milk is 10 per cent. The proteins, the sugars, and the salts, in top milk, whole milk, and skim milk are approximately the same (proteins 3.5 per cent., sugars 4.5 per cent., salts 0.75 per cent.); slightly less in top milk, except very rich cream, where they are reduced to two-thirds of the original quantities. To obtain a 10 per cent. milk we must use only the upper 16 ounces of the bottle. As the infant develops greater tolerance for carbohydrates, we decrease the fat in the mixture by using a 9 per cent. milk (obtained by using the upper 12 ounces) and correspondingly increasing the carbohydrates. As the infant's tolerance for sugars increases we decrease the fat in the mixture by successively using 8, 7, 6, 5, and 4 per cent. milk.

10. In cases in which the low sugar milk mixture above described (L. S. milk) is used we must keep the infants on this mixture until soap stools are obtained. As infants but seldom gain in weight on this mixture, on account of the low carbohydrate content, we must begin to add carbohydrates to the mixture (preferably flour or dextrin maltose sugar) very gradually; when the infant is able to take 5 to 6 per cent. of carbohydrates in this mixture to advantage it should then be put on a whole milk mixture or on a skim milk mixture with a high percentage of carbohydrates (if the infant is very much underweight).

"ILLUSTRATIVE CASES."

CASE I.—*Marasmus Due to Inanition.*—M. R., birth

CASE I.

Age in weeks	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	65	69	74
Weight in pounds and ounces	10 6	9 9	10 7	9 15	10	10 13	11 8	11 13	12 8	13 3	13 6	14 9	14	12 14	14 15	15 15	16 6	17 9	18 8	19 12
Kind of milk, per cent	4	4	4	4				4			4			4				4	4	4
Milk in ounces	14	16	18	20				22			25			28				30	32	32
Boiled water in ounces	18	16	17	18				16			17			14				10	8	
Granulated sugar, in level tablespoonfuls	1	1	1	1				2			2			2				1	1	
Dextrin-maltose, in level tablespoonfuls	2	2	3	3				3			3			3				2		
Wheat flour, in level tablespoonfuls											1			1				1		
Quantity at a feeding	4½	4½	5	5½				5½			6			7				8	8	8
Intervals in hours	3	3	3	3				3			3			3				3½	4	4
Additional food								*			†			‡		**		§		

*Orange juice, 2-3 ounces; between the first and second bottles.
†Beef juice, 2-3 ounces; in the afternoon.
‡One tablespoonful cereal: farina, rice, oatmeal, barley; boiled in a double boiler, for at least three hours, not to be strained, to be fed with a spoon.
§Three tablespoonfuls cereal.
**Vegetable soup; peas, beans, spinach, carrots, potato, to be boiled for three hours in a little water, strained through a fine sieve and to be fed with a spoon, a rounding tablespoonful at a feeding.

weight 7 pounds 2 ounces, breast fed for seven weeks, was then put on a mixture containing mixed milk 1 ounce, barley water 3 ounces, and granulated sugar one-half teaspoonful; this quantity was given every two hours, eight feedings in the twenty-four hours. The infant vomited from three to four times in the twenty-four hours, almost immediately after feeding, probably due to agitation and hunger contractions; the bowels were constipated. The infant came to our clinic at the age of forty-six weeks, weighing 10 pounds 6 ounces. In the first few weeks under treatment the infant did not gain in weight, because the full caloric requirement was not supplied. The general symptoms, however, almost entirely disappeared. As soon as the full caloric requirement was supplied the infant began to gain from 6 to 8 ounces every week. The vomiting subsided in the course of three weeks, and the bowels became regular and moved spontaneously.

CASE II.

Age in weeks	30	31	32	33	34	35	36	37	38	39	40	44	48	52	56	62
Weight in pounds and ounces	8:4	8:9	8:6	7:12	8:6	8:10	8:13	9:3	9:10	10:4	10:8	12:6	14:8	17:2	18:9	19:12
Kind of milk	L.S.	L.S.	L.S.	L.S.	1		1.5		2		2½	3	3	3.5	4	4
Milk, in ounces	32	32	32	32	24		26		27		27	28	29	30	32	32
Boiled water, in ounces	0	0	0	0	8		9		8		8	7	7	6	10	0
Granulated sugar, in level tablespoonfuls	0	0	0	0	½		1		2		2	1½	1	1	1	0
Dextrin-maltose, in level tablespoonfuls	0	0	1	1	1		1		1		1	1	1	1	0	0
Wheat-flour, in level tablespoonfuls	0	0	0	1	2		2		2		2	2	2	1	0	0
Quantity at a feeding	4½	4½	4½	4½	4½		5		5		5	5	6	6	7	8
Intervals in hours	3	3	3	3	3		3		3		3	3	3	3	3½	4
Additional food	0	0	0	0	0		*				†		**	‡	§	

*Orange juice. †Beef juice. ‡Cereal, one tablespoonful. §Cereal, three tablespoonfuls. **Vegetable.

CASE II.—*Marasmus Due to Fat Intolerance.*—L. M., birth weight 7 pounds 12 ounces, breast fed for four weeks; as the breast milk diminished the mother put the infant on condensed milk (two teaspoonfuls to 4 ounces of water); this was gradually increased in strength, so that at nineteen weeks the infant was taking four teaspoonfuls of condensed milk to 6 ounces of water every two hours. The infant vomited almost immediately after every feeding and the bowels were constipated. The mother consulted a physician, who put the bahy on the following formula: Top milk, 12 ounces (the upper 6 ounces of two bottles), 24 ounces of barley water, 2 ounces of lime water, and 1 ounce of milk sugar. There was marked aggravation of all the symptoms. The infant now began to vomit also between feedings and the bowels were very loose (seven to eight times a day). On this mixture the infant lost from 4 to 6 ounces every week. The infant came to our notice at the age of thirty weeks, weighing 8 pounds 4 ounces. In the first few weeks there was no gain in weight, because L. S. milk is low in sugar. As soon as the stools were controlled dextrin-maltose was added. Later the infant was put on a 1 per cent. milk, and one-half tablespoonful of granulated sugar and 1 ounce of dextrin-maltose were added. From this time there was regular gain in weight. The milk was skimmed less and less and the sugars were correspondingly lowered. At sixty-two weeks the infant was of normal weight and development.

CASE III.

Age in weeks	11	12	13	14	15	16	17	18	19	20	21	22	23	24	30	38	42	52
Weight in pounds and ounces	7:11	7:11	7:14	7:10	7:15	8:7	8:12	9:1	9:8	9:8	9:14	10:4	11	11:1	13:6	15:2	16:4	18:9
Kind of milk, per cent	4	4	4	10	9	9	9	8	8	7	6	5	5	4	4	4	4	4
Milk in ounces	10	11	14	11	10	12	12	14	14	16	18	18	19	23	28	30	32	32
Boiled water in ounces	11	10	14	17	18	20	20	18	18	16	14	14	16	12	14	12	10	0
Cane sugar, in level tablespoonfuls	2	2	2	0	½	½	1	1	1½	1½	1½	2	2	2	2	2	2	0
Dextrin-maltose, in level tablespoonfuls	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	2	2	0
Quantity at a feeding	3	3	4	4	4	4½	4½	4½	4½	4½	4½	4½	5	5	6	7	7	8
Intervals in hours	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4
											*				**	†	‡	§

*Orange juice. †Beef juice. ‡Cereal, one tablespoonful. §Cereal, three tablespoonfuls. **Vegetable.

CASE III.—*Marasmus Due to Sugar Intolerance.*—Grace Mc., birth weight 7 pounds 6 ounces, breast fed for four weeks; best weight while on the breast was 7 pounds 4 ounces. There was considerable vomiting about fifteen minutes after nursing and the infant had from six to eight loose green stools every day. It was then put by a physician on mixed feeding: mixed milk, 5 ounces; boiled water, 15 ounces; milk sugar, 1 ounce. Three ounces of this mixture were given every three hours immediately after nursing. The child continued to vomit and to have six to eight green stools with mucous and hard curds; the buttocks were excoriated. At eleven weeks she consulted another physician, who weaned the infant entirely and prescribed the following formula: 10 ounces of mixed milk, 11 ounces of boiled water, and 1 ounce of cane sugar. The vomiting and the loose stools continued. There was no gain in weight. Then the infant was brought to our notice, weighing 7 pounds 15 ounces at fifteen weeks. From the symptoms it was evident that this was a case of sugar intolerance, and the infant did very well on top milk mixtures without the addition of carbohydrates.

As soon as the infant was put on top milk the stools decreased in number and the infant began to gain in weight. The fat in the formula was gradually decreased and the sugar slowly but gradually was increased. At six months the infant was able to take 6 per cent. carbohydrates. (Ten per cent. milk is obtained by using only the upper 10 ounces of a quart; 9 per cent. milk, the upper 12 ounces; 8 per cent. milk, the upper 14 ounces; 7 per cent. milk, the upper 16 ounces; 6 per cent. milk, the upper 18 ounces; 5 per cent. milk, the upper 24 ounces, and 4 per cent. milk, the whole 32 ounces.)

316 WEST NINETY-FOURTH STREET.

THE RESULTS AND INTERPRETATION OF THE WASSERMANN TEST.*

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IN this paper I shall give a preliminary report of the present status of the Wassermann test in diagnosis, and as a control in the treatment of syphilis, together with some of the things which I have found to be of practical value from my experience with over six thousand Wassermann tests which I performed personally at the Los Angeles County Hospital.

The Wassermann test has been given a thorough trial in all parts of the world with the result that the consensus of opinion is that, all in all, it is the most valuable aid that we possess in the diagnosis of syphilis. This test is the most delicate and persistent of all the symptoms of syphilis and one should not consider a patient cured of syphilis so long as the blood or spinal fluid reacts positively. If this reaction is persistently positive we are sure that there is present somewhere in the body, the living spirochete. This is further proved by the

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provocative Wassermann test, which will be positive after the administration of salvarsan or neosalvarsan, if the test has been negative after a course of treatment.

The technique which I have employed has been that of a sheep hemolytic system with an antigen which was an alcoholic extract of the human heart reinforced with cholesterine.

The Specificity of the Wassermann Test.—In my experience I have found that only a very few of the known diseases besides syphilis will give a positive reaction—leprosy and malarial fever in the febrile stage and carcinoma of the gastrointestinal tract. I did not find any of these diseases mentioned that would give more than a positive one plus unless there was a positive history of an initial lesion, and I am of the opinion that the Wassermann test, when properly performed and giving more than a positive one plus, is indicative of syphilis.

The Percentage of Positive Reactions in the Various Stages of Syphilis.—An important question is the percentage of positive results that may be expected in the various stages of syphilis. Practically all observers agree as to the percentage of positives in the various stages and I will only give the percentages obtained in my laboratory in a series of 6,000 cases: Primary, 89; secondary, 96.1; tertiary, 87.4; and congenital, 82.2.

How Soon May a Positive Wassermann Reaction Be Expected After the Appearance of the Chancre?—As would be expected, a certain degree of tissue change must occur before syphilis begins to appear in the blood. Even with the best technique there is a limit to the sensitiveness of the Wassermann reaction, so that, while the antibody may be produced at the very onset of an infection, time and further tissue changes are required before sufficient antibodies are produced to yield a positive complement fixation reaction.

A positive reaction may be secured as early as from three to five weeks after infection has occurred. In such cases, however, it is oftentimes probable that the time of infection really antedates the time given by the patient. Craig has reported a positive reaction occurring five days after the appearance of the initial lesion.

It is generally agreed that a diagnosis should be made as early as possible and vigorous treatment instituted. A Wassermann test may be performed and if it shows a positive result, this indicates the presence of syphilis even if the lesion under suspicion is not specific, the reaction being due to a previous infection. A negative reaction, however, does not exclude syphilis, and, if it is at all possible, a microscopic examination, using the dark ground illuminator, should be made for the treponema. In primary syphilis a microscopic examination of the secretions of the lesions by a competent person is usually more valuable than the serum test. As a general rule, both examinations should be made, especially in patients in whom the chancre is almost healed or atypical.

The cerebrospinal fluid of persons in the primary stage of syphilis will always react negatively. The following table of 100 cases gives the blood findings in the primary stage.

Factors Influencing the Result of the Test.—There are several known factors that markedly influence the result of the Wassermann test, the three most important being—(1) the variation in the amount of complement-inhibiting substances in the patient's blood serum; (2) the ingestion of alcohol; (3) and the growth of various bacteria in the blood serum. These factors will be considered separately.

Week of Disease.	No. of Cases.	Positive.	Negative.	Doubtful.
1½	1	1	0	0
3	4	2	1	1
4	10	7	3*	0
5	8	6	0	2
6	6	6	0	6
8	71	67	2†	2
Total number of cases.....	100	89%	6%	5%

*One alcoholic, positive a few days later.
†Two having had treatment.

The Variation in the Amount of Complement-Inhibiting Substance.—Until quite recently it has been considered that the strength of the Wassermann reaction varied but little, in the same serum from day to day, but I have shown that the blood serum of undoubted syphilitics may, in the absence of specific treatment, give a negative reaction during certain intervals, although previous and subsequent tests are positive. Craig's observations regarding the fact were published in 1914 and were stimulated by the fact that in practice he had noted cases in which the blood serum had given contradictory results within a short period of time. Thus he had observed cases in which the reaction varied from a positive one plus to a negative within intervals of a few days, the patients in the meantime having received no treatment. While such observations are not numerous in practice, their undoubted occurrence caused an investigation of the phenomenon, and for this purpose he selected ten prisoners in the United States Prison at Fort Leavenworth, two in the primary stage, four in the secondary stage, and four in the latent stage of the disease. These men were under the strictest discipline, upon routine diet, and the question of the possible influence of alcohol upon the result of the test could be absolutely excluded. The ordinary technique was used in the performance of the test and samples of blood were collected and tested each day from each of the prisoners. The results demonstrated that the titration of daily specimens of blood serum during each stage of the disease showed great variations in the strength of the reactions, and that these variations occurred without reference to treatment. The experiment demonstrated that this normal variation in the strength of the Wassermann reaction must be carefully considered in using the test in the diagnosis or as a control in the treatment of syphilis.

Craig demonstrated that in one case of primary syphilis a doubtful reaction was obtained on three of seven days, the reaction being positive on five days. In one case of secondary syphilis a negative reaction was obtained on one day, a doubtful on four days, and a positive or double-plus reaction on only two days. In another secondary case a doubtful reaction was obtained on two of seven days. In two secondary cases a positive result was obtained upon every day of the week during which the serum was tested. It would seem that this phenomenon

was more likely to be present in the primary stage, due likely to the few syphilitic antibodies which may be developed daily in the early stage.

Influence of the Ingestion of Alcohol.—Nichols and Craig first called attention to the influence of this drug upon the Wassermann test. They found that the ingestion of alcohol in the form of beer or whiskey, as well as alone, and in amounts varying from 180 to 240 c.c. of whiskey, 90 c.c. or 95 per cent. alcohol, and 700 c.c. of Munich beer, was capable of rendering a positive Wassermann reaction negative, and that the reaction remained negative for several hours after the last dose of alcoholic liquors, and in one case as long as three days. In all these cases the Wassermann reaction was double plus before the administration of alcohol and all became negative within a few hours after the administration of this drug. If this drug influences a double plus to this degree, one can readily see that a one plus or doubtful serum would necessarily give a negative and, therefore, make an accurate serum diagnosis impossible. The following is a report of my personal experience of patients who had taken this drug within twenty-four hours from the time the specimen was taken.

Two cases with secondary rash gave positive one plus on entrance, and two days later gave positive three plus.

Two cases with diagnosis of cerebral hemorrhage, both drunk, gave positive one plus, and two days later gave positive two plus and positive three plus.

Gastric crisis one case doubtful, two days later gave a positive two plus.

Corneal ulcer, one doubtful, three days later gave positive one plus.

Psychosis, six cases, ranging from a negative to a one plus, three days later gave a positive in all six cases.

Syphilitic iritis, two cases, one negative, the other positive one plus, after two days in hospital both gave positive two plus.

Arteriosclerosis, two cases, one negative, one positive one plus, after two days both positive two plus.

The Growth of Various Bacteria in the Serum.—This phenomenon was an experiment which I did with a number of negative sera after taking them to the wards and infecting them with stitch abcesses, appendicial drainage, boils, and infections of various types. All gave positive three plus after twelve hours incubation.

If this agent influences the test, we must be aseptic in obtaining the blood. I have been asked by many physicians how to sterilize their syringes for doing venous section and my instruction has been as follows: The syringe should be washed thoroughly with tap water and then with alcohol. This renders it chemically free from antibodies and then it should be boiled to render it bacteriologically clean. If one is to use a syringe soon after boiling, it is good technique to wash it with sterile salt solution or allow it to drain thoroughly. This also applies to tubes in which the blood is to be sent to the serologist. It is also well to keep the blood in a cool place after withdrawal, in order that bacteria, in case any should be present, may not multiply, and thus give a false reaction.

The Provocative Wassermann Test.—This method of applying the Wassermann test is of the utmost value in the diagnosis and control of the treatment of syphilis, and while it has been most intensively used in deciding whether a patient is or is not cured of the disease, it is also a most valuable diagnostic test, and should be applied in every case where the Wassermann test is negative but there is good reason to suspect syphilis is present.

In 1910 Gennerich called attention to the fact that patients previously treated with salvarsan or other drugs and who gave a negative or very weak positive reaction in the blood, became strongly positive after a dose of salvarsan, the blood being tested daily for at least a week after the administration of the drug. His observations were soon confirmed by Milian, and have since been confirmed by every investigator of the provocative Wassermann test, as it is called, and is now the accepted method of diagnosing and controlling the syphilitic infection.

After the administration of a small dose of salvarsan the positive reaction may occur within twenty-four hours or may be delayed for from three to seven days, and even longer, in rare instances. As the positive reaction may occur within twenty-four hours after the administration of the drug, and as it may be evanescent in character, in properly applying this test it is necessary to make a Wassermann test every day for at least a week, as otherwise the positive reaction may be missed. For this reason the test is not always practicable, but its value is without question, both in diagnosis and as an indicator of the efficiency of treatment.

The following statement appears to be authorized by the evidence that has accumulated regarding this test: In patients who have presented a negative Wassermann reaction for a period of over a year, and in whom symptoms have been absent, the provocative Wassermann test sometimes results positively, thus proving that spirochetes are still present and that the disease has not been cured.

Although this test has been but little used in diagnosis, it is true that a small dose of salvarsan or neosalvarsan, administered to individuals suspected of being syphilitic but in whom the ordinary Wassermann test is negative, will often produce a positive result and thus establish the diagnosis. For this reason I would urge the more general employment of the test in diagnosis, firmly believing that if it were used generally in early primary cases the diagnosis could be made within a week of the appearance of the initial lesion, and that our percentages of positive results in tertiary and latent cases would be greatly decreased. Of course if the dark field microscope is at hand the ideal method of diagnosis in the primary stage is the demonstration of the *Spirochæta pallida*, but in many instances this cannot be done and then the provocative test will prove most useful. In applying the test a great advantage is that only a small dose of this drug is necessary, from 0.3 to 0.4 gms. of salvarsan intravenously being sufficient, and we are not only applying a valuable diagnostic test, but a therapeutic agent at the same time. If we have this valuable aid in diagnosis, physicians who neglect the use of the Wassermann test in the diagnosis and control of treatment of syphilis are doing their patients a great injustice. This test has conclu-

sively demonstrated that many of our clinical conceptions of syphilis are erroneous, that the disease may be present for years without producing symptoms sufficient to attract the attention of the individual affected. If this be so, the supposed cure by mercury and other drugs, even including the best of all specifics, salvarsan, is a dangerous fallacy and syphilis must be regarded as one of the most insidious and persistent of all the infections occurring in man.

THE TABLE OF DIFFERENT NATIONALITIES, WITH POSITIVE REACTION IN 1,681 CASES IS AS FOLLOWS:

Nation	No. of Cases.	Positive History, per Cent.	No History Ascertained or Denied, per Cent.	Positive Reaction, per Cent.	Negative Reaction, per Cent.
American	979	10	90	30	70
English and Scotch	131	15	85	27	73
Armenian	4	0	100	0	100
Irish	51	13	87	26	74
Scandinavian	49	24	76	40	60
Mexican	182	15	85	29	71
Russian	45	17	83	29	71
Austrian	11	0	100	18	82
Dutch	4	25	75	25	75
Rumanian	1	0	100	0	100
French	13	7	93	44	56
Japanese	7	14	86	28	72
German	59	20	80	37	63
Bulgarian	1	0	100	10	83
Greek	6	0	100	17	83
Colored	69	10	90	36	64
Swiss	4	25	75	50	50
Italian	31	2	98	28	72
Turks	3	0	100	67	33
Hindu	2	0	100	0	100
Polish	1	0	100	0	100
Syrian	2	100	0	0	100
Spanish	4	0	100	25	75
Chinese	2	0	100	.	.
Hungarian	4	0	100	0	100
Belgian	1	0	100	0	100
Danish	3	0	100	0	100

The above table is incomplete as I have not been able to go over all the records of the 6,000 cases, but felt that this line of investigation might be of interest, as I have been unable to find anything similar to it in the medical literature.

Conclusions.—If the things which I have mentioned affect the Wassermann to this extent the following factors should be taken into account when one wishes to use the serum test for diagnosis and as a check to treatment:

The time of the appearance of the syphilitic antibody in the serum after the infection varying from five days to several weeks, it must be borne in mind that a negative result may mislead the physician as to diagnosis and that a microscopic examination should be made if available.

The second factor which influences the test is the amount of complement-inhibiting substance in the serum and, as I have mentioned above, the lesion may be fairly characteristic and give a negative reaction when it may be of a specific nature, therefore, to give the patient the benefit of this reaction another test should be made in the days following.

If alcohol influences this test as has been demonstrated, the history of having taken alcohol twenty-four hours before the test should be ascertained and if taken within this time advise the patient to return twelve hours later, in order to prevent the influence of this drug upon the reaction.

If the growth of bacteria influences the negative to positive, then it is absolutely essential to have all needles and glassware bacteriologically clean.

Since we have a method in the provocative test for bringing out such latent antibodies as may be present, this therapeutic agent should be used both from a diagnostic and treatment standpoint.

600 MERRITT BUILDING.

STAMMERING.

BY ERNEST TOMPKINS.

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THE article on stammering by Dr. Pacini in the MEDICAL RECORD of May 11, 1918, brings up a wonderful opportunity for the United States in win-the-war work. Up to 1914 Germany led us in the investigation of stammering, but we have a clear field to win all the practical benefits from her work and ours because the old mistakes have become cemented in the German schools as State institutions, whereas we are comparatively free to follow the light. If we fail to seize this opportunity to take the laurels from the German we have light regard for American science and American efficiency.

Let us outline the new view of stammering and then test it by supplementing Dr. Pacini's article by means of it. Contrast with the old view will help us to grasp the new one. The old one was that stammering was caused by a lack; the new one is that stammering is caused by an excess, an extra thing—and that is a mistaken, but not illogical, idea of disability. The complete description is as follows:

(1) By an accident or incident, a child is induced to interfere with his normal speech by a conscious effort. (2) The spasm resulting from the interference attracts ridicule. (3) The child makes further interfering efforts to avoid the ridicule, and the failure of these efforts engenders more, and so on until the idea of speech disability is thoroughly confirmed.

The reader may prove this view in five minutes. Let him do anything which the stammerer does—hold his breath, exhaust his breath, press his tongue against his upper teeth or his palate, press his lips together—and try to talk, and he will find that he is impeding his speech, and anyone looking at him would think that he was stammering. Indeed, if he made the test when his speech was newly acquired, he would soon develop into a stammerer.

In order to avoid unscientific procedure, which has been the universal pitfall in the field of stammering, let us consider what scientific procedure is. Haeckel expresses it well in the following language: "The value which every scientific theory possesses is measured by the number and importance of the objects which can be explained by it, as well as by the simplicity and universality of the causes which are employed in it as grounds of explanation. On the one hand the greater the number and the more important the meaning of the phenomena explained in the theory, and the simpler on the other hand, and the more general the causes which the theory assigns as explanations, the greater is its scientific value, the more safely we are guided by it, and the more strongly we are bound to adopt it."

Let us put the speech interference theory to the test, beginning with the etiology of stammering, which is unexplained. The etiology is a temporary

interruption to speech. In voluntary imitation, the interruption is intentional and unquestionable. In association, the imitation may be unintentional, or may be prompted by the desire to avoid the disorder, a case of which is described by Sidis in the *Journal of Abnormal Psychology*, June, 1917. In stuttering, the interruption is the repetition, which, when visited with ridicule, brings out the stammering. In sickness, fright, injury, hysterics, fainting, and so on, the temporary interruption is the broken speech which follows them. It is significant that Freudeanism, dextrosinistrality, and innumerable other alleged causes do not harmonize with the etiology; but as these causes may be shown to be fallacious regardless of the theory, the theory justifies itself by exclusion of them.

The sex ratio of stammering is readily accounted for by well verified facts, namely (1), the divergence of the ratio from unity in infancy to 1:9 in adulthood owing to (2) the "spontaneous recovery" of the girls. The statistics do not go back to infancy, but stop at school age. However, the trend is unmistakable, and we know that conditions prior to school age are much more favorable to recovery than subsequent conditions, for the school treatment confirms stammering. Conradi says, "Gutzmann gives 2:1 for children, but 9:1 for adults, and says with girls it is more apt to disappear than with boys." The ratio in American schools is, girl stammerers to boy stammerers, 1:3, and the adulthood ratio is 1:9; so, for 9 stammering boys there are 3 stammering girls, whereas in adulthood for 9 stammering men there is only 1 stammering woman. Two girls out of three recover between school age and adulthood. In short, recovery of the girls accounts for the sex ratio, and from that we see that there is no sex determinant of stammering.

Whether the stammerer's nervousness is antecedent or resultant is a much discussed phase of the disorder. Temporary nervousness following shock or illness is a great inducing cause, and that has been considered permanent without due warrant. That the extended nervousness is resultant ought to be evident; for the disorder is a constant mental torture and any animal can be made nervous by constant torture.

Heredity seems to be a view which we shall have to abandon. It rested mainly on the idea of a lack, which idea, and consequently its superstructure, is no longer tenable. The observations which seemed to warrant heredity have long been suspected to warrant other conclusions. This common opinion is expressed by a writer in the "Encyclopedia Medica" as follows: "It is said by many writers to be hereditary, and to occur in families with a neuropathic diathesis. Such an explanation does not cover the whole field. . . It is highly probable that cases of so-called heredity are really to be explained by imitation." There are very many reasons why heredity can not be accepted in the case of stammering: no satisfactory evidence of it has ever been presented; some of the alleged proofs of it turn out to be positive disproofs when they are examined; and no theory of the disorder involving heredity has ever been sustained. (See *Scientific American Supplement*, March 23, 1918, p. 186.)

Health and stigmata of maldevelopment may be considered together. Since they come in the "lack" class they are immediately under suspicion, and investigation justifies the suspicion. Let us take a whimsical demonstration. Suppose that these ailments are connected with the stammering. Combine them. Since almost every investigator has given a list of his own—a recent list contains at least nineteen ailments—the total of all the lists would make the subject a corpse; but this is contrary to the hypothesis that he is a stammerer, so the ailments must be rejected. The claim that preference should be given to some ailments cannot stand, for the evidence in support of one is no better than that in support of another. There is another way of deciding the question. Let us bring a stammerer to a doctor who has established a connection between certain stigmata and stammering. If the connection is valid the stammering should be determinable from the stigmata. Say to the doctor, "We will talk for this man and give you any health information desired; tell us from his stigmata whether he is a stammerer." No wise doctor will meet that test, and whoever does meet it is sure to be discredited. It is unquestionable that stammerers have ailments just as other people do; but no connection between those ailments and the stammering has ever been shown. In illuminating distinction to the labored efforts to establish a connection is Fletcher's conclusion, beautiful alike for its truth and its simplicity, "The subjects are not to be distinguished physically from other people; . . ."

Immorality. A child acquires the unfortunate habit (Scripture) of interfering with his speech. His parents are to blame, for he is too young to be blamed. Immediately he is outlawed; for conventions are unwritten laws, and the speech conventions are made for the other 99 people—not for him. Society is against him on every side. His parents make him talk to callers, run errands, answer the doorbell or telephone; his teachers force him to stand up before a class and exhibit his humiliating affliction, so that the other children are infected and he is confirmed in it, and regardless of clear laws which should protect them even if good sense and mercy do not; his employers require him to telephone, dictate, quote prices, do what any other employee does, or "Out you go"; even those who take his money to cure him teach him exercises which inculcate intensified stammering (Liebmann). Then, when he sees his family in want in spite of strenuous efforts to provide for them, when he is sick with loneliness for someone who understands him; when he wishes to die and has to fight off the inclination to gratify the wish—then someone calls him "immoral." If this is not adding insult to injury, what is it?

Transient amnesia. This theory is notable for two things—the elaborateness with which it was advanced and the ease with which it is exploded. Fletcher has already considered it and its first cousin "Visual Center Asthenia" (see *Journal of Abnormal Psychology*, April-May, 1917). But an elaborate consideration is superfluous. Imitation and association account for much of the stammering—Fletcher and some others think for most of it. But Bluemel, the very inventor of the amnesia theory, says, "The two causes of stammering that do not produce aphasia are association and imita-

tion." What good is a theory that is applicable to only half of the field to which it pertains? His attempt to save his theory by an effort to show that there are at least two kinds of stammering does not help his case, for it indicates that the same sort of logic was used in the original demonstration. It is well known that the stammerer is an adept in the substitution of synonyms. But amnesia, as Dr. Pacini says, is "Incapacity to form an antecedent verbal image." How can one substitute a synonym for a word which he does not know? Bluemel endeavors to show that the "color" of the vowel is the only unknown portion, and that confusion of vowels is common to the stammerer; but the first proposition is built up on dogma, and the stammerer's slips of the tongue are no more than anyone would experience who was strenuously dodging difficult words. It is unnecessary to give the many fallacies of this theory. Dr. Makuen, who took it up with great avidity, dropped it with almost as much. He had to drop it; for it makes the stammerer's trouble auditory, and Dr. Makuen was on record to the effect that examination of 1000 cases of stammering revealed no auditory trouble connected with the affection.

Breathing and articulatory exercises. These are intensifiers of the disorder, as Liebmann showed twenty years ago. Why does the medical profession at large suffer the discredit which accrues to it from persistence in mistaken practice by a very small group of specialists? Putting aside ethics and science and coming down to commerce, the physicians as a whole are losing manifold more dollars by it than a few of them are making. An important field of work—medical inspection in the public schools—may not be closed, but it will certainly be hedged, by the forcing of these injurious treatments into the schools.

Treatment. "Re-educate the stammerer in a new mental imagery." Yes. But it cannot be done in the manner proposed. Rather, the manner proposed does not reduce the stammering. The idea of disability which is the continuing cause of stammering was instilled by thousands of speech failures, and the only way to remove it is by thousands of speech successes. The victim must decline to indulge in the convulsive effort, and then what spontaneous speaking he does contributes to his recovery. The more he increases that spontaneous speech the less slowly he recovers; we cannot say the more rapidly, for the recovery of confirmed cases is never rapid. We are talking now of the real recovery and not of the temporary relief which is so readily produced, which is the support of 99 per cent. of the alleged remedies on the market, and which is so generally misrepresented as cure. The spontaneous speech may be stimulated by environment which reduces the embarrassment. Indeed, efficiency in overcoming the difficulty opens a big field for ingenuity; for the stammerer must live during the greater part of his recovery in a world antagonistic to his speech interest. Just to live in that world, let alone making a living in it, without being forced back into the disorder, requires more sagacity and intelligence than one would imagine.

Dr. Pacini should be commended for using English nomenclature. The German invasion of the field of stammering with the word "stutter" to mean stammer has caused much confusion there, and the quicker we throw it out the better. To complicate further a confused field by a confusion of tongues is anything but scientific.

Just a word, in closing, about the speech-interference theory. It gives us the etiology, the common causal factor, the causes of origin by imitation, sex discrepancy, and many other features which are every day pronounced unknown. Indeed, it satisfies every requirement; so, in the words of Haeckel, " . . . we are bound to adopt it," that is, those of us who are scientific.

610 North El Molino Avenue.

A NOTE ON THE TRANSFUSION OF BLOOD BY THE CITRATE METHOD.

By ABRAHAM ZINGHER, M.D.

NEW YORK.

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The transfusion of blood by the citrate method is probably the simplest way of transferring blood from donor to recipient. It is, therefore, important that all the technical details of this method of transfusion should be as nearly perfect as possible.

The citrate method of transfusion, as recommended by Lewisohn, seems to the writer to have three radical faults:

1. The use of 0.2 per cent. citrate of sodium for preventing coagulation of the blood. With this concentration the blood often clots in the containers or in the needle while it is being injected into the recipient.

2. The collection of blood in one large container, like a graduate, necessitating the stirring with a glass rod to mix the blood with the citrate solution. This stirring has a tendency to defibrinate the blood.

3. The use of a 2 per cent. solution of citrate of sodium for purposes of citration, instead of a more concentrated one, causing an unnecessary dilution of the blood.

The objection features will occasionally cause the failure of a transfusion and could be remedied by using the following procedure, recommended by the writer in a previous communication on the transfusion of young children by the citrate method. (Medical Record, March 15, 1915.)

1. The blood is citrated with 0.3 per cent. instead of 0.2 per cent. citrate of sodium. The additional amount of citrate of soda is not sufficient to make the blood to be injected more toxic and avoids any possibility of troublesome and dangerous clotting.

2. The blood is collected in a series of 100-c.c. bottles, 60 c.c. being drawn into each bottle. A number of small grape juice bottles will serve the purpose very well. To each of these bottles the necessary amount of citrate of sodium solution is previously added.

3. The use of a 10 per cent. solution of citrate of sodium instead of a 2 per cent. solution to avoid any unnecessary dilution of the blood; 2 c.c. of this citrate solution are added to each of the bottles.

The bottles should be prepared by sterilization,

each bottle being stoppered with a gauze plug. For collecting and injecting the blood a salvarsan cannula or an ordinary needle, gage 15, will be found convenient.

While the blood is flowing in the bottle it is gently stirred from time to time and also after the entire quantity is obtained, so as to insure a thorough incorporation of the citrate with the blood. After all the bottles are filled the blood is passed through a few layers of gauze, moistened with a 0.3 per cent. solution of citrate of sodium, into a single container and is injected by means of a salvarsan apparatus. In an emergency the barrel of a large syringe and a piece of rubber tubing with a suitable needle or cannula will serve the purpose very well.

DEATH FROM VOLVULUS CAUSED BY ROUND WORMS.

By VICTOR G. HEISER, M.D.,

NEW YORK.

Dr. John F. Kendrick reports the following case from the Seychelles Islands:

A child four years of age was given six minims of oil of chenopodium. Two days after the administration of the chenopodium the child was reported very ill. There was marked distention of the abdomen, with severe pains, frequent vomiting, and the bowels had not moved since the day treatment was given. On post mortem a mass of round worms the size of a man's fist was found blocking the bowel; the intestines below the mass were so twisted as to cause complete obstruction; there was local peritonitis in the vicinity of the obstruction, and more than 300 round worms were found in the intestinal canal.

61 Broadway.

Medicolegal Notes.

Malpractice—Insufficient Evidence of Negligence.—In an action for damages alleged to have been sustained because of the unskillful and negligent manner in which the defendant, a practising physician, reduced and treated a fracture of the radius of the plaintiff's left arm, the allegations of negligence were: First, that the defendant was negligent in not reducing the fracture properly; second, that the defendant was negligent in using only pasteboard splints at first, and afterwards inadequate and improper splints, and in not applying proper bandages and appliances to keep the broken bone in alignment or proper apposition. There was no direct evidence showing that the fracture was not properly reduced. There was no direct evidence that the broken parts were not put in proper apposition. There was no direct evidence that the splints and bandages used were not the appliances ordinarily used by physicians and surgeons in the treatment of such fractures.

A physician is held to the exercise of the skill and learning of the profession generally in the community in which he practises. The case was purely a fact case, with the burden resting on the plaintiff. At the conclusion of the testimony, the court directed a verdict for the defendant. The plaintiff appealed. The Iowa Supreme Court reviewed the evidence in detail and summed up as follows: "There are authorities saying that where the condition found upon an examination is of such a character, so out of harmony with conditions that ought to exist under proper treatment that a physician, seeing the result, may as an expert testify that the proper treatment was not administered or such a result would not be found. Now, it is true, as a general proposition, that the result furnishes no evidence of negligent treatment, but some cases may arise where evidence of the poor result alone might convince an expert that the treatment must have been improper. An opinion based upon such a showing would be competent evidence to establish the ultimate fact charged in the complaint.

"But such a case is not before us here. The only expert called by the plaintiff who is shown to have been in a position to know just what the condition of the bone was after it had healed and the manner in which the fracture was reduced is Dr. Crenin, and he tells us that he found the bone in proper apposition and properly healed; that the alignment was as good as you could expect under the conditions which he found there. The only condition which he found that required treatment was the callus which nature throws out and over which the attending physician has no control. It seems that an excessive amount of callus had been thrown out around the wounded part. The excessive callus, as this record shows, may be due to many causes, none of which are under the control of the attending physician, and a careful examination of the x-ray pictures shows that the deformity appearing in the pictures is caused by the excessive callus and which, when removed, left the arm with all its functional properties normal. It is apparent that the plaintiff relies upon negligence—negligence of the attending physician in the treatment of the arm. It rests on the plaintiff, therefore, to show affirmatively that the condition of which he complains was due, at least in some measure, to the negligence of the physician in respect to the matters relied on as constituting negligence. A verdict to the effect that the doctor was negligent in reducing the fracture or negligent in the treatment of the fracture after it was reduced would rest necessarily upon mere speculation. The evidence pointed to no act of negligence on the part of the defendant. Every doctor who testifies or assumes to say that the result was not perfect tells us in this record that, even with the best treatment, with the fracture perfectly reduced and proper bandages and appliances to keep it in position used, the condition here found might fairly be expected." Judgment for the defendant was affirmed.—O'Grady vs. Cadwallader, Iowa Supreme Court, 166 N. W. 755.

Hypothetical Questions.—Objections to a hypothetical question put to a physician concerning the plaintiff's injuries that such question did not embrace all the facts shown by the evidence, but which failed to point out what facts were omitted, were held unavailing. In a street car passenger's action for injuries, testimony had been admitted but later stricken that she suffered three fractured ribs. It was held that a hypothetical question put to her physician whether the accident alleged could have produced the conditions visible when he examined her was not erroneous as permitting an answer based upon the rib fracture; such not being visible.—Shafer vs. Kansas City Rys. Co., (Mo.), 201 S.W. 611.

Corporations for Pecuniary Benefit.—The Illinois Supreme Court holds that a medical association organized for the advancement of medical science and to improve methods for the treatment and prevention of disease is not a corporation for pecuniary benefit under sections 1-28 of the Illinois Corporation Act, and may elect its trustees through delegates without the limits of the state, in view of section 32 and the by-laws of the association.—People v. Grant, (Ill.) 119 N.E. 344.

Certificates of Qualification.—The Alabama Court of Appeals holds that requiring a certificate of qualification from persons proposing to engage in the practice of treating diseases as a profession and for a livelihood is a police regulation designed to protect the public from the ignorant and incompetent, and the Legislature may prescribe a test to determine qualification, and confer authority on a designated board, to conduct the proper examination through which the test may be applied, as is done by the Alabama statute denying the privilege to such persons without a certificate from the "state board of medical examiners," and a chiropractor not being excluded or discriminated against, and having equal right to apply for a certificate, is not exempt from the operation of the regulation.—Williamson v. State, (Ala.) 78 So. 308.

Military Medicine.

SYMPOSIUM ON MILITARY SURGERY.

THE meeting of the Section on Surgery of the Medical Society of the State of New York, held on Thursday, May 23, was devoted to papers and discussions on Military Surgery. Dr. Thomas F. Laurie of Syracuse was in the chair.

Treatment of Gunshot Wounds of the Humerus.—Captain G. E. WILSON of Toronto, Ont., presented this subject (by invitation). He showed a wire splint devised for fractures of the humerus. This was supported by a plaster bandage around the chest and by a shoulder strap. If the plaster slipped the shoulder strap could be adjusted. This gave absolute fixation, movement being limited to that of the subcutaneous tissues on the deep fascia of the ribs. One point that always seemed to help the wounded soldier was to let him have a cigarette while the plaster was being applied. No matter how wornout he was, this would generally help him to smile. When the splint was adjusted, the patient could be treated as a walking patient and be transported in a lorry. This was an economic saving. The splint would carry the weight of the arm, by support from the chest, and thus relax the shoulder girdle muscles. As there was no traction upon the axilla, the splint was applicable to compound fractures. With pressure on the axilla, there was not good extension. With a large wound posteriorly, the flannel supports across the splint were arranged so that the wound could be dressed. If the *x*-ray showed imperfect alignment, the arrangement of the armpiece on the chestpiece could be altered. A test as to the proper arrangement of the splint was, that if in proper position, one could shake the patient and the movement would cause no pain. To prevent slipping, the shoulder straps were embedded in the plaster.

Treatment of War Wounds.—Major C. L. GIBSON, M. R. C., made this presentation. He said that the surgery of civil life did not apply at all to the conditions of modern warfare. The deep trench fighting made of the soldier a filthy and contaminated person and the elements to be dealt with in treating the wounded had no counterpart in civil life. Fear, lack of food, shock, multiplicity of wounds, the tedious and dangerous journey from the trenches, all tended to complicate the patient's condition. Three elements had to be combatted—shock, hemorrhage and sepsis. Sepsis was an active element in one hundred per cent. of cases. In order to overcome this, early treatment was of the first importance. Wounds had to be freely laid open and all foreign bodies removed. Surgeons were seeing the necessity of moving the line of relief nearer to the battlefront and good surgery could now be done near the line. The removal of foreign bodies and of damaged and necrotic tissue was effected as soon as possible. Until this was done the use of the Carrel Dakin method was of little avail. Combined with free excision it gave good results. Good surgery, at an early stage, was the *sine qua non*. The special technique necessary for the Carrel Dakin method made it unavailable for a large number of wounded. The methods carried out at present were simple and avoided complications. A radical excision of all bruised tissue and foreign bodies was made at the clearing station, 10 miles back of the line, where a 200-bed hospital was established. The wounded were first brought to dug-outs for first aid, then taken to a dressing station 3 miles behind the line. They were kept warm and comfortable in the waiting room and any treatment that could be done under local anesthesia or nitrous oxide was undertaken. A resuscitation ward had special resources for caring for the wounded. Plenty of fluid was usually given on account of the dehydration of the patient. The more serious cases were given surgical attention first. Badly shocked patients were taken care of at once. Surgical teams, accustomed to work in cooperation for many months, handled the operating, often several teams in one large theater. In the so-called "peace" times, *x*-ray studies were made. The French excelled in their fluoroscopic apparatus. They were accustomed to swab out wounds with some antiseptic, the most popular being ether. The British used 1 per cent. iodoform. The head wounds and abdominal cases were always treated first. They were kept in the hospital one week and then moved back to the base hospital. The results of this procedure were generally good. Primary suture of wounds was now usually practised, after thorough surgery. If the cultures showed streptococci or the Welch bacillus the wounds were left wide open. The French had their base hospitals nearer to the front than the British. The further one got away from the battle line, the more conditions resembled those in civil life.

Development of a Military Roentgenological Service in New York City.—Dr. L. T. LE WALD of New York presented this report. He said that the profession in America had the advantage of the experience of French and British medical men. A roentgenological service had been organized for the army, just as had been done with other branches—orthopedic, neurological, or pathological. Different forms of apparatus had been devised to meet the situation. An electric vibrator had been devised to supplement radiographic diagnosis, by the oscillations of which the presence of a foreign body could be detected. Another of these accessory methods was the telephonic localizer which would show by a clicking the neighborhood of a metallic foreign body. When working with the fluoroscope the surgeon wore an adjustable hood through which he could make the fluoroscopic examination, and which he could turn back over the head and continue the operation. The Sutton method was by a sort of fish-hook, which caught in the tissues and came in contact with the foreign body. Alfred Taylor had devised the use of a stiff wire, instead of using a cannula. The Hertz compass was also in use. This pointed to the projectile. A peculiar type of angular forceps was used, when removing the foreign body, under the fluoroscope. These did not interfere with the direction of the ray. A portable Coolidge tube was also in use, and a portable *x*-ray apparatus for bedside work. Major Paul had invented a stereofluoroscope, in which two tubes worked exactly alike and by means of which the surgeon and the roentgenologist could both work together in locating foreign bodies. At Cornell Medical College, at the present time, Dr. Le Wald said he had just completed the training of 500 roentgenologists to supply the government demand for that equipment, to go with a force of 1,000,000 men. This staff was now ready for work. He would like to know if Captain Wilson's splint could be made in aluminum.

Dr. R. H. SAYRE of New York said that in examining Captain Wilson's splint, he thought that the patient might buckle with the weight of the arm. Would not the support be increased by running it down so as to gain the support of the pelvis. It seemed as if that might get better traction against the entire chest wall.

Dr. G. D. STEWART said he thought most people had an idea that army surgery was a rough and ready business. The army, however, had the largest and best equipped surgical laboratory in the world. It was interesting to note that in the treatment of fractures 400 years ago Ambrose Paré poured boiling oil into wounds caused by gun shots. John de Vigo at the siege of Milan wished to follow this treatment. The supply of oil running out, he poured in white of egg and turpentine instead, and, his conscience troubling him in the night (like many of his successors), he got up to see how the men were doing without the oil. To his surprise he found that they were doing much better than they did with it. This early treatment was along the line of antisepsis. They should feel indebted to Dr. Martin for grouping the treatments. First, use of sera, which had not gone very far; second, the use of antisepsis, which was about equivalent to Lister's work; third, use of free excision, which was a distinct advance. Most of the profession had come to that conclusion.

Dr. WALTON MARTIN of New York said that the value of the *x*-ray examination in modern surgery in regard to excision of the wound tract was to be emphasized. Men were injured in every possible position and it was difficult to see the direction in which the bullet traveled. A man might be hit in a crouching position and the bullet would take a curious route. In regard to the historical points, a history written in the second century

dealt with injuries by bullets of lead from a sling. A chapter mentioned the disadvantages of leaving them in the tissues.

Capt. G. E. Wilson said that aluminum would not be strong enough for the arm splint unless a considerable bulk were attained. This would not be as easy to handle. The stereoscope could be used for getting good position of the fragments. Dr. Sayre suggester strapping the support lower down on the pelvis. The plaster was put on to stop the movement of the dorsolumbar vertebræ. It was necessary to put the plaster on with the spine in correct position, and if this was done the patient did not buckle.

The Medical Section of the Council on National Defense.—Dr. George David Stewart of New York presented this address. The Council of Defense for New York State, he said, had instructions to add to its membership, the only limit being unwieldiness. Each member had to be recommended by a sufficient number of good men, but not so many as were necessary to save Sodom. It was as important to get good men as it was to prevent undesirable men from getting in, and this side had also received attention. Women members were now to be added to the council. The Council of Defense was merely missionary in character and extraconstitutional in action. It controlled by *impression*. Its function was to present to the doctor the medical necessities of the Government and to present to the Government the medical help that it needed. The first effect that was produced was by starting men to *think*. In New York State a medical census was taken and an idea obtained of, for instance, how many one-legged, blue-eyed orthopedists could be commandeered in the Empire State. The personal touch was heeded in these inquiries. How much trouble a man had with his mother-in-law was taken into consideration. County committees were formed and now every county had two or three representatives who were part of the auxiliary Council on National Defense. Confidential information was furnished and spread of propaganda undertaken. The potential effect of a selective draft was considered and measures taken to preserve teachers, health officers, and men necessary to the community for work at home. The idea of conscription, allowed at one time to fall into innocuous desuetude, had lately again been discussed. It was considered likely, however, that the volunteer Medical Service Corps would be sufficient. New York State had given more than its quota of men to the Medical Reserve Corps, but still it had not the top place. When the war broke out there were 435 men in the medical service of the army. Now there were 22,000 doctors in the service, and that without conscription. The Government needed 7,000 more by the first of July and of these New York State had to contribute one-tenth. With such a leap of numbers, from 435 to 22,000, it was only human that there should be some mistakes, some clogging of the machinery. Still, the profession had to face the problems of the future. Most of them were apt to look upon America as the land of promise, the land where one who was willing to work would achieve success. The Atlantic Ocean had made this possible, had made the Monroe Doctrine possible—in fact, the Atlantic Ocean *was* the Monroe Doctrine. This feeling was in the blood of every American. It was a good country to live in, but it was going to be better. If this was to be true, every American had got to take thought how it was to be brought about. The tendency of all nations was to rise with strife, but to relax with comfort. Spring was the time of effort, but after the fullness of summer followed the winter and death. This was the inevitable law. None of them wanted the spring of this country's life to be too short. The lessons of patriotism, taught by an enforced military training, were tending to make America more of a nation. The war was giving a new bill of health to ten million Americans. Those fit for class two would be trained and made fit for class one. This war was forming a new post-graduate class for most of the medical profession in America. America had been spoken of as the "melting pot"; the war was starting new fires under the melting pot and it was bubbling up to a new nationalism. It had been a great country, it would now be a great nation. Those to go to the war should be the young men of good training and good health. The old should do the work at home. The young man with moderate practice did not make such a great sacrifice of his professional prospects; indeed, he often improved his standing. The question of love of wife and children had to be balanced with love of country. The American had to ask himself, "Do I care to live if my country is in bondage?" If he did care to do so, he was not an American. In every mind there was a willingness to follow an ideal. This it was which distinguished man from the animals. It was a Canadian doctor, who had died in the early days of the war, who wrote:

"Take up the torch and bear it high.
If ye break faith with us who die
We shall not sleep, though poppies grow
In Flanders fields."

They who had lived in the Land of Freedom could feel the truth of Kipling's message:

"There's but one task for all;
There's but one life to give."

Now, as before, they would answer the battle cry of freedom and answer to Uncle Sam, "We are coming, fifty thousand strong."

Needs of the Medical Reserve Corps.—Major S. S. Simpson, M.R.C., presented this address by invitation. The problem of the medical needs of the army was a very large one. There were four basic factors to be considered: (1) The impossibility of considering any victory except upon the basis of enduring peace; (2) the need for equipment of a large army, such as was asked for by the President; (3) the medical corps of the army should be composed of volunteers and the task of providing officers fell upon the medical profession; (4) the fact that the enemy was trying to undermine the confidence of this nation as had been done in Italy and Russia. Prussian autocracy, by repetition of words and phrases, was trying the same trick in America. This attempt to retard preparations here, by making believe that Germany was weak and ready for peace, should deceive no one. The President did not believe this and now, if any, was the time to strike. An army without limit was requested and needed. It now fell upon the medical profession to furnish advisors for the army force. The integrity of the nation was seriously threatened and all resources should be commandeered. If volunteers failed, the nation would have to resort to conscription. This probably would not be necessary as the profession were met to consider what measures could be taken to meet the needs of the Government. Splendid work had been done in New York State, but many other States were doing as well. The surgeon-general had issued a call for 8,000 medical officers. This did not mean in the future, it meant *now*. The Navy needed 1,000 medical men at once. A knowledge of the nation's resources and a wise use of them was therefore essential. A comprehensive classification had been compiled one year ago, and was revised from time to time, dealing with material needs as well as with personal. As new troops were called, new medical officers were wanted. An assurance was needed, and was given, that positions should be undisturbed during the war and that men should return to them again. Individuals would do well to put their affairs in order so that when called they would be able to respond. The peace needs of the army were for 7,000 doctors to 1,000,000 men and the war needs of the army were 10,000 doctors to 1,000,000 men. Twenty thousand medical men had been recommended for the Medical Reserve Corps, but of these many were not available for service, some being with the Allies, some not being physically fitted for service. It was as necessary for the Surgeon-General to have a surplus of doctors as for a bank to have a surplus of funds. The appeal was made to each man to take this matter as one of direct personal moment to himself. Some could not go, but they could see that other men were sent. No man was absolved from duty to the nation. All must do their share to win, and have confidence in winning. He could not quite agree with Dr. Stewart that the Committee on National Defense was unofficial. It was authorized by the President, and each State and county committee constituted part of the Federal Government. It was not necessary, however, to have this made a federal thing. The medical profession was doing it, and would continue to do the work successfully to the conclusion of the war.

Meningitis at Camp Greene. — Cerebrospinal meningitis has been unduly prevalent in many of the training camps of this country during the past winter, and therefore any data concerning the diseases which appear likely to elucidate its obscure and moot features, thereby rendering its control more easy, should be carefully collected and earnestly studied. Capt. Paul G. Wooley, M.R.C., writes in the *Journal of Laboratory and Clinical Medicine* regarding conditions at Camp Greene. He says that cerebrospinal meningitis was at no time truly epidemic in that camp, for during a period of something over two months only thirty cases occurred in a camp population varying between 30,000 and 40,000. Under the conditions of camp life such as prevailed during the past winter, with exceedingly cold weather, with sleet and rain alternating, with the men practically living in the mud, wet from one day's end to another, huddling together for warmth, in other words with all the most favorable conditions for the transmission of infection, such an incidence cannot be called epidemic. As a matter of fact, it was surprising that the sick rate was as low as it was, and the comparatively slight amount of disease that occurred from all causes spoke well for the care exercised over the men. Cases of meningitis began to appear in December, 1917, and after the appearance of the first case continued to come sporadically during January and February, 1918.

The only available statistics at hand indicate that there were between 5 and 7 per cent of carriers at Camp Greene. These figures came from the detention camp and are therefore too high, in all probability, for in this camp all meningitis carriers were isolated pending bacteriological examination. It would appear, therefore, that the percentage of carriers was smaller than in other camps. However that may be, it represents after all merely a guess, because the only organizations which were cultured were those in which meningitis appeared and probably represented not more than half the personnel of the whole camp.

More interesting is the fact that in the only organization which made use of systematic nasal sprays from the first of the year not a single case developed, and also that in those organizations in which the use of sprays were resorted to after the appearance of the disease no other cases appeared. This might be merely a coincidence, but when one discovered that also following the adoption of sprays the total sick rate fell, especially that due to respiratory diseases, and bore in mind the current conception that the menigococci inhabited the nasal passages, one came to have a very healthy respect for dichloramine-T as an agent for the prevention of diseases originating from the upper respiratory tract. From his experience in Camp Greene, Wooley recommends the routine use of dichloramine-T nasal spraying as a prophylactic measure for respiratory diseases, especially in military camps.

Hospital Ship Torpedoed Without Warning.— The Canadian hospital ship, *Llandovery Castle*, was sunk without warning by a German submarine off the southern coast of Ireland on June 27. Of 250 persons who sailed on the vessel only 24 are alive. This latest crime of the German submarine was even more wanton than those that have preceded it, for after sinking the ship the enemy fired on life boats filled with survivors and even pushed off the victims of their inhumanity from the wreckage to which they were clinging. Most of those aboard the vessel were Canadian Red Cross men and women. The attack on the survivors was evidently made with the object of wiping out all trace of the crime.

Widening the Activities of the U. S. Public Health Service.—President Wilson has placed all sanitary and public health activities carried out as war measures under the Public Health Service.

Veterinary Force Sufficient to Meet the Needs of the Army.—There is available a force of veterinarians sufficient to meet the needs of the army for some time to come. Examinations for commissions have been closed. In addition to the 1,700 officers and 10,000 enlisted men on active duty there is a waiting list of men who have passed the examinations and who will receive commissions when vacancies occur. A training school for commissioned veterinary officers on active duty has been established at Camp Greenleaf, Chickamauga Park, Ga., from which one hundred men are graduated every month, after having received a two months' special course.

Lutherans Offer New Hospital for Soldiers.— A resolution was passed by the Board of Directors of the Lutheran Hospital of Manhattan, on July 2, offering their hospital building at Convent Avenue and 144th Street, as well as their nurses' home nearby, to the Government as a hospital for wounded soldiers returning from abroad. The building has accommodations for one hundred patients.

Captain E. J. Presper of the Medical Reserve Corps, attached to the British Expeditionary Forces, is reported by the Adjutant General's office to be a prisoner in Germany.

W. M. Wood Gives Convalescent Hospital.—A large Red Cross convalescent hospital has been established by William M. Wood on his estate at Cuttyhunk, near the mouth of Buzzards Bay. The hospital will accept as patients officers from all branches of the service, both of the United States and her Allies, who need rest to put them in shape for further service. Dr. Norman E. Ditman is medical director of the hospital.

Women Workers to Treat Gas Cases.—The Women's Overseas Hospital, which has now some thirty women physicians, nurses, and aids in France, has been asked by the French Government to send immediately fifty women to run a hospital of 300 beds about to be established for the treatment of gas cases. Dr. Alice Gregory who headed the civilian unit of the Overseas Hospital, has gone to establish a hospital at the front and will be succeeded by Dr. Marie Formad of Philadelphia. Mrs. Raymond Brown, who has just returned from France to recruit the unit, states that there is a great field for women dentists among the civil population of France.

Hospitals for Americans in London.—The British Army Council announces that the Red Cross will take over two London hospitals for the exclusive use of American wounded.

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ECONOMY IN MEDICAL MATERIAL.

THE time is surely coming, if the war continues as long as it now promises, when the shortage in army medical officers will become acute, unless steps are taken in time to prevent it. We sometimes think we have done pretty well in furnishing the present army of two million men with the necessary doctors, but that is only two-fifths of the army that it is estimated we shall need in order to put an end to the crimes of Germany. That means that nearly thirty thousand more physicians must volunteer, and this without counting those needed for the constantly growing navy. Where are these men to come from? There are, roughly, about 140,000 physicians in the United States, over 20,000 of whom are already in the services, leaving less than 120,000 to be drawn from; therefore at least 25 per cent. of the medical men now in civil practice must enter the army or navy.

This will mean inconvenience and hardship for many, but it must be, and the only problem is to effect the necessary readjustment with as little disturbance as possible. That calls primarily for the greatest possible economy in medical material. There is a large number of physicians in the country who are anxious to do their part but whose offers of military service are rejected because they are over 55 years old; yet hundreds if not thousands of these "superannuated" physicians have the physique and possess medical skill amply fitting them for service in base hospitals in this country, while others could do much of the clerical work which now keeps many younger men of superior attainments from doing that for which they have been specially trained. Other over-age men who are not fit for such work or who could not for one valid reason or another undertake it, are perfectly capable of discharging the duties of attending physicians and surgeons in the civil hospitals of the country, thereby freeing a host of younger men constituting capital material for army or navy service. Then there are 5,000 women physicians in the country, many of whom could fill responsible positions in base hospitals here and abroad and on the staffs of civil hospitals.

A plan of economy in hospital service has been suggested by Dr. S. S. Goldwater, chairman of the war service committee of the American Hospital Association. In an appeal recently made to the hospitals of the country, he has urged that they put themselves on a war footing by abolishing the rotating service, substituting therefor a plan of continuous service, thus releasing a large number of competent men for the country's need. The rotating service is one which is filled by a certain number of men each serving a certain number of months only in each year, and this plan Dr. Goldwater would do away with for the period of the war. "In this crisis," he writes, "no plan of organization is admissible which does not release every competent physician who can be spared for military duty," and his slogan is, "One job, one man!" This would doubtless release a number of men of army age, but there are objections to it. In the first place a large and active hospital service is too much for one man to care for twelve months in the year. The sole attending physician or surgeon would have to be a young and physically strong man, just the kind of man the army needs. Then, again, should he die or be suddenly incapacitated, the hopsital would suffer until a capable successor or substitute could be obtained. Of course, he would have to have an assistant or understudy who could act in such an emergency, but there again would be a good man kept out of the army. A better plan, we venture to think, is the one above suggested, of raising the lower age limit of the attending staff, keeping the rotating service as it is, but calling to it only men over the army age. Many such are even now in hospital service, and the places of the younger members of the staff could readily be filled temporarily by older men, many of whom have had a long hospital experience and who had retired only to give the younger men a chance. Some men who have retired may not relish being drafted for service again, but every man must do his part in winning the war and that will be theirs.

THE PSYCHIC DISTURBANCES OF LOCOMOTOR ATAXIA.

IT is quite essential to make distinctions among the psychic disturbances which may be met with in cases of locomotor ataxia, not merely as to their nature and the place they may occupy in mental syndromes, but also and above all on account of the relation of causality uniting them to tabes. In the first category should figure those cases of mediocre interest in which psychosis of some type, present before or after the development of the tabes, is related to the latter process by no etiological circumstance whatsoever. In these cases of simple coincidence, the sensitivo-sensorial or motor disturbances of locomotor ataxia may, nevertheless, exercise an accessory or secondary influence on the delirium, either by imparting to it a particular shade or by being the starting point of an erroneous diagnosis.

Locomotor ataxia may be an occasional factor in the awakening or manifestation of psychoneuropathic manifestations, such as neuresthenia or psychasthenia, particularly a phobia of the equilibrium or the gait. But these instances being eliminated, it is at present a universally established fact that the vast majority of psychic disturbances encountered in tabes belong to an associated general paralysis, anterior or contemporaneous with, but usually following upon the meningo-radiculo-medullary process. Amaurotic locomotor ataxia, in which mental disturbances are particularly common, would appear to confirm this opinion.

In addition to the foregoing, however, many other psychopathic manifestations should be looked upon as having a direct etiological relation with locomotor ataxia. Such are changes in character or moral disturbances, psychoses of the depressive type with psychosensorial disturbances, paroxysms of excitation with a delirium of megalomania, and deficient states, commonly called tabetic dementia. It would appear that the first three of the above-mentioned disturbances have when first observed, or soon afterward assume, the characters of psychopathic states developing on a more or less distinct basis of intellectual weakening, so that they finally enter the fourth category, namely, tabetic dementia. Thus, if associated general paralysis be eliminated, the entire question of the existence of the mental disturbances of locomotor ataxia is reduced to existence of a tabetic dementia quite distinct from general paralysis. According to a number of writers tabetic dementia is differentiated from paralytic dementia by a number of physical and psychic signs. There is no disturbance of speech, or if it does exist, it is very slight. The dementia is less profound and not so rapidly progressive, and often undergoes quite long remissions. But these clinical characters are encountered in certain instances of general paralysis, so that they do not offer a sufficient ground for differentiating with certainty between tabetic and paralytic dementia.

Pathological anatomy and histology are unable as yet to serve as a criterion for diagnostic differentiation. In certain cases of tabetic dementia clinically characterized lesions of chronic diffuse meningoencephalitis, identical with those of general paralysis, will be found at necropsy. In still other cases the lesions, although retaining the same type, are less diffuse and recall those found in certain cases of luetic meningoencephalitis, intermediary between cerebral syphilis properly speaking and the diffuse meningoencephalitis of general paralysis. Finally, the common lesions of arterial atheroma, softening and senile degeneration are present.

It would, therefore, seem logical to conclude that in the vast majority of cases the demential psychoses of tabetics are chargeable to general paralysis. Sometimes the condition is one of syphilitic meningoencephalitis, which is as yet ill-defined from the viewpoint of clinical symptomatology and to a certain extent realizes the Guillain-Thoan syndrome, which is met with in conditions other than tabes. Finally, it may be an ordinary dementia resulting from arterial or senile lesions.

FIBROID INDURATION OF THE CORPORA CAVERNOSA.

Sclerosis of the corpora cavernosa affects various forms but it is usually found as small hard nodes, generally sunk in the midst of the erectile tissue, which are found only upon examination. These nodes may vary in size from a cherry-stone to an olive, but usually they are much smaller. They may occupy one or both corpora. When the penis is flaccid they are invisible but are readily palpated. In most cases they are separated from each other by apparently healthy tissue, but they may be united by fibrous bands, giving a hard, sclerous feel to the entire corpus cavernosum. These sclerous formations are embedded in the midst of the erectile tissue like a foreign body and have no connection with the urethra, glans, nor albuginea of the corpus cavernosum. The process preferably occurs in the superficial portion of the erectile tissue but does not become adherent to the enveloping membrane in most cases. The nodules are absolutely indolent and never give rise to inflammatory reaction.

The development of the sclerosis is insidious and it is only after a time that it is noticed by the patient during erection, because the penis becomes laterally curved, a condition that the immortal Ricord was pleased to call strabismus of the penis. Occasionally the normal curve of the member is accentuated but the lateral deviation is by far the most frequent. The deformity is all the more pronounced the nearer the sclerosis masses are to the base of the corpora cavernosa, and besides the deformity occurring during turgescence of the penis there are also a decrease in the caliber of the organ at certain points, a weakening of the erectile rigidity, and a collapsus of the genesic sense. From all this, more or less serious disturbances accrue which hinder or prevent coitus from taking place and at the same time exercise an unfortunate reflex psychic action on the morale of the patient.

The causes of this interesting process are still obscure. According to some writers the morbid production is due to gonorrhea, traumata, senility, or certain diatheses, such as gout, arthritism, or diabetes, but it is also an unquestionable fact that sclerosis of the corpora cavernosa may be purely and simply a tertiary syphilitic process, as shown by the cases reported by Arion in his recent thesis (Paris, 1916). Besides the ulcerating tertiary syphiloma or gumma syphilis produces other essentially sclerous lesions which are all the more prone to follow this evolution, the greater the vascular supply to the structures involved. The erectile tissue of the corpora cavernosa fulfills these conditions to a nicety, therefore it is only natural that the luetic virus should set up the usual sclerotic process

in it by vascular irritation. As a matter of fact, ulcerating gummata are never met with in the erectile tissue.

The evolution of cavernous sclerosis is exceedingly slow, but its progress is influenced by antisyphilitic treatment, and although a complete and permanent cure of the process cannot be obtained, at least a marked improvement in the condition may be effected if the treatment is begun before the sclerotic process has gotten well under way. If the etiology of the sclerosis is uncertain it is well to make a Wassermann test and if even then the result is doubtful a test treatment should be essayed, which although it may not result in anything tangible will at least have a happy effect on the neuropathic state of the patient.

THE VAGINAL DOUCHE.

THE antiseptic vaginal douche has become such a common and popular method of treating all pelvic ills of the female, especially by the laity, that the indications and the dangers from its use have been quite overlooked. The indiscriminate use of the vaginal douche for general cleansing purposes regardless of the presence of pathological conditions, this being often advised much in the same way as the bath, is, unlike the latter, an uncalled-for interference with natural conditions. The vaginal secretions and the flora are protective rather than harmful. The saprophytic organisms contained therein are inimical to the development of pathogenic organisms, and the removal of these secretions by the douche leaves the vaginal mucosa unprotected and more easily subjected to trauma and infection. The chronic douching habit has probably as much to do with cases of idiopathic sterility as any other conditions. It is a fallacy to believe that the vaginal mucosa has little absorptive power, and that any antiseptic solution short of a caustic can be used with impunity. In the first place, any antiseptic that is physically destructive to the organisms contained therein is also physically destructive to the tissues. In the second place, disease is more likely to occur from introduced infection not successfully removed by the douche than if under the same circumstances no douche had been employed. But even if all infection is removed by the douche, the injury of the mucous membrane and the removal of the protective secretion make infection from outside sources very likely. The use of strong antiseptic solutions of bichloride, carbolic acid, etc., may harm the organism through absorption. Frank cases of poisoning are frequently reported.

When the object is to destroy pathogenic infections occurring in the genital tract, the methods of dry cleaning are far more effective and without the objections to the vaginal douche. Dry cleaning cannot so easily speed the infection to other parts of the tract as it must be obvious the douche so often does. Nevertheless, the hot vaginal douche has a use in pelvic inflammations through the production of pelvic hyperemia. But as a matter of fact, whenever the hot vaginal douche is advised only a warm douche is given. The warm douche tends to encourage congestion, the very thing to be avoided. On the other hand, even the warm douche has its place. It can act as a poultice or fomentation in cases of pelvic disease when the hyperemia produced aids in the absorption of the pelvic exudates. But both the warm and the hot douche must have a clear therapeutic indication if their use is to be productive of good.

COLORED HEARING.

THIS most common of the synesthesias now has a large literature, but few truths can be uttered in respect to it, on account of its individual and impressionistic character. In the issue of the *Journal de Médecine et de Chirurgie Pratiques* for May 10 is a brief account by Professor Blanchard of some old episodes of this character. About a dozen years ago he assisted at a concert at Egyptian Hall, London, in which while a piano was played in the dark each note was represented by flashing an incandescent light in a specially colored bulb. The same note was always indicated by the same color. The experience was a novel one, and many of the audience-spectators professed to be able to experience the same pleasure from the harmony of the colors that others feel from the harmony of sounds. The author does not know whether the "chromatic" scale of the lamps was arbitrarily chosen, or based on a quasi-musical notation. More recently (1913) a similar concert was held, also in London, which the author knows of only from the press. In this case there was a demonstration of an organ in which pressure on the keys caused colored lights to flash on a screen. The organist executed color symphonies which gave to some of the spectators pleasure analogous to that of musical symphonies.

News of the Week.

Disease in Germany.—A recent message from Berlin states that there are approximately 100,000 cases of Spanish influenza in Germany and at least 25,000 in Berlin alone. All the hospitals are filled with cases of this malady and all the doctors and nurses are down with it. It is reported also that Austria-Hungary is suffering from an epidemic of typhus, and that influenza has appeared in Budapest and in Danzig.

Start Work on County Tuberculosis Hospitals.—County tuberculosis hospitals are in the process of construction in Broome, Rockland, and Nassau counties, New York. The contracts for the Broome County institution total $117,233. The hospital is located several miles from Binghamton and is to have seventy-five beds. The Rockland County Hospital will be located near New City and is to cost approximately $90,000. The Nassau County Hospital is being erected on a 97-acre site near Farmingdale and will cost about $108,259.

School Kept Open During Measles Outbreak.—The June issue of the Bulletin of the New York State Health Department states that in controlling an outbreak of measles it is not always advisable to close the schools. When measles appeared in

Kingston the sanitary supervisor made a survey and found that there had been 355 cases of measles reported to the city health officer. A survey of the schools showed that 83 per cent. of the children in the parochial schools and 79 per cent. of the children in the public schools were immune to measles. The sanitary supervisor advised keeping the school in session as the children who were susceptible could be easily watched. Just as soon as a child exhibited signs of measles he was sent home. By daily visits to the schools the school physician was able to detect and control the beginning cases.

Commissioner Copeland Exonerates Dr. Brown.—At a hearing on July 5, Dr. Lucius P. Brown, director of the Bureau of Food and Drugs, defended himself against the charges brought against him by Mayor Hylan and ex-Civil Service Commissioner McBride. Dr. Brown produced evidence showing that the charges against him were false. At the end of the hearing Dr. Copeland commended Dr. Brown and admitted that the results of his work were of value to the city and that the honesty and integrity of Dr. Brown were in no way in question.

More Cities to Have Tuberculosis Dispensaries.—Through the cooperation of the State Charities Aid Association, which has been assisting local public and private tuberculosis organizations to establish dispensaries for medical oversight, assistance, and sanitary supervision of tuberculous soldiers rejected from military service, arrangements have been made which assure the opening of such dispensaries in Hudson, Newburgh, Kingston, Binghamton, Auburn, and Mount Vernon within a month. Plans have also been perfected for the reopening of dispensaries in Cohoes and Little Falls. Approximately $2,500 a year is required to secure a medical and nursing staff and to equip and operate a dispensary in the smaller cities of the State. In a series of villages and towns in Westchester County arrangements are under way for occasional clinic service to be given by tuberculosis specialists of New York.

A Child Welfare Station in Manufacturing Industry.—At the suggestion of the State Department of Health, through its Division of Child Hygiene, the Endicott-Johnson Company of Endicott has established in its plant a Child Welfare Station, where the children of all persons employed by this company are cared for medically. Ample provision has also been made for the proper education of expectant mothers in matters pertaining to their personal health and hygiene and for the better care of the nursing mother and the new-born babe.

Charitable Gifts and Bequests.—The will of Meyer H. Lehman bequeathes $25,000 to Mount Sinai Hospital, New York, and $10,000 to the United Hebrew Charities.

The proceeds of a base ball game and a circus for the benefit of the Saranac Lake General Hospital have netted that institution over $1,000.

By the will of the late Gustavus A. Müller of Philadelphia bequests of $500 each are made to the Lankenau and the St. Agnes Hospital.

By the will of the late Mary Anspach Ashmead of Philadelphia trust funds are set aside yielding incomes as follows: Philadelphia Home for Incurables $10,000, Methodist Episcopal Hospital $5,000, Hospital of the University of Pennsylvania $3,000.

By the will of the late Dr. Gwilym G. Davis of Philadelphia the sum of $3,000 is bequeathed to the Hospital of the University of Pennsylvania for the Children's Orthopedic Ward, and the sum of $500 to the College of Physicians of Philadelphia.

Under the will of Dr. William Mecklenburg Polk, Cornell University receives $5,000 to continue the John Metcalf Polk scholarship in the Medical School.

The Women's Hospital and the New York Dispensary, each receive $10,000 under the will of Miss Cornelius A. Beekman.

Dr. Jay Frank Schamberg has been elected Professor of Dermatology and Syphilology at Jefferson Medical College in succession to Dr. Henry W. Stelwagon resigned.

Dr. Martin E. Rehfuss has been elected Associate in Medicine at the Jefferson Medical College, Philadelphia.

Dr. William C. Woodward, health officer of the District of Columbia, has been appointed Health Commissioner of Boston.

Dr. R. Morton Smith of Riverport, R. I., has been elected President of the State Board of Health of Rhode Island.

Dr. Harry S. Bernton has resigned his position as Pathologist of the State of Rhode Island in order to accept the position of Chief of the Bureau of Preventable Diseases and Director of the Biological Laboratories of the District of Columbia.

Dr. Charles H. Weinsberg of St. Louis, who was tried on the charge of violation of the espionage act, has been acquitted by the Federal courts.

Positions Open to Physicians.—The Civil Service Commission of the State of New York announces that there is a vacancy in the position of Medical Officer and Inspector, Department of Health Officer, Port of New York. The salary is $1,200 a year. The position of Resident Physician, State Training School for Girls, Hudson, is open to women physicians and carries a salary of $1,800 a year. No written examinations will be required, but applicants will be rated upon education, training, experience, etc. Applications must be in the hands of the Civil Service Commissioners at Albany by July 24, 1918.

New Hospital for the Bronx.—The Bronx Hospital Association has acquired a new hospital which is to have a children's ward and a dispensary. Property has been purchased at Fulton Avenue and 139th Street for a little more than $110,000, known as the Eichlen estate, and the Eichlen mansion will be remodeled to serve as a hospital building. A campaign to raise $35,000 with which to alter and equip the building has been started. Dr. Alexander Goldman is president of the hospital association.

Physicians Raise Fees.—A number of East Baltimore physicians met recently and formed an organization for social and professional advancement. One of the first things they did was to decide upon a new schedule of fees, namely, office calls $1, outside calls $2, and night calls $3, and the lowest fee for obstetrical cases $25.

Italian Hospital Needs Funds.—A campaign to raise $100,000 is being carried on by those interested in the Italian Hospital, New York. This amount of money is urgently needed to keep the hospital going until the end of the year.

Medical Society Elections.—The MASSACHUSETTS MEDICAL SOCIETY, at its 137th annual meeting, on June 18, elected the following officers for the ensuing year: *President,* Dr. Samuel B. Woodward of Worcester; *Vice-President,* Dr. George P. Twitchell of Greenfield; *Secretary,* Dr. Walter L. Burrage of Jamaica Plains; *Treasurer,* Dr. Arthur K. Stone of Framingham Center; *Librarian,* Dr. Edwin H. Brigham of Boston.

The MEDICAL SOCIETY OF THE STATE OF NEW JERSEY, at its 152d annual meeting, held at Spring Lake on June 25 and 26, elected the following officers: *President,* Dr. Thomas W. Harvey of Orange; *First Vice-President,* Dr. Gordon K. Dickinson of Jersey City; *Second Vice-President,* Dr. Philander A. Harris of Paterson; *Third Vice-President,* Dr. Henry B. Costill of Trenton; *Secretary,* Dr. Thomas N. Gray of East Orange; *Corresponding Secretary,* Dr. Harry A. Stout of Wenonah; *Treasurer,* Dr. Archibald Mercer of Newark; *Editor of Journal,* Dr. David E. English of New Brunswick.

The AMERICAN CLIMATOLOGICAL AND CLINICAL ASSOCIATION, at its thirty-fifth annual meeting, held in Boston, June 5 and 6, elected the following officers: *President,* Dr. Guy Hinsdale of Hot Springs, Va.; *Vice-Presidents,* Dr. Joseph H. Pratt of Boston and Dr. Hugh M. Kinghorn of Saranac Lake, N. Y.; *Secretary-Treasurer,* Dr. Arthur K. Stone of Boston; *Recording Secretary,* Dr. William D. Robinson of Philadelphia.

The WOONSOCKET DISTRICT MEDICAL SOCIETY, at its meeting in Providence, R. I., on June 22, elected the following officers: *President,* Dr. Edward L. Meyers; *First Vice-President,* Dr. James A. King; *Second Vice-President,* Dr. Robert G. Reed; *Secretary,* Dr. E. F. Cameron of Slatersville; *Treasurer,* Dr. A. Constantineau.

Obituary Notes.—Dr. CHARLES ALFRED TYRRELL, a graduate of the New York Eclectic Medical College, in 1900, died at his home in New York on July 2, aged 72 years.

Dr. WILLIAM DILLON died at his home in Brooklyn on June 26, aged 61 years. He was a graduate of the Royal College of Surgeons, Dublin, in 1884, and of the Royal College of Pharmacy of Ireland in 1885, and practiced medicine in London before coming to this country.

Dr. SIMEON LESLIE WEST died at Philadelphia on June 22 at the age of 73 years. He was graduated from Jefferson Medical College in the class of 1868. He was a member of the Medico-Legal Society of Philadelphia, the Philadelphia County Medical Society, and the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. JOHN SHRIVER WENTZ died at Philadelphia on July 1 at the age of 81 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1858. He served as a surgeon in the United States Army during the Civil War.

Dr. EDWIN C. COWPERTHWAITE, a graduate of the Hahnemann Hospital and Medical College, in 1895, died at his home in Philadelphia on June 11, aged 45 years.

Dr. ROBERT SIMPSON died at Philadelphia on June 19 at the age of 74 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1874.

Dr. CHARLES C. HENDRICK, a graduate of the New York Homeopathic Medical College in 1894, and for many years a resident of New York City, died in Plainfield, N. J., on June 26, aged 55 years.

Dr. WILLIAM T. MCAVOY, a graduate of the Bennett Medical College, Chicago, in 1913, and formerly a member of the Swedish Hospital, Brooklyn, died at his home in that city on June 21, aged 37 years.

Correspondence.

INTRATRACHEAL ANESTHESIA.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In my address on "Thoracic Surgery" which appeared in the issue of the MEDICAL RECORD for July 6, I discuss Dr. Bevan's statement with regard to intratracheal anesthesia. I sent this to Dr. Bevan on May 31 for an expression of opinion. Unfortunately he did not receive my letter until June 27, but in a letter dated June 28 Dr. Bevan writes: "I should be very glad to have you make the following statement from me in your article provided you quote in full in regard to intratracheal anesthesia." This letter came too late to permit the incorporation of Dr. Bevan's statement in my article. The statement is as follows: "I have not personally employed the intratracheal method of Meltzer and Auer, nor have I had any personal experience with a number of other methods which I have discussed in this paper on the 'Choice and Technique of the Anesthetic.' For instance, I have not produced complete anesthesia with scopolamine and morphine alone; I have never employed spinal anesthesia in my work; I have never blocked the Gasserian ganglion; I have never employed the intravenous anesthesia with ether, nor intrarectal anesthesia with ether, nor the so-called 'anoci association.' The statements which I have made in regard to these various methods with which I have had no personal experience are made from a study of the literature, from observation of the work seen in the hands of other men, and from an attempt logically and judiciously to estimate the relative values."

One who read my address and now reads Dr. Bevan's statement will judge for himself whether the position I took requires any change.

S. J. MELTZER, M.D.

NEW YORK.

MEDICAL WEEK IN CANADA.

(From a Special Correspondent.)

HAMILTON, June [illegible]

THE thirty-eighth annual meeting of the Ontario Medical Association began its sessions in Hamilton on May 30. Among the papers read at the morning session was one by Dr. W. Gordon Lyle of New York, with reference to modern methods in the diagnosis of nephritis. Charts of cases of patients who had been studied for renal function were presented, and the value and significance of blood analysis and functional tests in the diagnosis of early

nephritis were discussed. The findings in several hundred cases with special reference to the nitrogen partition of the non-protein nitrogen residue of blood were presented, and the phenolsulphonephthalein test and nephritis test meal were described.

Dr. J. Chandler Walker of Boston, Mass., read a paper in which he dealt with the clinical study and treatment of bronchial asthma. The importance of a careful history of bronchial asthma was emphasized, and sensitization and the treatment of sensitive cases were discussed. Walker did not seem to think that a neurotic temperament bore any definite relation to the causation of bronchial asthma. He laid a considerable amount of these upon the influence that the protein of food and the protein of pollen exerted upon the production of the condition, and pointed out that judicious dieting was of great service both in the prevention and treatment of bronchial asthma. The treatment of non-sensitive cases was discussed and a clinical classification of bronchial asthma and a discussion of such classification was presented.

A paper was given by Dr. Alan Brown and George Smith of Toronto, in which the autoserum treatment of chorea was dealt with. As for the causation of chorea, attention was directed to the fact that a large number of observers believed that chorea was a manifestation of scarlet fever. Autoserum treatment of this condition was first introduced by Dr. Goodman of New York. Brown and Smith had developed three modifications. A detailed report of technic, and results obtained, was presented, and a description was given of the withdrawal of blood from the patient, separating the serum from the blood and its injection into the patient's spinal canal.

In the section in surgery, on the morning of May 30, Prof. Jasper Halpenny of Winnipeg discussed the methods pursued in the training of the surgeon at the present time. He was extremely critical of many of these methods, and quoted Rutherford Morison in support of his contention that the training of the surgeon was not conducted on high lines. However, while Halpenny's criticisms were destructive his suggestions in the way of reform were, in a high degree, constructive. He pointed out the best way of connecting the training-interneship, assistantship, post-graduate work, and the visiting of other clinics. In fact, he indicated the measures which in his opinion would best tend to train the surgeon in the most thorough and effective manner.

Radical operations for cancer of the breast were considered by Dr. D. Guthrie of Sayre, Pa. The history of the development of the operation for breast cancer was given, and the comparative merits and distinctive features of these were discussed at some length. The work of Von Volkmann-Heindenhain with respect to cancer of the breast was gone over and the Meyer, the Halsted, the Warren, the Jackson and the Rodman operations were critically dealt with, and the surgical principles involved therein discussed. Guthrie held that the methods of operating for cancer of the breast subsequent to the introduction by Meyer of his method were all modifications of the Meyer method. In the discussion that followed the reading of this paper Dr. Coborn suggested that it would be in the best interests of all concerned if the operation for cancer of the breast could be standardized. Each great surgeon had his own way of operating, and this tended to confuse the student. If the best features of the best-known modes of operating for cancer of the breast could be standardized it would not only make the operation simpler but would facilitate matters for the student and would be better for the patient. The point was emphasized that especial attention must be paid to the lymphatics in cancer operations. The method of fulguration after operation for cancer, introduced by Keating-Hart, was referred to favorably. The good results obtained from fulguration by Dr. William Seaman Bainbridge of New York were alluded to as conspicuous examples of the value of the method in the treatment of cancer. Dr. Beal of London thought there was no need to attempt to standardize an operation for cancer of the breast. The essential methods of procedure were alike in all, and the slight modifications introduced by different surgeons mattered but little.

The toxemia of eclampsia was discussed by Dr. K. C. McIlwraith of Toronto. There was a toxemia peculiar to pregnancy, usually of slow development, and in some degree controllable. The controllable factors were diet, eliminations, chill, neurotic factors. The essence of treatment was the measure of toxicity which would show when delay was possible and when action was imperative.

At the general sessions on the afternoon of May 30 the addresses, on obstetrics, on pediatrics, and on medicine were given. The address on obstetrics, which was entitled "Methods and Operations for Reducing Fetal Mortality, With Special reference to the Newer Methods of Cæsarean Section," was delivered by Dr. Joseph De Lee of Chicago. He gave a history of the various methods by which women were delivered in ancient times, and a long and interesting account of the evolution and development of the operation for Cæsarean section. The indications for the operation were given in full detail, and it was stated that there were two operations in common use nowadays, the classical operation and the cervical. De Lee advocated the cervical operation for cesarean section rather than what is known as the classical, because convalescence was much smoother.

The address on pediatrics, the title of which was "Asthma in Infancy and Childhood," was given by Dr. Isaac A. Abt of Chicago, Ill. Dr. Abt said in part that it must be borne in mind that infantile asthma differed in type from the form of the disease which occurred in the adult. Asthma in children was more prevalent among the rich than among those in less prosperous circumstances. Seasons had a good deal of effect on the incidence of infantile asthma. Locality had a curious effect on its incidence. Some young children got rid of it in a dry climate, others in a moist climate. The affection was very capricious. It might occur in one room in a house while in the remaining rooms no symptoms of asthma presented themselves, so that really locality exercised no particular influence on its causation. The hypotheses as to its origin were many and various. It had been attributed to bacteria or toxins. Asthma might be the expression of an anaphylaxis, but there was a lack of proof with

regard to this theory. It might be said, however, that anaphylaxis in infants and children was sometimes produced by the ingestion of protein. Injection of a small portion of albumen of egg would produce asthma in a certain child. Pollens and horsehair would produce asthma in some children. Asthma in infants and children has been ascribed to an exudative diathesis. It was said to have a connection with eczema, urticaria, adenoids, etc. Diet certainly played a part in the treatment. Abt thought that the hypothesis as to asthma in the young being due to an exudative diathesis was purely speculative. Bronchial tetany had a closer relationship to asthma than bronchopneumonia. Nasal lesions might bring on an asthmatic attack. Asthma occurred at almost any age in children, and began with marked bronchitis. So far as therapeutic treatment was concerned, calcium chloride had a good effect on asthma. Respiratory exercises might be recommended for older children who suffered from asthma.

The address in medicine, "On the Significance of Heart Murmurs Found in Examination of Candidates for Military Service," was given by Dr. Lewellyn F. Barker of Baltimore, Md. Dr. Barker said, in part, that attention at the present time was focused upon the hearts of recruits. From 1886 great progress had been made in knowledge regarding the heart. The mechanical means for gauging the heart's action had made possible this advance. Dr. Barker pointed out that owing to improved methods of treatment a large proportion of men with heart murmurs, and at the present time not fit for active service, would be rendered wholly or partly fit. Reference was made to the fact that the Central Powers were sending out men with heart affections. The modes of differentiating between organic or functional heart murmurs were described, and it was shown that while some men with heart murmurs should be totally exempted others with murmurs were just as fit to carry on as if no murmurs were apparent.

In the section in medicine of the Canadian Medical Congress, on the morning of May 31, Dr. Beatrice M. Hinkle read a paper discussing the psychoanalysis of the moral conflict in functional neurosis. The dictum of Jung that moral conflict is found to be the basis of every neurosis was referred to, and it was pointed out that Freud's psychoanalysis was the first attempt of medical science to find in the psyche the cause of neurotic conditions. Dr. Hinkle covered practically the entire ground alluded to in the title of her paper, paying particular attention to Freud's theories of repression and resistance, transference, infantile sexuality, dream interpretation, and the technique of psychoanalysis.

In the section on surgery, Capt. George Ewart Wilson, C. A. M. C., of Toronto, read a paper dealing with the treatment of compound fracture of the humerus. Attention was drawn to the unsatisfactory methods at present taught for treating compound fractures of the humerus. A full description was given of a splint invented by the author which allows of the suitable placing of fragments, proper extension and changing of dressings without removal of splint.

Another paper was read by Dr. E. J. McGuire of Buffalo on surgery of the colon. The author animadverted somewhat on Lane's theories and surgical procedures with respect to intestinal stasis. He said, however, that his teaching should not be wholly discarded, as there was contained therein some real element of truth. Notwithstanding, surgery of the large intestine must be limited, with few exceptions, to cases showing definite evidence of obstruction. Ileosigmoidostomy should not be done as an operation of election, resection being the ideal procedure. As a matter of fact, according to McGuire, Lane had discarded sigmoidostomy in favor of resection. Moreover, side-to-side anastomoses were unsatisfactory, as demonstrated by the frequency with which diverticula developed in the blind end. End-to-end anastomosis gave the most satisfactory results.

Among the papers read in the section in obstetrics, on the morning of May 31, was one by Dr. B. P. Watson of Toronto, entitled "The Technique of Operations for the Repair of the Perineum." In it were discussed the value of immediate repair after delivery, and especially the importance of closure of tear in vaginal mucosa and coaptation of musculofacial layers. The secondary operation was described and the need for the thorough exposure and union of separated levator ani muscles and of the torn triangular ligament was emphasized. The paper was illustrated by lantern slides.

Dr. Joseph C. Beck of Chicago gave a lecture on the teaching of plastic surgery of the head and neck. The importance of teaching plastic surgery was dwelt upon and the types of injuries in the present war were described, as well as the varieties of injuries of the internal ear and of the external ear and their plastic reconstruction. A description was also given of the plastic reconstruction indicated when a great part of the nose was lost, with special reference to the use of the superior maxilla; also temporary and permanent resection for bullets in the retromaxillary fossa and the plastic reconstruction of the larynx. The question of cartilage and bone transplantation was entered into, and nerve plastic procedures with special reference to the facial-hypoglossal and facial-spinal accessory anastomosis were considered. Laryngeal plastic operations, and cosmetic means for restoring features to apparently normal conditions were discussed at considerable length.

On the afternoon of May 31 the general session was devoted to a symposium on Intracranial Pressure. Dr. J. J. R. Macleod of Cleveland, Ohio, gave an address on the physiology of the subject. He said there could be no expansion through intracranial pressure unless there were means for such expansion. Venous pressure was more important than the work done by the arteries, but at the same time their action was interdependent. When the heart failed cerebral pressure was raised and arterial fell. As for the cerebrospinal fluid, it only acted as a lubricant, in the same way as the synoidal gland acted. The apparent absence of vasomotor nerve fibers was referred to and the consequent dependence of the blood supply upon changes occurring in other parts of the vascular system. He said that Leonard Hill of London was the greatest authority on intracranial pressure, and had devised the only instrument to measure correctly intracranial pressure. Macleod asked why a tumor had caused intra-

cranial pressure, and answered that it did not. It caused local cerebral anemia and increased intracranial pressure by producing anemia.

Medicine and surgery in their relation to intracranial pressure were discussed by Drs. W. P. Hamilton and A. E. Garrow of Montreal respectively. Both speakers necessarily covered a good deal of the same ground as Dr. Macleod. Dr. Garrow described the various surgical methods for removing the effects of intracranial pressure caused either by injury or disease.

Dr. H. Beaumont Small of Ottawa was elected *President* of the association. The *Vice-Presidents* are the presidents of affiliated societies and the presidents of provincial societies *ex-officio*. *Secretary-Treasurer*, Dr. W. W. Francis, on active service. *Acting Secretary*, Dr. J. W. Scane of Montreal.

The Canadian Medical Protective Association elected the following officers: Dr. R. W. Powell of Ottawa, *President;* Dr. J. A. Camarand of Sherbrooke, Quebec, *Vice-President;* and Dr. J. Fenton Angus of Ottawa, *Secretary-Treasurer*.

The Ontario Medical Association elected the following officers: *President*, Dr. J. S. Cameron, Toronto; *First Vice-President*, Dr. J. H. Mullen, Hamilton; *Second Vice-President*, Dr. J. F. Argue, Ottawa; *Honorary Treasurer*, Dr. Gordon Bates, Toronto; *Honorary Secretary*, Dr. T. C. Rontley, Hamilton; *Assistant Secretary*, Dr. F. C. Harrison, Toronto.

OUR LONDON LETTER.

(From Our Own Correspondent)

CONCERTED ACTION UPON FOOD QUESTIONS—FEES FOR MEDICAL ATTENDANCE ON MEDICAL MEN—THE COMING MINISTRY OF HEALTH—EXEMPTION OF MEDICAL MEN FROM MILITARY SERVICE—CARE OF THE TUBERCULOUS SOLDIER—THE LATE DR. ROBERT FARQUHARSON.

LONDON, June 13, 1918

It is as important that the Allied nations should come to some complete mutual understanding upon food questions as upon questions of munitions, transport, medical care, and even military strategy. Concerted action in every department of life should be the motto of the Allies, and medical men in each of the Allied nations have been prompt to point out that as regards food such action would have enormous value in conserving the strength and mansupply of the belligerents for the right. It may be remembered that an Inter-Allied Conference was held in Paris late last year at which an International Scientific Commission was instituted, whose function should be to meet at stated intervals for the consideration of any food problems that were presenting themselves. The periodical sessions were to be of a strictly scientific character, and it was understood that their outcome would be communicated in the form of expert advice to the various governments. The International Scientific Commission has a strong membership, as the following names show: *France*, Professors M. Gley and J. P. Langlois; *United States*, Professors R. H. Chittenden and Graham Lusk—these four men by themselves constitute a powerful and learned committee on all food questions; *United Kingdom*, Professor E. H. Starling, our most learned practical physiologist, and Professor T. B. Wood, Professor of Agriculture in the University of Cambridge; *Italy*, Professors Pagliani and Botazzi; and *Belgium*, the Home Secretary, Professor Hulot. Two sessions of the Commission have now been held. The first in Paris last March cleared the ground by coming to certain conclusions in respect of minimum food requirements; the second, held in Rome in April and May, considered questions of general interest to the Allied populations, the conclusions thereon being now in the press.

A recent action in the High Courts of Justice has given a sort of legal standing to what hitherto has been merely a convention, though a universal one, among British medical men. In the case in question, a physician, who was in attendance on the wife of another physician, sued his patient for medical services rendered, the action, primarily against the wife, taking effect against the husband, who was the legal defendant. The case of the plaintiff was that his fees were to be paid, not by the husband, but by the patient's stepfather, the motive of the action being to speed up the stepfather, rather than to mulct the husband. As the action, however, occurred in the courts, it was brought by a plaintiff doctor against a defendant doctor, for money owing in respect of medical services, and, as such, was a novelty in the courts, because among doctors such matters when in dispute are settled outside the law. The universal convention in this country is that doctors render gratuitous medical services to other doctors and to their immediate family and dependents. Exceptions occur where an arrangement to the contrary is made on the ground either that the medical service required would be unusually onerous, or that the medical man who is being benefited is manifestly a richer man than he whose services are demanded. No such mutual understanding had been reached in the case in question. Certain pecuniary help was received from the stepfather, whereby certain fees were paid to the plaintiff, but the other money was paid by the defendant out of his own pocket, believing himself to be making a complete settlement in so paying. The action was for a balance alleged to be still due and unpaid. Judgment was given for the defendant, the position being recognized that the account should not have been rendered by the plaintiff; but on the suggestion of the judge, the amount of payment still due, if any, to the plaintiff, further than that which he had already received, was referred to Sir Henry Morris as arbitrator. No better arbitrator could have been found. Sir Henry Morris, lately President of the Royal College of Surgeons of England, which body he represented for years on the General Medical Council, is also Treasurer of Epsom College, a medical foundation, and has all his life been in the closest possible touch with questions affecting medical procedure and standards of conduct. Sir Henry Morris interviewed both the plaintiff and the defendant, and came to the decision, which has now been published, that the plaintiff had no grounds for thinking that he had not been fairly treated by his patient or by her husband. The statements made to him by the two parties showed that the plaintiff had been remunerated for several years at a rate varying from £100 to £180 per annum, in

view of which Sir Henry Morris considered that the plaintiff had not any moral claim to further payment.

The discussion at the Royal Society of Medicine on the professional problems arising out of the impending establishment of a Ministry of Health was continued this week and last week, the important speakers being Sir William Osler, Sir Watson Cheyne, Dr. G. E. Haslip (Treasurer of the British Medical Association), Dr. Smith Whitaker (Deputy Chairman of the National Insurance Commission), Dr. C. E. Buttar (Chairman of the Executive of the Central Medical War Committee), Professor Benjamin Moore, and Surgen General Sir Bertrand Dawson. As the result of a free interchange of views the meeting decided unanimously that a committee of the Society should be appointed to hold a watching brief for medical interests. This resolution has been transmitted to the governing body of the Society, and is sure to receive effect. Such a committee may prove of real value to the medical profession when the bill constituting a Ministry of Health comes before Parliament.

The Central Medical War Committee has issued this week to the medical profession, through its local bodies, the Local Medical War Committees, a memorandum dealing with the duties of those bodies, especially in making the new calls on the medical profession as little onerous as possible. The position of the medical man who makes no claim for exemption is set out in some detail. He is given an exemption which holds good so long as he is not offered a commission, with the proviso that he will undertake such professional work as the Director General of National Service may offer him—"standard exemption." The position works out as follows and displays considerable ingenuity on the part both of military and civil officialdom: The Local Arrangements Sub-Committees of the Central Medical War Committee will consider from what areas, having regard to their population, medical men can be spared, either for the army or for districts less fortunately provided with medical service; in those areas where a call is made the doctors will be examined physically by boards appointed by the Ministry of National Service: they may be granted a "standard exemption," but those who wish for a different form, *i.e.* a more complete form of exemption, will be given a hearing. It is understood that men will not be moved capriciously from one district to another by the Ministry of National Service, and that the desire is to disturb as few practitioners as possible, it being felt that their best work can probably be done in the familiar environment. The choice of the authorities in allotting work to a man, military or civil, will be determined mainly by his age and his health. These are the promises, and they will be kept if only because to break them would be too silly.

The tuberculous soldier is already proving one of the most difficult problems of this country, a problem whose solution will not be arrived at until many years after the nations have laid down their arms. By the end of 1917 20,000 men at least had been invalided from the British Army through tuberculosis, and it is felt that on all grounds careful watch should be kept, first in the recruiting stations to see that infected subjects are not admitted to the army, and, secondly, in the ranks to see that the cases which occur are taken in hand early. Both in Italy and France tuberculosis as a cause of invaliding from the army has become a serious matter, while Italy has recently received large batches of interned prisoners from Austria among whom tuberculosis is very prevalent. In fact it seems quite undoubted that the incidence of tuberculosis on the central empires is much heavier than it is on the Allies. In France the situation is being dealt with by local committees in each department, who inquire into all cases of tuberculosis among service men, and, while obtaining medical treatment for them, take steps also to insure their civil employment when they are restored to health. We have today greatly increased provision for the treatment of tuberculosis, both medical and surgical, in existing institutions, while new ones are being built especially for the purpose; also five Farm Training Colonies have been started for tuberculosis patients, one near Bournemouth, one near Liverpool, one near Hull, one near Cambridge, and one near Edinburgh.

The ominous position of tuberculosis in Ireland, where the stress of war has not yet been felt, leads directly to the observation that the connection between a certain increase in tuberculosis rates which have occurred locally and the returned soldier is not so direct as has been supposed. The death rate for tuberculosis has risen for example in Belfast, where the civilian population at the present moment probably enjoys higher wages and better food than it has ever enjoyed; and simultaneously with this we find that in some crowded British areas the incidence of tuberculosis is lower than usual and its mortality correspondingly abated. In Dublin, where the artisan class is not so prosperous as in Belfast and where there is always a great deal of poverty, the City Corporation should have ample funds to deal with tuberculous cases, and there is no reason why the tuberculosis rates should be connected directly with the war. There is something about the public health aspects of tuberculosis which everlastingly seems to invite confusion of mind, and it would almost seem as if some public health authorities are prepared to attribute any rise in tuberculosis to the war instead of investigating other circumstances, any of which might equally well or ill be the determining one in a particular locality. One point here, however, must be remembered—the public health departments of some localities have been depleted with the only result that organized tuberculosis work has suffered. As a rule, however, the local Government Board has exercised its power to obtain exemption from military service of all medical officers the cessation of whose work might be attended with widespread mischief to the population.

The death is announced this week at the age of 82 of the Laird of Finzean, the Right Honorable Robert Farquharson, who was for many years Member of Parliament for an Aberdeen constituency, and also while in the House of Commons was the untiring advocate of medical reform. He enjoyed the rare distinction for a medical man of

being a Privy Councillor, and before succeeding to the family estate was one of the surgeons to the Coldstream Guards.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

CHILDRENS' DISPENSARY AT MARSEILLES—LOSSES IN THE ARMY MEDICAL CORPS—THE RED CROSS AND THE FRENCH SCHOOLS—NEW FACES FOR THE DISFIGURED—NEW MEMBERSHIP IN THE ACADEMY.

PARIS, June 4, 1918.

MORE than 200 mothers brought their children to the opening session of the Red Cross children's dispensary at Marseilles this week. Aided by five nurses, Dr. Oscar H. Sellenings, of the Children's Bureau, examined child after child and gave advice on medical care to their mothers, but more children came than he could possibly attend to in a single afternoon. The dispensary is the first Red Cross institution to open in Marseilles, where Dr. William Palmer Lucas, chief of the Children's Bureau, has arranged for a hospital and a child-welfare exhibit as well. The Red Cross work at Marseilles is done in close cooperation with a large group of French societies which have united to form a "section of defense against infant mortality of the central office of the œuvres of Marseilles." Among the œuvres which are co-operating with the Red Cross are the "Abri Maternal," with which Dr. d'Astros is associated; the "Protection Maternelle d'entr'aide Féminine," the "Pouponnière du Prado," the "Charité Saint-Joseph," and so on.

Before the war some 80,000 babies died annually in France; investigation has shown the condition is even more serious now. Women's work in the munition factories, although a national necessity, has been in fact jeopardizing the future to save the present. It has tended to lower the national birth rate which was already too low. In conjunction with the Ligue contre la Mortalité Infantile and the Federal Government, the Children's Bureau of the American Red Cross has worked out a definite program of preventive measures. Whatever clinics for nursing mothers exist, or have existed, the Red Cross aids them or aids them to reopen them. Since most of the women available for health visitors or nurses have been drawn into the military hospitals, the Red Cross is aiding to create short, intensive courses for women who have had some hospital training to make them effective health visitors. Such courses have already been established at Paris, Lyons, Marseilles, and Bordeaux. The opening of the dispensary at Marseilles and the establishment of the training courses for health nurses there, in intimate cooperation with French societies which have long been at work, are the first steps in the preventive campaign in the commercial capital of Southern France.

We of the French Medical Corps have known that the losses by killed, wounded, and captured of our members have been very heavy, but no lists are printed and no information, other than of individual cases, comes to our knowledge, so we are in complete ignorance of the totals. I do know that last spring, a year ago, 600 French army doctors, prisoners in Germany, were returned to France, via Switzerland. Some general idea, however, can be gained by the grave sacrifices made by these devoted non-combatants by certain information given in a recent publication by Lord Northcliffe respecting the losses in June, July, and August during the battle of the Somme in 1916. Doctors killed, 53; doctors wounded, 208; doctors missing, 4; medical assistants killed, 260; medical assistants wounded, 1212; medical assistants missing, 3.

School has reopened at Cuffies. It is just one of dozens of little villages in the liberated districts where the schools have been closed for nearly four years and are just beginning to reopen. At Cuffies the French Government put up a rough wooden barrack to replace the brick building smashed by the Germans, and the Red Cross answered a hurried call for chairs. Cuffies is one of a number of towns where the Red Cross has helped reopen schools. Pommiers is another little town in the Aisne where school has started again. It is the only town with a school for miles around, and the children walk in from all the surrounding villages. This made it necessary to give them their déjeuner at school, and the Red Cross answered another emergency call, supplying vermicelli, chocolate, and condensed milk for the schoolchildren.

Rebuilding houses, making it possible to reopen schools and to resume farm life in a region where every farm machine and every cart wheel has been destroyed, is all part of the Red Cross work in the Somme, Oise, and Aisne. The delegate for the Aisne has just reported the arrival of six cartloads of supplies, largely wheelbarrows, spades, pitchforks, and shovels. Restoring industry is another part of the Red Cross program in the reviving regions. Wherever possible, local factories are encouraged to resume production—which helps them and saves transportatien. The chairs sent to the Cuffies schoolhouse were the first products of a factory which has stood idle since the war began.

Many of these towns have difficulty in securing adequate food supplies. Cuffies is typical of many others. The red Cross recently sent a camionload of foodstuffs to Cuffies and unloaded it into the cellar of one of the townspeople, whence it was distributed by the mayor. There was only one man to do the unloading, but a score of the school children came to his aid, clambering into the auto and handing things down, with a ride in the camion to the last house in Cuffies as their ample reward and salary.

The Bureau for the Mutilés under the direction of Miss Grace Harper of the American Red Cross is developing its reeducational work under three heads. The farm that is being put in order preparatory to receiving the students of agriculture is probably the department that will be the most important. The second branch includes the propaganda that is to be carried out by means of lectures and cinematograph entertainments to encourage the mutilated soldiers of France in attending the schools. The third branch is proving of great value in the work of making masks for disfigured faces. Mrs. Maynard Ladd, the American sculptor, first undertook this work and has made such a success of it that two other women sculptors have been employed to assist Mrs. Ladd. Mlle. Jeanne Poupelet

is now engaged in making the galvanic copper copper masks and another sculptor from America will also assist in developing this work.

The Red Cross furnishes the funds for making the masks at a cost of about 100 francs each. The surgeons of the Val-de-Grâce hospital have recognized the work so successfully that Mrs. Ladd has been given carte blanche in fitting the mutilated soldiers of the hospital with these remarkably life-like faces.

The Academy of Medicine has just made a new ruling regarding "Académiciens libres," limited to ten members who, not having the degree of doctor, are recognized because of some notable service rendered to the cause of medicine. Heretofore these members were required to post their candidature, but by the new ruling they may be named by a fixed committee in the Academy and elected by a two-thirds vote at a regular meeting.

Progress of Medical Science.

New York Medical Journal.

June 29, 1918.

1. The Prevention of Hydrophobia. H. L. Abramson.
2. Defective Vision: Its Pathological Significance. A. Gumbiner.
3. Sarcoma of the Corpus Callosum. Joseph Byrne and Anthony H. Harrigan.
4. Tetany. C. E. Hyde.
5. An Acute Febrile Entity with Vomiting, Somnolence, and Acetone. Harry Lowenburg.
6. Dichloramine-T in Treatment of Wounds. Joseph C. Scal.
7. Gastrointestinal Diseases in the Aged. Samuel Floershein.

5. An Acute Febrile Entity with Vomiting, Somnolence, and Acetone.—Harry Lowenburg describes a condition occurring in infants and young children and exhibiting with marked uniformity the following symptoms: Fever, forceful vomiting, somnolence, and the odor of acetone upon the breath. The onset is abrupt and is accompanied by fever reaching 101° to 104° F., which lasts for a few days and falls by rapid lysis. Acetonuria is present and there is a faint trace of albumin. The drowsiness is persistent and amounts to a mild stupor. The pupils as well as the deep and superficial reflexes are normal, muscular rigidity is absent, and the child permits himself to be moved about without protest. The pulse rate increases with the rise in temperature, but does not partake of the nature of the slow, full, irregular pulse of meningitis—an important point of differentiation. No abnormality in the blood was noted in the author's cases, but further study on this point is necessary. Catarrh may be present and diarrhea troublesome; cough and varying degrees of bronchial irritation have been noted. The author is unable to classify this entity. He points out that acetone on the breath and the acetonuria may be symptoms of an acute febrile process or, on the other hand, they, with the fever and somnolence, may represent the main and distinctive symptoms of an acute acid intoxication depending up some undetermined etiological factor. Whether or not it is a form of influenza cannot be determined until its bacteriology has been studied. At the bedside the condition must be differentiated from meningitis, pneumonia, appendicitis, typhoid fever, and head injuries. As to prognosis, all the author's patients recovered, although convalescence was stormy in some. One fatal case, however, is reported by Dr. Shmookler, in which the temperature was 107° F. and death occurred from hyperpyrosis. The treatment indicated is a hunger period of 24 hours, calomel administration—1/20 grain every 15 minutes placed dry on the tongue for ten or twenty doses—with counterirritation over the epigastrium to control vomiting, followed by 0.5 ounce of castor oil. After free evacuations small amounts of solids may be permitted, followed by broths and gruels. No milk should be permitted for some days. One or two warm baths daily are of service, and an enema of from 20 to 30 grains of bicarbonate of soda is useful. This remedy may also be given by mouth in doses of 60 to 120 grains in 24 hours. Small doses of aspirin and aconite will control the temperature.

The Journal of the American Medical Association.

June 29, 1918.

1. Duties of the Dermatologist. H. H. Hazen.
2. Reliability of Ozone in Swimming Pool Disinfection. Wallace A. Manheimer.
3. The Action of Miotic Drugs on Eyes with Incomplete Sphincter Iridis. R. J. Curdy.
4. The Relation of Heredity Eye Defects to Genetics and Eugenics. Lucien Howe.
5. Cultivation of the Meningococcus Under Partial Oxygen Tension; A Possible Explanation of the Poor Success of the Usual Cultural Methods. M. B. Cohen.
6. The Blood Pressure in Gout. Jacob Rosenbloom.
7. Further Studies on the Preservation of Complement by Sodium Acetate. B. W. Rhamy.
8. Chronically Enlarged Spleen (Malarial?). J. C. Van Nuys and M. B. Stokes.
9. An Error of the Wassermann Test. Emanuel Jacobson.
10. The Eyes of the Army. Allen Greenwood.
11. Optic Atrophy and Multiple Peripheral Neuritis, Developed in the Manufacture of Explosives (Binitrotoluene). Arthur S. Hamilton and Charles E. Nixon.
12. Postmortem Findings in Measles-Bronchopneumonia and Other Acute Infections. Baldwin Lucke.

2. Reliability of Ozone in Swimming Pool Disinfection.—Wallace A. Manheimer recommends the use of ozone for swimming pool purification for the following reasons: It is reliable as a disinfectant and, unlike the halogens, its use results in no objectionable odor or taste; it is capable of purifying heavily polluted pool water; it produces no objectionable substances in the water; it improves the appearance and transparency of the water, permitting a longer continued use of the pool, a consequent reduction in the cost of maintenance and a reduction in the hazard of drowning; it is inexpensive in application, costing in the case of a 60,000 gallon pool only from eleven to fifteen cents a day if alternating electric current is available, and where direct current must be converted into alternating current an additional ten to fourteen cents.

The Lancet.

June 8, 1918.

1. An Address on Kineplastic Amputations. Delivered on May 30, before the Royal Society of Medicine. Professor V. Putti.
2. Methods of General Anesthesia in Facial Surgery. Lieutenant R. Wade.
3. So-called Functional Symptoms in Organic Nerve Injuries. John S. B. Stopford.
4. The Conception of Retrogression in Psychological Medicine. Captain Maurice Nicoll.
5. Hernia of Urinary Bladder: Notes of Cases, with Remarks on Strangulation of Femoral Herniæ and Its Treatment. H. Blakeway.
6. The Effect of Convection Currents on Agglutination (A Report to the Medical Research Committee.) W. W. C. Topley and S. G. Platts.
7. A Note on Oriental Sore. J. B. Christopherson and J. R Newlove.
8. Ulnar Nerve Paralysis. Operative Treatment for the Disability of Main-en-Griffe. Captain N. I. Spriggs and Colonel Ashley V. Clarke.
9. A Case of Fracture of the Hyoid Bone. Elizabeth L Ashby.
10. A Case of Acute Lymphoid Leukemia. Captain John C Tull.
11. Acute Intussception: A Rational Method of Treatment S. W. Daw.
12. A Case of Congenital Hypertrophic Stenosis of the Pylorus; Gastroenterostomy at the Age of Six Weeks: Recovery. T. Jason Wood.

1. An Address on Kineplastic Amputations.—Professor V. Putti reviews briefly the fundamental theories of Professor Giuliano Vanghetti's plastic motor flaps and indicates the vast field thrown open to the orthopedic surgeon through the application of these theories, which as yet are little known in France, England, or America, though they have been studied by Austrian and German surgeons. The object of "kinematic amputation" is to utilize the functional resources of the stump so as to convey movement to the artificial limb. The name *kinematic plastics*, or *kineplastics*, has been given by Vanghetti to any kind of bloodless or operative plastics which tend to economize, restore, or substitute muscular masses which can be employed toward imparting direct and voluntary movement to an arti-

ficial limb. The term *kinematisation* is now applied to every kind of kinematic artificial limb and to the active and precocious mobilization of such muscles as are involved in kineplastic operation, while every moving entity obtained kineplastically is caller *plastic-motor* (motor flap). These motor flaps vary as to their number, position, shape, and function, and in order to correspond with the object for which they are made, they must conform to the following requirements: they must possess every requisite for withstanding a firm, resisting, and painless grip, also a traction that may attain a high degree; they must be provided with a sufficient amount of functional muscular tissue to guarantee the accomplishment of the task that will be demanded of them. The muscles must be sought and obtained from among those of which the stump still disposes. Skin flaps, muscular insertions, various bone and tendinous fragments and segments of limbs, which would seem utterly superfluous under ordinary circumstances, must be considered of the greatest value in view of future kineplastics, and even in the first aid dressing station this must be borne in mind by the surgeon. It is evident that the application of kinematization will entail a radical upheaval of all preconceived notions regarding methods of amputation. Although the actual idea was conceived over twenty years ago, kinematisation has only been applied on a large scale since the beginning of the war and it is yet too early to render final judgment. From a consideration of his own cases, however, Professor Putti has come to the following conclusions: (1) The practical results that have been obtained through kinematization have shown that the hopes placed in the principles and methods of the modern theory of motor-flaps are thoroughly justified, and that kineplastics are entitled to be placed among the most brilliant of the discoveries of orthopedic surgery, deserve to be accepted with perfect confidence, and to be tested on a large scale by all those whose aim it is to restore to the disabled man his functional activity. (2) That the preparation of motor flaps is a well-defined surgical act that must be performed in accordance with its own special technique, the methods of which have already stood the test of experience. (3) From a physiological point of view motor flaps are actually capable of giving both the quantity and quality of action determined by the muscular masses that actuate them. Yet, practically considered, motor flaps will be able to yield the full measure of their value only if the artificial limb is perfectly adapted to their shape and their strength. (4) As the principal aim is to attain the vitalization of the artificial limb, it is essential that the surgeon and the mechanic should work in harmony in order to solve satisfactorily this most interesting, if difficult, problem.

British Medical Journal.

June 8, 1918.

1. The Utilization of the Muscles of a Stump to Actuate Artificial Limbs: Kinematic Amputations. V. Putti.
2. The Relation Between Heat-stroke and Malignant Malaria. Captain C. E. H. Milner.
3. Basal Lepto-meningitis Resembling Botulism. Sydney T. Steward.
4. The Early and Effective Reduction and Fixation of Gunshot Fractures of the Femur. Major O. Herbert Williams.
5. Agglutination in the Diagnosis of Dysentery. Lieut.-Col. C. J. Martin, Captain P. Hartley, and Sister F. E. Williams.
6. Post-operative Pulmonary Embolism Due to the Condition of the Blood. A. Lapthorn Smith.
7. Treatment of Oriental Sore. Captain W. S. Evans.
8. Persistent Vitelline Duct in Twins. J. R. Garratt.
9. The Treatment of Pernicious Anemia. R. Thorne Thorne

2. The Relation Between Heat-Stroke and Malignant Malaria.—Captain C. E. H. Milner suggests that heat-stroke as a clinical entity is non-existent and that it is nothing more than a symptom of malignant tertian malaria. In Mesopotamia during the summer of 1917 there were two formidable heat waves, one in July and the other in August. During the August wave a routine examination of blood film for the presence of malarial parasites was made in heat-stroke cases. In view of the high percentage of such cases in which the *Laverania malariae* was found, an intramuscular injection of 8 or 9 grains of bihydrochloride of quinine was administered, with the result that the mortality, which during July was as high as 25.65 per cent., dropped to 11.76 per cent. in August. This would seem to point to malignant malaria as being the primary cause of hyperpyrexial heat-stroke. Milner points out that it may reasonably be supposed that one of the symptoms of an infection with the parasite of malignant tertian malaria is the intoxication of the heat regulating center, and that once this apparatus is upset the body will assume as nearly as possible the temperature of the atmosphere. Heat stroke does not supervene because sweating ceases, but the patient ceases to perspire because he has got heat-stroke and is suffering from paralysis of the heat regulating center.

6. Post-operative Pulmonary Embolism Due to the Condition of the Blood.—A. Lapthorn Smith points out the value of drinking plenty of water and of frequent movement as preventatives of embolism following operation or confinement. He believes embolism to be due principally to a hyperfibrinous condition of the blood. He therefore makes the following recommendations: (1) Have the full normal proportion of water in the blood before operating. (2) Replace by the rectum the amount of liquid lost by vomiting, catharsis, sweating, hemorrhage, and urine, either during the operation or immediately after it. (3) Encourage the patient to move the lower limbs freely, if not during the first two days, at least during the next ten. (4) Give the patient abundance of water between meals and during the night; it may be hot or cold, sweet, sour, or salty, in the form of lemonade, barley water, weak tea without milk, or beef tea; a jug and drinking cup with spout should be left within reach so that it may be taken when wanted without waiting for the nurse to come. (5) Speedy operating lessens embolism, because it means less hemorrhage, and less sweating and less loss of water from the system. (6) Round-pointed needles with flat eyes are much less likely to cause hemorrhage than ones with cutting edges, and should alone be used in the abdomen.

Berliner klinische Wochenschrift.

April 22, 1918.

Are There Any Other Bacteria Besides the Proteus of the Weil-Felix Type Which Can Be Agglutinated by the Blood of Typhus Patients?—A. Kreuscher, starting with the supposition that the Weil-Felix reaction, specific in typhus fever, does not imply the attributions of a causal part to the Proteus X19, asks himself the question if other bacteria present in the digestive tract of the patients may not likewise be agglutinated by their blood. In point of fact, the writer has been able to cultivate an organism of the pyocyanic group, from the feces of a patient who died from the disease and found that this organism was electively agglutinated with the blood or typhus patients. This property was maintained by the organism down to the 150th generation in cultures. The culture and staining properties of the bacillus were very labile and changed considerably from the effects of laboratory manipulations. Nevertheless, its agglutination by typhus blood remained unchanged. The writer recalls the fact that the X19 of Weil-Felix, offers the same constancy in its biologic characters for the same variations in its bacteriologic characters.

Essays in Prophylaetic Vaccination for Typhus Fever.—P. Neukirch draws conclusions from unfortunate essays undertaken by a physician who was later found to be insane, with a so-called prophylactic injection of defibrinated blood, taken from typhus patients. The result was that those inoculated developed the disease after an incubation period of about twelve days' duration, in all seventy-six cases observed in Anatolia. The mortality was 25 per cent. in young and strong men. The injection did not give rise to any local or general seric phenomena. Neukirch has made essays with a serum derived from typhus cases, prepared by shaking in chloroform, at the dose of 2 c.c. given twice with an interval of from two to three days. Although he is unable to offer exact statistics, the writer was able to note that the subjects who received prophylactic injections were less apt to contract the disease than others. Out of a total of 300 subjects who went to

an infected district and who were certainly bitten by lice, only twelve contracted the disease and none of them died. The writer recommends this procedure especially in cases in which the destruction of lice cannot be realized.

Münchener medizinische Wochenschrift.

April 16, 1918.

Radiological Examination of the Duodenum by the Use of a New Technique of Radioscopy and Radiography.—Chaoul offers the following procedure which consists in radiographing the duodenum after the ingestion of some opaque powder with the patient lying in the right ventrolateral position and exercising a certain amount of pressure with the ampoul and its tube over the part. He thus causes the pyloric portion of the duodenum to become displaced to the right of the spine, while at the same time the transversal portion is compressed between the spine and the photographic plate. After about ten minutes in this position the duodenum will have become filled, when a radiograph can be taken which will indicate the presence of an ulcer with the same precision as that obtained in cases of gastric ulcer. The writer in the present contribution relates the improvements that he has been able to realize in the use of his technique and he says that he has developed it to such an extent that at present he is able to follow on the screen the progressive filling of the duodenum and thus to select the proper moment for taking a permanent radiograph.

Treatment of Erysipelas by Silver Nitrate According to Gangele's Technique.—N. Gondos has tried the treatment advocated by Gangele (reviewed in the MEDICAL RECORD, March 2, 1918) and comes to the conclusion that it is valueless. In no instance could this treatment be regarded as "specific," as is maintained by Gangele.

Deutsche medizinische Wochenschrift.

April 18, 1918.

The Nature and Treatment of Chronic Renal Affections.—F. Volhard accepts the modern conception of ischemia of vascular origin as the explanation of Bright's disease and its manifest symptoms. This ischemia can be demonstrated by examination of the retina and microscopic examination of the skin of the nails (Weiss). The reason for the vascular contraction is as yet not understood, but according to the writer it is a state of angiospasm. Cerebral ischemia and the oedema which results are the causes of the nervous accidents ordinarily termed "uremic." Volhard draws therapeutic consequences from these considerations, particularly a hunger cure of three to five days' duration, followed by the ingestion of 1500 c.c. of liquid, which brings about an upheaval, so to speak, of the disturbed renal junctions. A proper diet should be prescribed to overcome the nitrogenous retention by elimination of meat from the diet, likewise the elimination of salt when edema is present. In the phase of edema arising in Bright's disease fully developed, urea is alone active on the condition that it is exhibited in large doses of 50 to 60 grams, in twenty-four hours.

The Preparation of Antigens for Wassermann's Reaction with Antiformine.—I. Freund, starting from the supposition that the lipoids constitute the active principle of the antigens extracted from the human heart and liver of the syphilitic poetus, the heart and liver of calves, etc., treats these viscera with antiformine which, as is known, dissolves the organized tissue and leaves the active lipoids intact. These lipoids can be taken up by the usual dissolvents and result in the production of more potent antigens than those now generally employed.

A Painful Spot in Gastroptosis.—A. Alexander describes a painful spot which he says is characteristic of gastric ptosis. It is seated below the tip of the sternum and topographically corresponds to the upper portion of the stomach. It is the result of traction on the vagosympathetic plexus from dropping of the stomach.

Wiener medizinische Wochenschrift.

April 20, 1918.

A Project for Medical Instruction According to a New Plan.—R. Stigler criticises the methods of medical teaching now current almost everywhere, and he quotes Porter and Flexner, the first of whom concludes that German teaching "procures information for the student but no knowledge." Stigler points out the utility for the student to participate in the intellectual work of the professor and this may be attained by a system of lectures.

Infectious Diseases at Belgrade in 1916.—M. Pöchmüller offers the following statistics for the civil population: deaths due to infectious diseases, 3.27 per cent. as against 9 per cent. in 1911 and 6.29 per cent. in 1901. Typhoid fever represents over 25 per cent. of infectious diseases. The epidemics seem to be spread especially by contact.

Unilateral Pyonephrosis Following a Bullet Wound of the Bladder.—R. Lichtenstern considers the principal indications in bladder wounds (1) to assure the flow of urine, and (2) free drainage of the wound. The end to be attained is the prevention of urinary infiltration. Cystitis is an almost constant complication of these wounds and among the means at our disposal for treating this process is irrigation with a solution of Hg. oxycyanide, a salt which may cause irreparable renal lesions. Ascending infection of the ureters and renal pelvis is, in normal conditions, prevented by the tonus of the ureteral sphincters and to uphold this supposition, the writer relates two cases of bullet wounds involving the ureters, the outcome being a suppurating process in the kidney on the same side as the lesion. The ureter itself was very hyperemic. The diagnosis was made with the cystoscope which revealed an abnormal gaping of the ureteral orifice with a free flow of pus. Both cases were cured by nephrectomy.

Wiener medizinische Wochenschrift.

April 27, 1918.

Infectious Diseases at Belgrade in 1916.—M. Pöchmüller offers the following statistics particularly of tuberculosis and venereal diseases. Tuberculosis is responsible for 33 per cent. of the deaths, while acute infectious diseases resulted in only 62 deaths out of a total of 1300 cases. When the writer turns to the question of venereal infections the kind censor blots out all he has to say on the question, which is still another of the many endeavors to conceal the fearful spread of syphilis in the Germano-Austrian armies, well known to the profession of neutral European countries.

A Project of Medical Instruction According to a New Plan.—R. Stigler criticises the clinical teaching, practical exercises and examinations in European faculties, and makes what reads like a strong bid for American students to come for study to Germany and Austria after the cessation of hostilities.

Notes on the Etiology of Epilepsy, Particularly the "Epilepsy of War."—E. Redlich studies different conditions which may cause epileptic manifestations to arise. (1)Latent epilepsy aggravated by the war. Thus during the siege of Przenysl the admissions to hospitals for epilepsy increased 63.8 per cent. In these cases one could demonstrate the causative action of the war (privation, bombardment, etc.). (2) Epilepsy following upon epidemic meningitides. The writer includes under this head epilepsies which follow antityphoid or smallpox vaccinations.

A Case of Agenesia on the Middle Line of the Throat.—A. Nagy reports the case of a male patient presenting a vertical fissure filled in by the deeper seated structures. The malformation only involved the integuments and the larynx and trachea were normally developed and free from the defect.

The Oil Pimples of Shell Turners.—Those occupied in turning explosive shells on lathes suffer from a peculiar occupation disease, an eruption of pimples due to accumulation of iron in the integument. This accumulation is made possible by the use of impure oil.—*Le Progrès Médicale.*

Book Reviews.

A Pocket Formulary. By E. Quin Thornton, M.D., Assistant Professor of Materia Medica in the Jefferson Medical College, Philadelphia. Eleventh Edition. Revised. Price, $2.00. Philadelphia and New York: Lea & Febiger.

Concerning an eleventh edition there is little to be said. The present edition of this Formulary has been thoroughly revised by its author, and contributions relating to new and comparatively new remedies have been rewritten. It may be mentioned that the U. S. P. term "millimeter" has been adopted in this book to take the place of cubic centimeter. It is an extremely useful formulary.

Materia Medica, Pharmacology, Therapeutics and Prescription Writing. For Students and Practitioners. By Walter A. Bastedo, Ph.G., M.D., Assistant Professor of Clinical Medicine, Columbia University. Second Edition. Price, $4.00 net. Philadelphia and London: W. B. Saunders Company, 1918.

The bulk of Bastedo's book is devoted to pharmacology and therapeutics. In regard to the materia medica the author has wisely left out many things concerning drugs that are of more interest to the pharmacist than to the physician. In pursuance of this utilitarian plan, stress has been laid upon remedies of proven value and lengthy discussions on the theories of pharmacologic action have been avoided. The book is divided into three parts. The first part, comprising 63 pages, is of an introductory character, being concerned with such general topics as pharmaceutic preparations, weights and measures, active principles, the pharmacopœia, dosage, methods of administration, scope of treatment, etc. Part II deals with individual remedies, which might have been arranged in more logical order. Part III covers concisely the salient points of prescription writing. The section on digitalis in Part II is particularly worthy of note as representing the most recent ideas on the pharmacologic and therapeutic action of this important drug. The book as a whole is well written, is thoroughly up to date, and contains an excellent index. It is a sound treatise, especially useful to medical students and busy practitioners. The paper and printing as well as the convenient size all contribute to make an attractive volume.

The Anatomy and Physiology of the Female Body. By Hubert E. J. Biss, M.A., M.D., Cantab., D.P.H. Second Edition. Plates by Georges M. Dupuy, M.D. Price, $2.00. New York: William Wood and Company. 1917.

This atlas consists of five colored plates, each containing seven or eight separate colored figures. These plates show clearly the skeleton, the vascular system, the muscles, nerves, and chief viscera. There is a brief but adequate account of the body and its structure, and a detailed description of the colored plates. For the layman or nurse, and for purposes of teaching, this little book seems to be about as useful a work as can be desired. The colored plates are very clear, and they avoid the common error of including too many (unnecessary) details.

Details of Military Medical Administration. By Joseph H. Ford, B.S., A.M., M.D., Colonel, Medical Corps, U. S. Army. With 30 Illustrations. Published with the Approval of the Surgeon-General, U. S. Army. Price, $5.00. Philadelphia: Blakiston's Son and Co., 1918.

This book by Colonel Ford comes in the nick of time and supplies exactly what is needed. The vast majority of the medical officers of our army have not been trained as army surgeons and consequently lack knowledge as to the proper performance of the many duties which fall to their lot. The administrative duties of the military medical officer are by no means light. These are set forth clearly in a lengthy chapter written almost wholly by Major Roy C. Heffleblower, and the information therein contained should prove of great value to the medical officer newly entering the service. As noted in the preface, the work is a compendium of information gathered from many sources both at home and abroad, but the greater part of the text pertains to the American army. Colonel Gorgas in a short introduction to the book exactly expresses its value when he says that its publication is specially apt and appropriate. With his hope that every medical officer in the service will furnish himself with a copy, all will join. The work is well arranged and excellently illustrated.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College, Philadelphia, assisted by Leighton F. Appleman, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. March 1, 1918. Price, $6.00 per annum. Philadelphia and New York: Lea & Febiger.

The March number of *Progressive Medicine* contains chapters on Surgery of the head, neck, and breast by C. H. Frazier; Surgery of the thorax, excluding diseases of the breast, by G. P. Müller; Infectious diseases, including acute rheumatism, croupous pneumonia, and influenza, by J. Rühral; Diseases of children, by F. M. Crandall, and Rhinology, laryngology, and otology by G. M. Coates. The present instalment is rather smaller than usual, but whether this is due to lack of material or to scarcity of paper we are unable to say. The contents are as interesting and valuable as usual, and the two first articles are particularly welcome, containing, as they do, sections dealing with war surgery.

Localisation et Extraction des Projectiles. Par L'Ombrédanne et R. Ledoux-Lebard. Deuxième édition remaniée. Collection Horizon. Prix, 4 francs. Paris: Masson et Cie., 1918.

The first edition of this volume was reviewed in these columns. There is no separate preface to the second edition and a comparison shows that it is an abridgment of the first, with a decrease of forty-four pages and twenty-seven cuts. As the number and titles of the chapters are the same the authors have evidently given the book a uniform downward revision. As no new matter has been added the present volume can hardly be regarded as a true successor to the first.

Tropical Diseases. A Manual of the Diseases of Warm Climates. By Sir Patrick Manson, G.C.M.G., M.D., LL.D. (Aberd.) Fellow of the Royal College of Physicians, London; Fellow of the Royal Society; Hon. D.Sc. Oxon.; Foreign Associate of the Académie de Médicine, France; Honorary Member of the Société de Médicine de Gand; Hon. Associate of the Royal Academy of Medicine, Turin; Consulting Physician to the Seamen's Hospital Society; Lecturer in the London School of Tropical Medicine; late Medical Adviser to the Colonial Office and to the Crown Agent for the Colonies, etc., etc. With 12 Color and 4 Black-and-White Plates and 254 Figures in the Text. Sixth Edition, Revised throughout and Enlarged. Price $6. New York: William Wood and Company, 1918.

A new edition of this standard work is always welcome. In addition to the new material necessitated by the recent advances in tropical medicine, the book has been thoroughly revised. Dengue is shown to be conveyed by the *Stegomyia calopus;* the chapters on mosquitos and the articles on tse-tse flies and ticks have been brought up to date; and some of the chapters have been rearranged or reclassified. The book remains the best practical and clinical manual on the subject of Tropical Medicine. The chapters on those topics with which Sir Patrick Manson's name is chiefly associated are the longest and most important in the volume. An entirely new section is included, containing a chapter on the vomiting sickness of Jamaica. This is, we believe, the first time that a description of this disease is to be found in any volume on the practice of medicine. There are a few misprints in this chapter; the disease is known in the island as *ackee* poisoning, not *ackers* poisoning; and the ackee is the fruit of the *Blighia sapida*, not *Blighi sapida*. The volume concludes with an appendix on some of the commoner parasitic protozoa of vertebrates and invertebrates.

Society Reports.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS.

Annual Meeting, Held March 29 and 30, 1918.

JOHN A. KOLMER, M.D., OF PHILADELPHIA, PRESIDENT.

(*Concluded from Vol. 93, page 880.*)

A Method of Preparing Bacterial Antigens.—Lieut. J. C. SMALL, U. S. Army, presented this communication. This work was based on the fact that fat-like substances occurring in the bacterial cell greatly interfered in the aqueous solutions of bacteria. No entirely satisfactory method for extraction of bacteria had been accomplished. All methods were directed toward disintegration of the bacterial cell, with the idea of extracting the fragments, but this would be better accomplished if the fat and liquid constituents of the cell could be removed. In the present method a chloroform-ether mixture was used to extract the fat-like substances from dried bacteria. The residue was suspended in normal salt solution. The chloroform-ether extraction was found to break up the integrity of the bacterial cell, so as to facilitate its more ready extraction by aqueous solution.

Mr. CHARLES WEISS of Philadelphia said that the idea of removing the lipoid constituents was not an entirely new one. Some workers did not find it necessary to extract the lipoid; in some laboratories the custom is prevalent. Had the doctor checked up his results and found that they were different with removal of the lipoid to what they were without this procedure? In regard to heating of antigen, it was found in working with streptococcus antigen that heating destroyed the anticomplementary qualities.

Dr. J. A. KOLMER said that with regard to heating immune sera at 62° C. he thought there was deterioration of specific antibodies present in the serum. This was, however, difficult to measure, as it was hard to differentiate specific from non-specific factors. Observations had shown inhibition of bacterial antigen. It might be anticomplementary. It would possess the greatest degree of antigenic sensitization after heating at 60° C. for 1 hour. Higher temperatures were not used.

Miss M. A. WILSON of New York said that their experience had been that there was no deterioration. They did not add preservative to the antigen. It would depend to some degree upon the sera against which it was titrated. That serum might not be comparable at a later date, but the complement had the same fixation value at the time of testing. One could not say that heating inhibited.

Dr. H. VON WEDEL of New York said that he had used tubercle bacilli antigen and had heated it five or six times at intervals, and the value remained, as far as he could tell, exactly the same.

Dr. G. H. A. CLOWES of Buffalo said if the alkaloids were entirely removed the temperature could be raised considerably without causing any effect.

Lieut. SMALL said he had noticed the non-specific factors in a large series of animals which they were running for typhoid vaccines. Immunization was being carried on and complement fixations and a very large percentage of animals showed non-specificity. Sera, with the exception of para-A, did not show anticomplementary effect. In regard to checking up results, by using whole antigen, there was one dilution of typhoid antigen with lipoid removed, which when mixed with lipoid, would not give fixation.

Study of the Complement Fixation Reaction to Tuberculosis.—Miss M. A. WILSON of the New York City Health Department Research Laboratory presented this paper. Two points had been found to increase the efficiency of the test. First, standardization of the guinea-pig serum to determine the value of the complement; second, testing the patient's blood several days after bleeding. In making the test all reagents were used in 1/10 the classic Wassermann volumes. Fixation period, 1 hour at 37° C. The patient's serum was inactivated for 30 minutes at 56° C. Two antigens were used. One made from 12 stock cultures of human tubercle bacilli, the other from strain No. 305, used for production of tuberculin. When prepared the antigen was standardized to such dilution that 1 c.c. would contain 2 standard fixation units. The antigen was found not to be anticomplementary and gave uniform reactions. The complement was guinea-pig's serum, pooled from 6 to 10 pigs. This was done because many guinea-pigs do not produce serum which is fixable by tuberculosis antigen. It was found that if in the pool of 6 to 10 complements there were several strongly fixable, the presence of negative complements did not greatly affect the test; a preponderance of negative complements, however, would affect a true reaction to the patient's serum. The variability in fixability of guinea-pig serum was illustrated by tables.

Dr. H. VON WEDEL of New York supplied a paper representing the continuation of Miss Wilson's work. Briefly stated, his conclusions were: first, the tubercle bacillus antigen used was not anticomplementary for the majority of active tuberculosis cases; second, pooled complement from 6 or more guinea-pigs should be used in making the tests; third, double the original Wassermann amount of patient's serum should be used; fourth, sera should be kept under sterile conditions in the ice chest for 6 days before making the report. This six-day interval was necessary to the proper reading of the test. Fifth, if these points in technique were observed, it was found that 100 per cent. of non-tuberculous cases gave negative reactions; nearly 100 per cent. of primary active cases gave positive results (excepting dying cases); and about 25 per cent. of inactive cases gave weak positive results. Further study was needed on inactive and incipient cases, with controlled sera from non-tuberculous cases, in order to complete this work.

Dr. G. H. A. CLOWES of Buffalo said that in working on cancer cases and also syphilitic cases, reported 8 years ago, he had attributed the development of increase of complement deviation to the change in colloidal particles, due to being held in the ice box for a given period. He wished to ask what was the temperature of the ice box. Was the serum frozen?

Dr. VON WEDEL said that the ice box probably had a fluctuating temperature; it was more to keep the complement sterile, not to keep it cold.

Dr. PAUL LEWIS of Philadelphia said he had been much interested and instructed by these papers. The results should be valuable from a diagnostic point of view. He could add some data from his own experience from work done some years ago. At first he used bacterial suspensions of autolysate which, he found, lost rapidly in anticomplementary effect. Testing with the same serum day after day, it was found that one never got the same results on two days running. He thought the reaction was weak, and began using strong sera, at half an hour. He found one could get stronger fixations up to 6 or 8 hours. It was found that the complement could be put in the ice box and warmed up next morning, but it was necessary to carry controls always. The fixation power was titrated against the amount of complement which could be fixed, and such sera would give 4+ after 2 hours' fixation. It would fix 15/100 to 0.2 c.c. of guinea-pig complement. It was found that serum could be preserved in glycerin. It was probable that it increased in activity for a certain time. Guinea-pig complement was found to vary very much in its activity. If the animals were etherized, the serum must be left in the air till the ether evaporated. Complements could be incubated 4 hours, after that there was deterioration. Alcohol was used to avoid anticomplementary reaction.

Dr. WM. H. PARK said that he felt that this work should be used for primary cases, and later on they would be in a position to use it for a diagnostic basis.

Dr. J. A. KOLMER of Philadelphia asked if the peculiarities of the sera, that is the development of fixation properties, were found in the Wassermann and gonococcus complement fixation tests. He believed that the sera would be of more use in the gonococcus test than with T. B.

Miss M. OLMSTEAD of New York asked if the guinea-pigs which gave fixability with the tuberculosis antigen also gave fixability for the gonococcus antigen. How many specimens giving positive gonococcus results, were used for the tuberculosis tests.

Miss M. WILSON said that they killed ten pigs; ten were fixable for meningococcus; four for gonococcus; one for tuberculosis.

Dr. VON WEDEL said that there was absolutely no non-specific fixation. Every case that was negative clinically gave a negative reaction. The test was used day after day, and no change was detected in the serum. The antigen was heated from 50° to 60° C. for half an hour, and there were no antecomplementary results.

Dr. A. F. COCA said that if this work had any value it was bound to be practical, the value was not on the experimental side. It appeared to have the weakness of the Wassermann test, and of tumor reactions;—the question was not had the man a tumor, because the tumor can be felt, but "is it a malignant tumor?" This reaction, it was said, was found only in tuberculosis, so that if it was positive, the individual had had tuberculosis. The question "has the man ever had tuberculosis" was not so important as "in what stage is the tuberculosis?" That is, one wanted to know, whether the disease was progressing. The test did not show that. It could not be said as yet that it had great clinical value.

Dr. J. A. KOLMER said the antigen seemed to be free of antisyphilitic complement. In his experience with Miller's antigen, he found it gave some degree of fixation to the sera of syphilitics.

Dr. H. VON WEDEL said that no negative cases gave a four plus. No one would consider that a one plus Wassermann constituted syphilis. A strong positive was necessary. This was seen in the primary and secondary stages.

A Study of Controlled Post-mortem Wassermann Reactions.—Dr. STUART GRAVES of Louisville, Ky., read this paper. In sixty-eight cases studied he found that post-mortem reactions confirmed ante-mortem Wassermann reactions in 97 per cent. of cases. In cases showing anatomic lesions of syphilis, or with histories of syphilis, the sera post-mortem was positive in 91.2 per cent. of cases. Only 2.5 per cent. of sera were found unfit for use. Only 2.6 per cent. of three hundred and seventy-eight cases showing anatomic evidence of syphilis gave negative Wassermanns. Reactions were found to conform to historic evidence in 80.4 per cent. of three hundred and seventy-eight cases. No reason was found to suppose that other acute conditions caused a positive Wassermann reaction. The positive reaction was found twice as much in negroes as whites. The final conclusion was that one post-mortem Wassermann reaction was practically as reliable a test for syphilis as when done ante-mortem, and was of great value in pathological anatomy and in medico legal cases.

Dr. J. A. KOLMER said that he wished to endorse all that Dr. Graves had said. It coincided entirely with his own experience. He was familiar with the records just described. He thought it was particularly unfortunate that reports should be published, and should reach the general practitioner, which denied the practical value of the Wassermann reaction. No one who had dealt with pathological findings would deny that a pathologist cannot exclude syphilis on the basis of these findings alone. Spirochetes might not produce much reaction, yet they would produce antibodies, which would be indicated by the Wassermann reaction. In the last four or five years so much had been learned of the technique of the Wassermann reaction that one must agree that it was a test of great diagnostic value. While they must welcome attempts to point out sources of error, criticisms must be carefully controlled.

Miss M. OLMSTEAD of New York said that she was glad to hear Dr. Graves' statements. It had always been her impression that post-mortem Wassermann would bear out the ante-morten findings, but she had not as yet the figures to prove this point.

Election of Officers: *President*, Dr. William H. Park; *Secretary and Treasurer*, Dr. Arthur F. Coca; *Council*, Dr. George McCoy, to fill the term of Dr. Weil; Dr. Rufus Cole, to fill the vacancy left by resignation of Dr. W. J. Stone.

Observations on the Intraspinal Autosalvarsanized Serum Therapy of Cerebrospinal Syphilis.—Dr. BENJAMIN A. THOMAS read this paper. Cases of tabes were found, he stated, that did not respond to treatment. The spinal fluid sometimes gave a positive Wassermann reaction, when the blood was negative. In four years' experience the author said he had used autosalvarsanized serum. Intraspinous injection was given after intravenous injection, under careful sterile technique. An amount of spinal fluid was removed equal to the amount injected. The foot of the bed was raised after treatment. The treatment was continued till the spinal fluid was permanently negative. If improvement was found to follow intensive intravenous treatment, the intraspinal injections were not used. Degeneration of the cord was not affected by intraspinous treatment. Vascular cases were found to respond better to intravenous treatment alone.

Dr. H. ABRAHAMSON of New York asked was whole serum used, or was it diluted with salt solution.

Dr. J. A. KOLMER said that at the Philadelphia Polyclinic they had a large number of cases of syphilis under Dr. Schamberg's care. A number of intraspinous injections were given. They believed that something could be gained by salvarsanizing the serum in vitro after Ogilvie's method.

Dr. B. A. THOMAS said they had diluted neither serum nor spinal fluid. He thought that was an open question. He did not put the patient to the ordeal of intraspinous injection, if he could avoid it.

Experiments upon the Passive Transfer of Antibodies to the Cerebrospinal Fluid.—Drs. JOHN A. KOLMER and S. SEKIGUCHI of Philadelphia gave this paper, read by Dr. Kolmer. The summary of their work stated: The removal of blood from normal dogs, followed by intravenous injection of human syphilitic serum (30-50 c.c. per kilo body weight), caused small amounts of syphilis reagin in the cerebrospinal fluid. This reagin was found in the fluid as early as three hours after the transfusion of syphilitic serum. The amount of reagin found was small. After irritation of the meninges by sterile horse serum, more reagin was found in the cerebrospinal fluid. All traces of reagin disappeared from the cerebrospinal fluid of the dogs within forty-eight hours. Dog-typhoid immune serum, injected into a normal dog, intravenously, caused traces of agglutinin to appear in the cerebrospinal fluid within three hours; it disappeared within forty-eight hours. It was thus shown that the passage of antibody from the blood to the cerebrospinal fluid was possible, when the antibody existed in the blood in high concentration. In human syphilis the reagin might pass from the blood, but its presence in the spinal fluid generally indicated the presence and activity of *Treponema pallidum* in the nervous organs.

Dr. A. P. HITCHENS said that the question whether the antibodies would find their way from the blood to the spinal fluid was important, especially in cerebrospinal fever. In severe cases of meningitis in the army camps they gave intravenous doses as well as intraspinal of the antimeningitis serum. Results of the treatment were encouraging. Dr. Kolmer's work would show that this line of treatment was of value.

Dr. J. BRONFENBRENNER said it was a question as to whether bodies could pass from the blood into the spinal canal. He doubted whether this was possible when the pressure was higher in the spinal canal than in the blood. English workers had concluded that there was a toxin produced by the meningococcus and that this toxin was forced from the spinal canal into the blood stream. If this contained antitoxin it would get into the serum and the improvement would be due to that. Dr. Hitchens said about every eight hours during the severe part of the disease the spinal fluid was removed, and with the rapid filling up of the canal again there might be some effect.

Dr. J. F. KOLMER said that the paper simply dealt with the passage of antibody from the blood to the spinal fluid under normal conditions. In the experimental animal there was a large amount of antibody in the circulation. He could not agree with Dr. Bronfenbrenner's remarks on the spinal fluid. This is a secretion of the choroid plexus, at least during health. Even when the fluid is high, production continues and increases hydrocephalus. Evidence would prove that the fluid is produced continuously even after rise of pressure.

Vaccine Dosage.—Dr. JOSEPH HEAD of Philadelphia read this paper. He stated that in former times he

had been in the habit of giving large doses (as much as eleven hundred million) of mixed germs, and in 90 per cent. of cases he used to get good results. He had found, however, that some patients got undesirable symptoms with a dose as low as thirty thousand, and he had proved that the tolerance of some patients should be carefully ascertained. He thought it was better to keep the injection below the point of getting reactions. He now began with small doses, which, if borne well, were increased. Reactions were of various types, and sore throat and colds were often typical reactions. A dose just short of a reaction gave the best final result.

Dr. A. P. HITCHENS said it was necessary to have followed Dr. Head's work to appreciate the enormous amount of experience that he had brought to bear. Vaccine therapy was an instrument which had to be carefully studied in order to be used with confidence. Dr. Head had been the acknowledged leader in such work for many years. Dr. Hitchens had never used such small doses, but Dr. Head's experience made him think seriously of it.

Dr. J. A. KOLMER said if it was anyone else than Dr. Head he would raise a point of issue, but results could guide one here, rather than theory. Dr. Head's results were comparable with the use of tuberculin in tuberculosis. Large doses would produce rapid tissue destruction.

Dr. HEAD said that no one had been more surprised in finding out these facts than he had been himself. He had found that small doses had greater therapeutic effect. They apparently acted in a different way. Perhaps later he would have a theory to explain it.

Vaccine Treatment of Acne, with Special Reference to the Role of B. Coli.—Drs. A. STRICKLER and J. F. SCHAMBERG of Philadelphia presented this communication. Thousands of cases of this disease, it was stated, never came to the physician at all, it was only when suffering from severe forms with great disfigurement, that the patients sought advice. The lesions were chiefly in the sebacious oil glands which were very active at puberty. Puberty was, in fact, the primary predisposing cause. Anemia and constipation were found to be pretty constant accompaniments to acne. It often developed after typhoid fever, and intestinal intoxication evidently played a role in the etiology. In the treatment of acne by vaccines, it was found there was a complement fixation in 63 per cent. of cases from an antigen prepared from colon bacillus isolated from the intestinal tract of the patient. The fixation was higher when the antigen was from the patient. It was resolved to treat fifty cases with no other means than by vaccines prepared from an autogenous colon bacillus. These cases were controlled by cases treated by other methods,—vaccines from other germs, therapeutic and hygienic measures. The *B. coli* vaccines were found to possess better curative effects than any other mode of treatment.

Dr. J. F. SCHAMBERG said he would like to emphasize one or two points. Vaccines prepared from *B. acne* and from staphylococci had been used for many years, and in some cases had given brilliant results, in others they had failed to respond. The present experiments were tested out in a hospital clinic with a large number of patients. Sixty-three per cent. gave positive complement fixation to the strains of *B. coli* used for the vaccines. A large percentage of patients responded to a remarkable degree. It was likely that at puberty, when there was great developmental activity, that there was liability to infection from the intestinal tract. The activity of the intestinal organisms would then produce noxious effects. The complement fixation tests would incriminate especially the colon bacillus.

Dr. A. F. HITCHENS said it would be an important point to find out which strain of the *B. coli* was the important factor in producing the disease. Had any work been done on the sera in this respect?

Dr. A. STRICHLER said that, personally, now he welcomed an active case as he felt that a good deal could be done for the patient. Formerly he had rather dreaded to see such a patient come, as the results of treatment were so often disappointing.

Dr. F. J. SCHAMBERG said that no attempt had been made, as yet, to differentiate strains. The complement fixation test showed that there was great specificity to the *B. coli* from active cases.

Lipovaccines.—Lieut E. FENNEL, M. C., U. S. A., read this paper, the result of his work with Col. E. R. WHITMORE. The advantages of lipovaccines were stated:—Autolysis was reduced to a minimum, absorption was slower; the reaction was far less in sensitized persons. If oil were used as a vehicle, the entire amount could be given at one dose, and the reaction could be lessened. These latter points made this method a very desirable one for army procedures. Experiments were, therefore, begun on triple typhoid vaccines; triple dysentery; pneumococcus, and a meningococcus lipovaccine. It was found, after several series of tests, both on men and animals that these conclusions were justified: (1) the lipoid vehicle markedly reduces the toxicity of otherwise toxic strains; (2) vaccination against vacillary dysentery is entirely practicable; (3) a high-grade immunity is stimulated.

Dr. A. P. HITCHENS said that this plan for the preparation of bacterial vaccines was likely to be of immense value. If one could give the entire treatment in one day, the economic value was obvious. At Camp Beauregard he saw a detachment injected with meningitis lipovaccines; the reactions were very severe, as were also those from triple typhoid vaccine. The meningitis vaccine caused severe headache and insomnia. All the symptoms disappeared next day. He felt great confidence in the outcome of the work of Lieutenant Fennel.

Lieutenant FENNEL said there was a very severe reaction to the first vaccine they used. Since the improvement in technique the severity of the reaction was absent.

A Study of the Immunizing Properties of Bacterial Vaccines, Prepared After Various Methods.—Mr. M. W. PERRY, Dr. JOHN A. KOLMER and Miss S. LEVY of Philadelphia presented this communication. Both specific and nonspecific effects of bacterial vaccines were considered, the former being the production of specific antibodies, as agglutinins and lysins for the bacterial protein; the latter being the temperature, the leucocytic response, the mobilization of ferments, and other phenomena. The experiments were conducted to test the antibody response to each, as well as the nonspecific phenomena. Rabbits were used, and the dosage was calculated per body weight of the animal. The vaccines used were: (1) Autolysates; (2) heat killed vaccine; (3) Tricresol killed vaccine; (4) mercurophen killed vaccine; (5) living vaccine, freshly prepared; (6) alcohol killed sensitized vaccine. The conclusions were: I. All vaccines of *B. typhosus*, prepared in various ways, usually produced slight leucocytosis and slight rise of temperature, when injected subcutaneously into rabbits, in dosage comparable to those given to persons. These nonspecific reactions were most marked to alcohol killed sensitized vaccines. II. Agglutinin and complement fixing antibody production was most marked in response to injection of living and autolysed vaccines; next came in order: mercurophen killed, tricresol killed, heat killed, alcohol killed sensitized vaccines. III. While agglutination and complement fixation reactions showed some tendency towards specificity for their particular *B. typhosus* antigen, this specificity was not marked. IV. An antigen of *B. typhosus*, prepared by cultivating the organism in plain neutral broth for forty-eight hours, plus 0.1 per cent. commercial formalin, sterilized in a cold, dark place for four days, was the best for the macroscopic agglutination test. The various vaccines of *B. typhosus* were arranged as follows in order of antigenic sensitiveness: living and autolysed; mercurophen killed, tricresol killed; alcohol killed; and heat killed. The last was least antigenic.

Lieut. E. FENNEL asked Mr. Perry if he titrated the agglutinable culture by the standard set by Oxford. If so, the results would be of considerable value for the army work.

Dr. J. A. KOLMER said the culture was secured from a German University, sixteen years ago, and was standardized for agglutination work. It was highly susceptible to agglutination. It was not standardized by the Oxford method.

Dr. A. P. HITCHENS said that the number of prob-

lems in connection with vaccines had discouraged many in their use. There was no doubt, however, of their prophylactic efficiency, as in the case of typhoid. As to methods of killing bacteria, heat, and also tricresol were efficient. Possibly there would be some other method found to make a rapid production of antibodies. One could produce enormous amount of agglutinins, but when it came to treatment there were many variable factors. The problems, however, must be attacked, or they would never get anywhere.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Twelfth Annual Meeting Held at Albany, May 21, 22, and 23, 1918.

(*Continued from Vol. 93, page 968.*)

SECTION ON MEDICINE.

Etiology of Nephritis.—Dr. CHARLES JACK HUNT of Clifton Springs, presented a study of 342 cases of nephritis, 60 of which were studied by the methods outlined by the author. Of these 60, 47 were submitted to corrective and dietetic measures as advised and were subsequently restudied. The longest period of observation was two years and the shortest 26 days, following corrective measures. Correspondence with the home physicians of the group secured replies from the majority of them or from the patients, and in a few instances from both. Of the 23 cases uncorrected, 3 had died from nephritis, 16 reported advance of the disease or no improvement; 4 were not noted. Of 47 cases submitting to corrective measures, 9 had not been noted, 6 reported little or no change, and 30 much improved or apparently as good as ever. The latter quotation "much improved" appeared frequently enough to be used as a general statement. Culture study showed the streptococcus mucosus as the principal pathology. Other bacterial forms, in the order of frequency, were a diphtheroid organism, bacillus mitis, streptococcus candidus, streptococcus viridans, and pneumococcus, of 47 cases restudied. Thirty-six were reported prior to the presentation of the paper. Of these 30 were improved and had resumed normal modes of living. Of 23 cases not corrected, 19 were reported, 3 having died, and 16 showing advance of the disease.

Dr. CHARLES G. STOCKTON of Buffalo stated that he did not know just how carefully or how radically the essayist classified his cases of nephritis, but it did not seem to make very much difference because as these cases were seen they were either primarily from infection alone or from a mixture of infection and metabolic defect, and in the management of all cases it was up to the practitioner to get rid of infection and correct the metabolic defect.

The Diagnosis of Nephritis.—Dr. ALBERT A. EPSTEIN of New York City stated that on the basis of our present knowledge a diagnosis of nephritis was confronted with two distinct problems. First, the determination of the pathological processes involved; and secondly, the evaluation of the kidney function. An accurate diagnosis of nephritis therefore entailed a circumspect and complete analysis of all the morbid conditions present; the probable etiological factors involved, the disturbance in functions and other disorders which arose therefrom. To regard nephritis as an independent condition was a fallacy. The existence of acute nephritis, excepting, of course, the chemical nephritides and the types occurring in pregnancy, pointed usually to an antecedent infection. But renal disorders with urinary signs frequently occurred in febrile diseases of all kinds, which did not represent true nephritis, and thus the problem of differentiation often arose. In the matter of chronic nephritis, the problem of etiology as a source of information was much more difficult. No doubt in a certain number of cases a history of acute nephritis or recurring infections might be elicited, and a diagnosis made, but the connection between the two was not always clear. Chronic poisoning, tuberculosis, and syphilis might be contributory factors and required consideration in the diagnosis. There was one difficulty that presented itself from the clinical side in investigating the question of the connection between acute, subacute, and chronic nephritis, and that was, that acute and subacute nephritis might appear without the development of symptoms other than the urinary signs during any infection. Furthermore, in the chronic nephropathies it was the possibility and the frequent occurrence of compensatory processes that created difficulty in arriving at a diagnosis. This was particularly true when the question was viewed from the functional standpoint. In the application of functional tests in the diagnosis of nephritis, two points should be borne in mind, namely, that a number of the different functional tests should be made and that they should be repeated in each and every case. As a prerequisite to the proper interpretation of the results obtained by functional tests, extrarenal factors which were capable of modifying or influencing them should be definitely excluded.

Pathology of Nephritis.—Dr. HERBERT U. WILLIAMS of Buffalo stated that the pathology of nephritis was in a rather confused state. Efforts were now being made to connect the diseased conditions that were found and their structures with the causes of these diseased conditions on the one hand, and, on the other hand, to connect these diseased conditions with changes in substance. The chronic form of glomerular nephritis was by many held to be identical with chronic interstitial nephritis. There was great difficulty in separating these from the arteriosclerotic kidney, which resembled it closely in many cases. As a matter of fact, it was exceedingly difficult to draw a hard and fast line between the different types of nephritis not only clinically but anatomically. To be perfectly safe one should call every case of nephritis diffuse pretty nearly always. In recent years there was a tendency to attribute the granular contracted kidney to earlier attacks of glomerular nephritis. The formation of new fibrous tissue in a kidney leading to chronic interstitial nephritis seemed more and more to be attributed to the formation of fibrous tissue in response to a loss of substance rather than as a result of irritation. We were not able at the present time to connect the pathological anatomy very closely with changes in function. The classification of nephritis into glomerular, tubular, the late glomerular, the chronic interstitial and the arteriosclerotic was quite generally adopted, and the most interesting point was that of determining the relation of focal infection to glomerular nephritis by finding it was actually caused by bacterial emboli and not entirely through the agency of toxins. Finally, a number of authorities were of the opinion that granular contracted kidney was closely connected with the arteriosclerotic kidney, and hard to tell from the latter. He quoted Mallory as saying that a patient who recovered from his toxemia and from his acute attack might suffer almost equally from the reparative changes which occurred in the kidney.

Treatment of Chronic Nephritis.—Dr. JOHN R. WILLIAMS of Rochester stated that the most common type of kidney disease seen was that of the middle aged adult who complained of some or all of the following symptoms: tiring easily, occipital headache, shortness of breath, high blood pressure, and little or no physical evidence of kidney disturbance except frequent and excessive urination at night. The blood was commonly low in urea, creatinin and phosphates, the blood sugar might be high. Edema was usually not present. Death was rarely caused by uremia, rather by cerebral hemorrhage or failing heart. This was the well known cardiorenal type. The next most frequently seen type was the middle aged or even younger adult who might have pronounced eye symptoms, edema, low or high blood pressure, very little kidney reserve, urine loaded with albumin and casts, blood containing two or three times the normal amount of urine, a high blood sugar, increased blood creatinin and phosphate retention. Death was commonly preceded by convulsions and the phenomena of uremia. The last and much less frequently seen type was that of the young or middle aged adult who complained chiefly of edema, weakness, pallor, and not albuminuria, blood urea, and sugar would be found low, perhaps lower than normal. The cholesterin content of the blood might be greatly increased; edema might or might not be influenced by the salt content of the diet. The functional capacity of the kidney was fairly normal to the usual clinical tests. The patient suffered very little headache or from other symptoms commonly seen in kidney failure. The first

and one of the most important steps in the treatment of any type of kidney disease was to rid the body of all focal infections. The matter of investigating suspicious tonsils, crowned teeth and diseased prostates could not be overemphasized. In the treatment of the cardiorenal type if one had made sure that the patient was not harboring infection, the most important measure was rest, both mental and physical. If the patient had a good functional kidney capacity he should be put on a low general simple diet. All chemical irritants in the way of spices, mineral acids, alcohol, and foods containing quantities of animal extractions, bacteria and bacterial products should be excluded from the diet. The patient should be allowed to have some meat and eggs. The second clinical type demanded quite a different therapeutic regime than did the cardiorenal type. In severe cases the best internal measure was to put the patient at rest and give him a limited milk and fluid diet as first suggested by Karell. The author prescribed for the first few days one quart of milk, one pint of water, and either another pint of lime water or some salt of calcium, either the carbonate or lactate in half gram doses several times daily. The tincture of iron or ferrous carbonate in liberal doses was also given. In the third and last common type of chronic kidney disease the diet should be more liberal and should contain a large amount of protein. As many as 8 to 10 ounces of meat may be very helpful. Fluids should be restricted. If there was evidence of salt retention its use should be curtailed, otherwise it might be sparingly permitted.

The Clinical Significance of Congenital Anomalies of the Kidney and Ureter.—Drs. JOSEPH R. LOSEE and HENRY G. BUGBEE of New York City described the development of the organs of the upper urinary tract in the human and traced their relationship to various anomalies. Among the 22 cases of anomalies reported by the authors were one case of single kidney, one case of calculus obstruction of the ureter, three cases of horseshoe kidney, one case of fused kidney, one case of duplication of the kidney pelvis, and one case of incomplete duplication of the right kidney pelvis, and colon bacillus infection. Cases of anomalies of position of the kidney were reported. In one case the right kidney was low and had not rotated. In another case the kidney had migrated to the opposite side. Cases of anomalies of the ureters were reported. The surgical treatment consisted in relieving pressure, placing the kidneys in their normal position, removing any obstruction to renal drainage, removing the diseased kidney when destroyed beyond repair if the opposite kidney was able to carry on its function. If it was not possible to make a positive diagnosis of the extent of the lesion before operation, operation should include exploration of both kidneys.

Congenital Hydronephrosis.—Dr. JOHN T. GERAGHTY of Baltimore said there was a group of cases which had been puzzling practitioners for years. He referred principally to so-called primary hydronephrosis. The term primary had been used in these cases because there had been no etiologic factor that could be easily determined as the cause of this kind of hydronephrosis. Many of the cases had been considered congenital and physicians had been of the opinion until recently that most of the cases in which we could actually determine any cause for the extreme process were congenital. Recent studies, however, had shown that we were wrong. There were two types of aberrant vessels which were most apt to cause hydronephrosis. In one instance the vessels arose from the aorta behind the ureter and entered into the lower surface of the kidney at its lower pole. In the second case the vessel arose from the vena cava, crossed the anterior surface of the ureter and entered the posterior surface of the kidney. These two conditions gave rise to a condition which produced obstruction. In a series of 15 cases, in only two was he able to find aberrant vessels as the cause of hydronephrosis. The vessel crossed at the uretero-pelvic junction, but further studies showed that this possibly was merely a coincidence. Marked kinking of the ureter or pressure of a vessel crossing over the ureter was not sufficient to produce hydronephrosis. However, in some cases of unusual mobility where the kidney dropped down over the aberrant vessel, that vessel might play an important role. Even though aberrant vessels were found it was well to bear in mind that might not be the primary cause. There might be other factors that played a casual role. Renal mobility was put forward as a common cause and most urologists gave it first place. In the author's experience it had been the most common cause of hydronephrosis. In the series of 15 cases, in 10 nephrectomy was performed. He had the tissues to study and sufficient of the ureter removed to study the cause of the hydronephrosis. In three cases plastic procedures were carried out, and in two cases aberrant vessels were divided. In a study of these 10 cases, with one exception, there was found at the uretero-pelvic juncture, or in the upper part of the ureter, an inflammatory infiltrate. Most of these cases were considered congenital beforehand, but sections through the ureter in studying the pelvis showed varying amounts of infiltration. Hunner, he said, had called attention to pyogenic infiltrations in the lower ureter and he had found them common in women in the region of the broad ligament. These infiltrations of the ureter caused dilatation of the ureter and pelvis which were frequently seen and which Dr. Braasch had considered an inflammatory dilatation. It represented a narrowing rather than a definite stricture, with obstruction rather than dilatation of the process in the kidney and ureter itself. Inflammation did not give rise to dilatation but rather a contraction, The diagnosis of hydronephrosis was not difficult. With the methods now at our command it was possible to make a diagnosis of hydronephrosis by pyelography and to demonstrate the exact point where the hydronephrosis began. In most cases the kidney was destroyed when the patient was first seen. At any rate, it was either badly infected or the kidney was destroyed. Nephrectomy was the proper treatment.

The Prognosis of Surgical Renal Tuberculosis.—Dr. WILLIAM F. BRAASCH of Rochester, Minnesota, stated that in considering nephrectomy for early unilateral tuberculosis the factors to be considered were age, sex, coincident tuberculosis in other organs or tissues, the duration of the symptoms, the severity of the infection of the urinary tract, and whether there was or was not bilateral involvement. The statistics of the Mayo Clinic were given. Age was a factor of considerable importance in the diagnosis. The incidence of renal tuberculosis occurred from 25 to 40 years of age. Beyond the age of 60 or 70 years renal tuberculosis was of rare occurrence. They had operated on three cases up to ten years of age. In the meantime they had seen 40 cases in children up to ten years, not operated, because renal tuberculosis in children was very frequently a part of a general tuberculosis. The children on whom they had operated were seen early and tuberculosis was not found present elsewhere. It was not customary to operate on children at once because the majority of cases sooner or later showed other evidences of tuberculosis and their resisting power would be low. As to the time to operate, it was between 25 to 40 years of age, as the mortality increased steadily with the advance in years. The greatest mortality occurred in patients from 50 to 70 years of age. The lowest mortality from operative intervention occurred in patients from 15 to 20. The influence of complications on the mortality was important. The majority of cases had evidences of tuberculosis in other organs of the body. In only 5 per cent. was the renal tuberculosis complicated by acute pulmonary tuberculosis. Ninety per cent. of the cases of renal tuberculosis had evidences of an old pulmonary tuberculosis. Of the cases of pulmonary tuberculosis complicated by renal tuberculosis, 21 in number, 40 per cent. died, which was twice as high as the mortality from renal tuberculosis uncomplicated by pulmonary tuberculosis. However, if they had not operated on patients with both pulmonary and renal tuberculosis they all would have died. It was inconceivable to think of a spontaneous cure of renal and pulmonary tuberculosis. The removal of the epididymis when enlarged or markedly inflamed, with secondary infection, was unquestionably advisable following nephrectomy. It was their experience at the Mayo Clinic that the caseating kidney offered a much better prognosis and a much less mortality than miliary tuberculosis. In miliary tuberculosis scattered over the

surface of the kidney the mortality was higher than where caseation was present. It was almost twice as high.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting Held March 27.

Hemianopsia.—Dr. Francis X. Dercum presented this patient. The case occurred in a man, 67 years old, who came under treatment for a diverticulum of the esophagus. While under observation he became aware rather suddenly of loss of vision in the right visual field of each eye, without other accompanying symptoms. The blood-pressure was high and the superficial vessels were tortuous and resistant. The Wassermann reaction was negative and there were no visible changes in the fundus oculi. Under treatment with potassium iodide gradual improvement was taking place in vision. The conclusion was reached that there had been a temporary occlusion of the blood-supply to the cuneus on the left side of the brain.

Tremor Following Wounds Inflicted in the Russo-Japanese War.—Dr. Dercum also presented this patient, a married tailor, 36 years old, who had received multiple injuries while serving as a soldier in the Russian army in 1905. Since that time he has exhibited tremor in different parts of his body, in addition to a subjective sense of tremor at times without objective manifestation.

Tumor of the Brain.—Dr. Alfred Gordon presented this case. The patient was a man, 29 years old, who illustrated, among other things, the extraordinary tolerance of the brain to surgical operation. Some 3 or 4 years before he had suffered from severe headache, with vomiting and attacks of fainting. On one occasion he fell on the street and was taken to a hospital, where a trephine opening was made in the right parietal region. No lesion was discovered, but great relief from the previous symptoms followed. However, left hemiplegia developed, with convulsions confined to the left upper extremity, sometimes with, other times without, loss of consciousness. In the course of time a considerable hernia cerebri developed and headache returned. At this time a Wassermann reaction yielded a negative response, and papilledema was found in each eye. In the hope of affording relief a segment of skull was removed from the left parietal region, again with relief from the headache. However, transitory weakness on the right side of the body, with temporary aphasia, appeared, while bilateral optic atrophy developed together with paralysis of the left external rectus and the right internal rectus and there was a tendency to fall toward the right side. With recurrence of the headache, and having in mind the possibility of a cerebellar lesion, a subtentorial occipital operation was performed and again with temporary relief from the distressing symptoms. Finally the headache again became intolerable and hernia cerebri becoming pronounced on the right side the opening on that side of the skull was enlarged. The patient still exhibits weakness on the left side of the body with occasional convulsive seizures confined to the left upper extremity, preservation of tactile sensibility in the left hand, but with astereognosis and loss of sense of position in this member, and optic atrophy; but otherwise he is in good health. The belief was expressed that the underlying condition is a slowly developing new growth in the right frontoparietal region.

Intrauterine Poliomyelitis (?).—Dr. Charles S. Potts presented this case, which occurred in a man, 54 years old, who from birth exhibited muscular and bony deficiencies and deformities in different parts of the body with electrical changes, and whose origin was attributed to an attack of poliomyelitis during intrauterine existence or perhaps to developmental aberrations.

Chloroform Deaths.—Auvray in 3500 surgical operations performed during the present war, reports 3 anesthetic deaths. After the last of these he changed to ether, the inconveniences of which are negligible in comparison with the stigma of causing death.—*La Presse Médicale.*

Miscellany.

The Society for Legal Medicine and Criminology of Bahia.—The study of medical jurisprudence is evidently a favorite one in Bahia. A course of legal medicine is given at the University there, while the State conducts a School for Police and the Nina Rodrigues Medicolegal Institute publishes official archives at the State's expense. These several bodies are closely affiliated under central control. Up to 1915 there had been defended at the University of Bahia 121 theses on medicolegal subjects, the oldest going back to 1839. At first but few were published—twenty up to 1859, an annual average of one. There was then for some reason a complete interruption until 1884. During the six years, 1884-1889, inclusive, twenty theses appeared. They then became scattered until 1897, since which year a good average has been maintained. Over half of the theses have appeared since 1900.

In reviewing the titles we are impressed by the small rôle played by insanity, while criminality is well represented. Personal identity, finger prints, tattoo marks, and anthropometry, stigmata of degeneration, the criminal instinct, behavior of prisoners, insanity, and crime are considered equally with criminal abortion, rape, criminal poisoning and other more familiar themes. In other words, the professional criminal as well as the incidental or amateur offender receives full consideration, something which the older forensic medicine largely ignored.

Prophylaxis of Venereal Disease.—Sabouraud, in an article abstracted in the *Journal de médecine et de chirurgie pratiques* for March 10, laments that the efficacious methods of venereal prophylaxis in the American Army and Navy which were originally devised by the French have not until recently been utilized by the latter. These diseases continue to increase in soldiers and civilians alike. The American soldier is fully enlightened and threatened with punishment for certain infractions and actually punished for disobedience. After coitus he must at once present himself at a prophylactic station. This resource, only recently introduced in France, has been operative in the United States Army since 1911-12. At the outset the soldier was punished only when he failed to report for prophylaxis at all and later he was punished when he did not appear with the required punctuality. Otherwise stated, he is now punished for allowing himself to become infected. Contamination is evidence of breach of discipline. In addition there are regular days of inspection in the barracks and a soldier found contaminated is subjected to a sort of court martial. He may have his pay suspended for two or three months.

The general result of prophylaxis is the contamination of only one-half of one per cent. of those exposed. Since the establishment of stations in Bordeaux there has been but one contamination for 1,000 exposures. The alternative is, perhaps, as many as 15 contaminations for every 100 men exposed. Good results are seen wherever the prophylaxis is used and the latter was devised many years ago in the Pasteur Institute by Metchnikoff and Roux.

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Original Articles.

THE VALUE OF DICHLORAMINE-T CHLORCOSANE SOLUTION (DAKIN-DUNHAM) IN THE TREATMENT OF INFECTIONS OF THE UPPER AIR PASSAGES.

By D BRYSON DELAVAN, M.D.,

NEW YORK.

The present war has brought a distinct advance in our knowledge of surgical infections and of the means for their prevention and relief. Of recent measures none has deserved greater attention than the so-called Dakin method for the disinfection of wounds. The advantages of this have been widely tested and convincingly proved. Of its value there can be no doubt.

The basis of the solution by means of which the Dakin treatment is carried out is a greenish-white crystalline substance possessing a sweetish, rather pungent, chlorous odor, stable in the solid state, especially when kept in the dark. It is known as dichloramine-T (toluene-p-sulphon-dichloramine). It has an intense germicidal action corresponding with its high content of chlorine. It is difficult, however, to find satisfactory solvents for it which will yield stable solutions. The experiments carried on by Dr. Dakin, in company with Dr. Edward K. Dunham of New York,* have proved that the best medium thus far found by them is an oil obtained by the chlorinization of paraffin wax, to which has been given the name "chlorcosane." Other solvents which they have experimented with are a mixture of eucalyptol and paraffin and one made by the prolonged chlorination of eucalyptol. Chlorcosane has seemed decidedly preferable. Dakin and Dunham thus describe the way in which the antiseptic action of dichloramine-T in the solution is exerted: "It is well recognized that antiseptics incorporated with or dissolved in oily substances usually possess little if any antiseptic activity, because intimate contact with the infected matter is hindered by the oil. When, however, such oil solutions of dichloramine-T as will be described are brought in contact with aqueous media, the partition coefficient between the oil and the water is such that a certain amount of the dichloramine-T passes into the water and there exerts its germicidal action. The amount of dichloramine-T thus passing from the oil is enhanced by the presence in the aqueous medium of substances capable of taking up chlorine, so that the oil solution serves as a store for the antiseptics, which is drawn upon to maintain the germicidal activity of the aqueous medium with which it is in contact. Thus the amount of antiseptic leaving the oil solution is, to a certain extent, dependent upon the rate at which it is used up in the aqueous medium."

The dichloramine-T oil solution may be sprayed upon wound surfaces or poured into accessible parts of deep wounds. It yields a moderate amount of the antiseptic to watery media, such as secretions from wounds or mucous membranes. It is suitable for cases requiring prolonged antiseptic treatment and for first dressings of wounds which do not require irrigation. The application of the oil is extremely simple and in the treatment of wounds it ordinarily need not be renewed more than once in twenty-four hours.

The highly active germicidal qualities of dichloramine-T having been demonstrated in general, it becomes a matter of great interest to study its value in the upper air passages, regions especially liable to infection, prone to harbor germs of dangerous character, abounding in recesses difficult of access by the ordinary means of application, and often becoming foci of infection threatening extreme danger.

Of the various parts of this region the upper half of the nasal cavities, the tonsils, and the vault of the pharynx seem the most susceptible to infection and the hardest to reach. They may be invaded by a wide variety of harmful microorganisms, including the staphylococcus, the streptococcus, the pneumococcus, the meningococcus, the bacilli of diphtheria, and, in fact, almost any of the active infections, not excepting those of measles, scarlet fever, and grippe. The successful disinfection of these parts therefore becomes a matter of wide interest and serious importance.

Applied for this purpose in the upper air passages, the dichloramine-T may be used with advantage under three different conditions: (1) To prevent the development of newly acquired infection; (2) to overcome the acute results of infection; and (3) to abolish the bacilli persisting in carriers.

Thus, it has been found effective in the prevention of cerebrospinal meningitis and of measles through its early aplication in subjects who have been exposed to those diseases, and in other analogous situations it has proved a valuable safeguard.

Its value in acute infectious conditions of the tonsil has been tested by the writer and others during the past winter. There are many like conditions of the nasal cavity in which its use has already been found advantageous.

A third and very interesting situation promising

*A Handbook of Antiseptics by Henry Drysdale Dunham and Edward Kellogg Dunham, New York: The Macmillan Co., 1918.

important results is the disinfection of co-called "carriers." Recent investigations in the medical service of the U. S. Government and elsewhere have proved that carriers of infection are commonly met with, that their presence is associated with great danger to others, and that the means heretofore used to disinfect them have often proved unsatisfactory. In the Dakin-Dunham solution we have a germicide which has already proved itself superior to those in ordinary use in that its disinfectant action is more powerful, its activity more profound, and its local effect less irritating. The best results to be obtained from it, however, have not always been secured. In order to insure them, the anatomy of the tonsil and of the nasal cavities must be clearly understood and the inaccessibility of their parts recognized.

The value of the method must, of course, depend in an important degree upon the thoroughness with which the disinfectant is applied to the ultimate recesses in which the germs are lodged.* Brushing the surface of the tonsil or spraying the lower section of the nasal cavity with the solution cannot possibly be effective as long as the remote parts are not reached. The reason why the attempted disinfection of infected throats and nasal cavities has sometimes failed is because this all-important principle has not been recognized. The writer has been experimenting for some time past with various methods calculated to secure the intimate contact of the oil solution with foci of infection in the upper air passages too remote to be reached by the ordinary methods. He has adopted a procedure based upon the simplest mechanical principle, which has yielded the best practical results thus far obtained. Its neglect is a frequent cause of disappointment. *This principle consists in the most complete possible exposure of the parts, preliminary to the application of the oil.* As far as can be learned, this suggestion heretofore has not been advanced or carried out. In the case of the tonsil, it is the crypts which harbor the most persistent of the offending organisms. It is absolutely essential therefore that these crypts should be disinfected to their lowest depths. In the nose the complicated structure of the superior half of the nasal cavity necessitates that it receive especial attention.

For example, to secure the thorough treatment of the tonsil it should first be cleansed with some mild alkaline or salt solution by means of a spray carried into the crypts. Immediately following this, a spray of adrenalin or other similar astringent should be carefully applied for the purpose of contracting the tonsil and thus exposing its recesses. When this has taken effect, the crypts should again be sprayed with the cleansing solution to rid them of all obstructing secretion. Finally the dichloramine-T solution, driven in the form of a spray, must be applied to all crypts and pockets of the tonsil and caused to penetrate to their lowest depths. This is usually not difficult of accomplishment, as the force of the air current from the spray tube causes the crypt entrances to open widely and the crypts themselves to balloon out until they are distended to their capacity, in which position the oil can enter with complete thoroughness. This course of action is absolutely necessary, since attention alone to the surface of a thoroughly infected tonsil can not succeed.

What is true of the tonsil is even more positively the case with the upper nasal region. The parts lying above the inferior margin of the middle turbinated body are not often freely accessible to any spray. Under the influence of infection they become still less so, by reason of the turgescence and swelling of the soft parts. To be effective, the spray must be driven directly into the affected recesses, for should it impinge upon any projecting angle in its course the current will at once be destroyed and will not enter the parts beyond. In all cases where disinfection of the upper nasal cavity is required, the following practice is recommended:

First cleanse the mucous surfaces within reach with some simple alkaline spray. Follow this with a spray of adrenalin, the adrenalin spray to be repeated until the upper parts have been successively opened and the whole way to the roof of the nasal cavity is clear. Then, and not until then, and guided by a clear demonstration of the parts by a good light and a nasal speculum, the dichloramine-T spray can be thrown to the remote upper parts which most stand in need of it, and the disinfection of the region made complete. While it may be said that this method, thorough as it is for the nose, does not reach the nasal sinuses, it nevertheless has proved more practically effective than any other method of which we know.

The disinfection of the vault of the pharynx may be secured by first applying the adrenalin to the soft palate and the lateral walls of the pharynx, thus facilitating the complete introduction of the spray.

Used in the strength of 2 per cent., the solution of the dichloramine-T is seldom irritating. In the case of stronger solutions it may become so, producing a sensation of smarting or burning. This is easily obviated by reducing the percentage of dichloramine-T of the solution to as low as 1 or even ½ per cent. Otherwise than this, the oil is well tolerated and free from any injurious effect. For its application in the form of spray, an atomizer must be used which will throw the spray *in all directions.* It should be made of some medium which will not be acted upon by the chlorine, and the compressed air should be supplied from a good condenser.

Theoretically, the most complete possible exposure of the affected areas should permit the best contact of the disinfectant. Practically, this is found to be true, as proved by the speedy success of the treatment, two or three applications often sufficing to sterilize the parts. Where success is delayed, there will usually be found enlargements of the tonsils or of the adenoids, or marked obstruction of the nose. In such cases, after a reasonable number of local treatments have been given without avail, the removal of the offending lymphoid tissue or suitable attention to the nasal cavity must be considered.

Dr. Stanton A. Friedberg, in his excellent theses (Trans. Am. Laryngological Ass'n, 1917 and 1918), has ably set forth the value of the operative treatment in diphtheria carriers, and concludes with the

*Gordon and Flack, *Brit. Med. Jour.*, Nov. 18, 1916.

statement: "When the bacilli persist in spite of any local treatment beyond a period of three to four weeks, the removal of tonsils and adenoids is the most effective treatment and the most uniformly successful that has yet been proposed." The same treatment has been found true in the case of meningococcus carriers.

In cases where no obstruction exists or where for any reason the immediate removal of adenoid enlargements is not advisable, the dichloramine-T chlorcosane solution seems to offer the best hope of a speedy cure. If, as is the fact, complete disinfection can be accomplished in uncomplicated cases with as few as three, two, or even one treatment, the superiority of the method over others is beyond question.

As to the relative merit of the application of the oil solution as compared with the inhalation method, the results seem to show that the former is more prompt in its action and that in uncomplicated cases the number of treatments required is far less. Again, an important advantage is the simplicity of the outfit. An inhalation room could hardly be established at any but a hospital of some importance and at considerable expense, while its apparatus is sufficiently complicated to require expert care. My desire is to offer a method so simple in itself as to be readily carried out by the average practitioner, with the aid of apparatus inexpensive, durable, and clean, very compact of form and light of weight, and therefore conveniently available for use under all circumstances of medical practice, whether at home, in the hands of the practitioner and the health officer, or in the various branches of hospital and field service of the army and the navy. All that is necessary for this is:

1. The recognition of the principle upon which success absolutely depends, namely, that in order to carry the dichloramine-T chlorcosane solution to the chief foci of infection these foci must first be thoroughly exposed, as described above.

2. The application of the dichloramine-T solution by means of a properly constructed spray atomizer, the air current being supplied if possible from an air condenser and not by means of an india-rubber handball.

3. The devotion of time and painstaking care to the effective carrying out of the treatment.

I have personally used this method sufficiently to believe that in it we have a means for overcoming infections of the upper air passages which is more simple, safe, prompt, and successful than any hitherto known.

40 East Forty-First Street.

SHELL SHOCK AND OTHER WAR NEUROSES.*

By EDWARD LIVINGSTON HUNT, M.D.,

NEW YORK.

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THE subject of this talk is shell shock and other war neuroses. The term shell shock has been used to so great an extent that I think you will form a much better conception of the condition if you classify all of these war conditions under the one heading of war neuroses. Shell shock, then, is a war neurosis. *A war neurosis is a nervous disorder, without necessarily a physical disease or injury, the cause of which is modern warfare.* An other definition of it is hysteria, occurring in a person free from hereditary or personal psychoneurotic antecedents, but with a mind more responsive to psychical stimulus than the normal.

There are many types of symptoms—among them are hysteria, tremors, paralyses, confusion, stupor, temporary blindness, temporary deafness, temporary loss of speech, hallucinations, nightmares, states of anxiety, gait disturbances, headaches, vertigo, insomnia, and sweat disturbances.

To understand shell shock one must form a conception of a distinct disease, just as one would understand pneumonia, typhoid fever, or a broken leg. It is a disease which is, however, nervous in origin, nervous in symptoms, and nervous in its general course. Bear in mind that these nervous conditions are just as much complete diseases as are the medical and surgical conditions. Shell shock, therefore, must be regarded as a condition which has a history, a cause, a period of incubation, a course, a set of symptoms, a prognosis, and treatment. I think if you will start with this conception that you will find the study of shell shock simpler, easier, and more interesting.

The history of shell shock is as old as that of some of the most ancient diseases. When this war began a great many of the English and French writers began to describe a new condition and to give a new name to the condition. As time advanced and the war progressed men's minds began to crystallize and settle down so that in a very short time the medical men who had described this new condition recanted what they had said and realized that in giving the name shell shock to a certain set of symptoms, they were simply dressing an old idea in new words. The symptoms of shell shock are not limited to the present war, nor to the Civil War, nor to the Revolution. In the history of Ancient Rome and Greece you will find that in the days of Xenophon and Cæsar the soldiers engaged in battle complained of the same symptoms as those which are to-day described under the name of shell shock. Again, if you will reflect that shell shock is the result of unusual conditions, of violence, and of noise, you will realize that the same symptoms occur in our modern functional conditions. There were many of these cases in the Civil War, but at that time they were not classified as neurotic or as functional conditions, but rather were they called organic disorders; it was thought at that time that these conditions were produced by the impact of the air from the passing shell against the body. In other words, it was thought that impact with the concussion produced by a large moving force of air was able and did cause organic changes in the brain, the spinal cord, and the nervous system. The result of such conditions was, in the opinion of the medical mind of that day, actual paralyses, real choreas, and organic tics.

It was not until the war between Japan and Russia that a conception of shell shock and war neuroses became manifest. The present war has magnified the cases, has enlarged this idea, and

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now it is recognized that there are an innumerable number of functional conditions which formerly were thought to be organic.

The next point which I wish to bring out is the *similarity which the war neuroses present to the hysterias and neurasthenias of civilian life.* The two conditions are practically alike. The man on the street will react in the same way as the man on the battlefield. The woman caught in the elevator shaft, and the engineer who goes through the wreckage of his train, whether these two be physically hurt or not, will present the same psychic condition as the soldier in the trench.

Several years ago Dr. Pearce Bailey wrote a book on accident and injury. The book came out long before the present war, yet, if you will glance over the pages and read some of his neuroses and hysterias you will find a very strong similarity to the cases of the present day which are described as shell shock.

The fact that this war differs so from all that have preceded it both in magnitude and type, in methods of warfare, and in organization, makes it inevitable that it should produce what at first was thought to be a new medical condition. This accounts for the appearance of the term shell shock. The title is catchy. It arrests and holds the attention and this accounts for its permanence. Although I prefer to use the word war neuroses, shell shock has caught the public fancy, and shell shock has come to stay. In our time there will be many cases. Bear in mind that it will not be a waste of your time to understand the subject of war neuroses because not only will you see many cases in this war, but you will see many cases after the war. The American people are especially a neurotic race. They are, in my opinion, becoming more and more so. We live in an intensely artificial way and in the next ten years we shall probably be more artificial, so that neuroses and hysterias will be more frequent. You will see many, both during and after the war.

The first question which will suggest itself to your mind is: *why should there be so large a proportion of shell shock cases as occur in the present war?* The reasons for this are numerous. In the first place, the war is on a larger scale than any preceding it; in the second place, more is at stake than in any previous contest; in the third place, there are more prolonged offensives and battles. Again, the human race is more neurotic than it has ever been. One must recognize at the start that the armies of the world show an enormous percentage of constitutional inferiors, of neurasthenics, of psychopaths, and of men with markedly neurotic temperaments. Here in New York there is a very large population which is Hebraic in race, and as you know, there is no more marked attribute to the Hebrew than a neurotic temperament. Therefore, the present emergency which this country finds itself in is one which is the result of two important factors which go to produce the war neuroses, namely, the enlarged battlefield and the suitable soil in which the neurosis may develop. It is an emergency which presents the two important factors of heredity and environment; factors both of which are admirably suited to bring about the war neuroses of the present day.

Not only do there exist these two important factors, but also there occur numerous subordinate causes, all of which tend to accentuate the two principal ones. I want to call your attention to some of these subordinate factors because of the importance which they occupy in bringing about the condition. Never before in the history of the world have soldiers been subjected to such horrible sights, never before have such large numbers been destroyed, mutilated, and never before have such unusual and terrible means of warfare been waged. The modern machine gun, underground trench life, the presence of vermin and rats, are all factors which have tended to make the environment more unusual, more abnormal, and one which would more than ever destroy the normal temperament as well as the neurotic. In this war the length of the battles, extending, as some of them do for several weeks, has rendered it difficult for soldiers to obtain regular rest, has rendered it difficult for them to escape great fatigue, and lowered vitality. Therefore many factors have upset the individual.

I am trying to convey to you the fact that the present war is waged under different conditions than any preceding, and that the soldiers engaged in it have been obliged to lead more unusual and abnormal lives. That, in addition to this, a large number of soldiers engaged in the present war are more highly civilized and therefore more highly neurotic than soldiers of preceding generations; and, again, trauma received by the soldier, whether it be physical or mental, is greater and more damaging than any such trauma received in preceding wars. Incidentally, these are reasons why such great care should be exercised in eliminating the conscripted men.

If possible, the number of war neuroses should be held down to as small a number as possible. Therefore, the neurologist and psychiatrist must play an important part as eliminants before the final army is chosen.

The great difference which occurs between the war neuroses and the neuroses of the civilian is that the civilian has periods in which he can sleep, periods in which he can rest, periods in which he can have those about him whom he loves, to divert his mind and help him to get control of his nervous system. The soldier in the modern war has none of these aids. He is continuously under fire and he is continuously among those who are subject to the same environment and the same shocks.

I listened, only a short time ago, to a very interesting analysis of the figures of the conscripted men. from a neurological point of view. Lieutenant-Colonel Bailey of the National Army, gave us a very interesting lecture at the Academy of Medicine, in which he collected the statistics of the men in the army. It was very surprising to see how few had organic nervous diseases, how low down in the list ranked alcohol and addiction, how small were the figures for syphilitic infections, and how enormously great were the statistics of constitutional inferiors, psychopaths, and mild dementia præcox cases. I cannot remember exactly his figures, but it seems to me that the percentage of constitutional inferiors was something like 20. With so large a

percentage as this and with such tremendous shell fire as we read of, how could it be otherwise than that traumatic functional conditions should develop and predominate?

Causes.—The causes of the war neuroses can be classified under two major headings: (1) Mechanical, (2) Psychological.

(1) The mechanical heading does not necessarily mean a blow to the individual, because war neuroses occur in many cases in which the soldier is not wounded. It means the jolt—that is to say, the shock which the individual received from the noise, from unusual conditions, or from the destruction of everything about him. Secondly, there is the fatigue. Very few cases develop that have not previously been tired out, exhausted, cases in which the general system was considerably below par. As predisposing causes which can be placed under the heading of mechanical, I am going to place the excessive use of alcohol, nicotine, and the infectious diseases. The excessive use of alcohol and tobacco serves to lower the vitality and therefore acts as a predisposing cause. It superinduces fatigue; it renders the nervous system less liable to withstand unusual conditions and shocks; when the jolt comes the patient develops a neurosis.

(2) The psychological. The four headings under which I have subdivided the psychological causes of the war neuroses are: (1) acute situations, (2) suggestions made by the physician, (3) the environment, (4) personal problems. The acute situations which may develop and precipitate a neurosis are such conditions as bad news from home, death of wife or mother, and distressing letters from sweethearts.

There is considerable responsibility to be assumed by the physician who suggests removing a man from the front line and sending him to the rear. Even the doctor's tone and manner of handling a soldier at the front is fraught with responsibility.

The environment is probably the most important of the three factors. The presence of vermin, wet clothes, fatigue, hunger, and horrible sights, all tend to disturb a man's equilibrium and act as predisposing causes of bringing about war neuroses.

Symptoms develop as to time and place very considerably. Apparently this is dependent upon the personality of the individual and the extent to which he is neurotic. Some cases may develop in the camp before the soldier has started for the front, others may develop back of the line, and finally many develop at the front. The usual time is just before the attack and practically very few develop during hostilities. The onset may be gradual or sudden. When it is gradual, and this is the most frequent method, it is possible to foresee the approach of the attack. The patient becomes restless, somewhat morose, and does not do his work in the usual way. His increased nervousness may continue for several days.

In order to understand the symptoms of any condition, whether it be medical or neurological, organic or functional, we must have a distinct classification under one or two headings, and then enumerate the symptoms in the order of their importance under each heading. I should classify the symptoms of shell shock under the two main headings of *physical* and *mental*.

I. The *physical symptoms* may be placed under the headings of (*a*) motor symptoms; (*b*) special sense symptoms; (*c*) symptoms connected with the autonomic system.

The motor symptoms include tremors, tics, paralyses of the various extremities, and gait disturbances.

The special sense symptoms include those symptoms which may arise from a perversion of any one of the five senses; blindness, in connection with the sense of seeing; partial or complete deafness in connection with the sense of hearing; anesthesia or paresthesia in connection with the sense of touch or feeling; and absence or perversion of the senses of smell and taste.

The symptoms of the autonomic system may be classified under palpitation of the heart, shortness of breath, cold, clammy hands and feet, purplish and mottled extremities, and profuse sweating, to the extent that a man's clothing may be soaked.

The motor symptoms, as I have said, include tremors, tics, paralyses, and gait disturbances.

The *tremors* can be divided into two classes: (*a*) typical, (*b*) atypical.

The typical tremors are those which resemble the well known tremors which are characteristic of the nervous system. The atypical tremors are irregular, disorderly, and in no way resemble any of the well recognized types of tremors.

The typical tremors are imitative, whereas the atypical ones appear to be wholly imagined by the patient, that is to say, they originate in the mentality of the sufferer. These atypical types are more apt to affect all of the muscles than any group or extremity. In general the physiognomy expresses indescribable terror. There is rapid heart action and marked flushing, alternating with pallor in the face. The various secretions of the body, such as the sweat, the tears, the saliva, and the urine, are increased. The type of the tremor is distinctly coarse, with an extensive excursion, and resembles more the twitching characteristic of chorea than the classic tremor. The movements are initiated by any slight stimulation, even by the touching of the patient by the bed clothes, or by a violent noise, as the slamming of a door. Everything seems to suggest the noise of the battlefield.

The determining factor is evidently the emotional sphere which has been upset by the shells and which is in such a disordered condition that anything suggestive of a shell will precipitate a complete disorder of the motor system. The typical tremors resemble those which are characteristic of the organic nervous diseases and can be classified as such. There are the pseudo-paralysis agitans type, multiple sclerosis type, toxic type, exophthalmic goiter type, cerebellar type, and general paralysis type.

The onset of these tremors at times varies. The most common onset is following a slight loss of consciousness. A man may be in the trenches, at a listening post, or resting in one of the cantonments, when suddely a shell falls at a short distance. He is thrown into the air, falling back upon the ground with a loss of consciousness. So soon

as he recovers consciousness, either at the evacuation hospital or in the ambulance, he is seized with a marked tremor involving his entire body. The more unusual manner is for the tremor to occur immediately after the explosion without the patient losing consciousness. In the still rarer cases the condition may present itself only after an interval of hours or days. This has been described by Charcot as the phase of meditation.

There is still one other type in which the tremor does not present itself until the patient has gotten up and is practically cured of his wounds. In these instances, the tremor is of the nature of a reminiscence of the preceding shock and can therefore be classified under the heading of retrospective emotions. Many of these tremors are aggravated by inspection, by the appearance of the medical adviser, and by attention. It is evidently a disturbance of the emotional element which is at once stimulated by contact, touch, the appearance of someone, noise, or any unusual event. In other words, there is an abnormal state of the emotional sphere which is easily thrown into abnormal function by the stimulation of any one of the five senses.

The *tics* are of two types, tonic and clonic. The latter, clonic tic, or spasmodic movements, is far more common than the former. So far as their distribution is concerned, those affecting the head are the ones which one sees most constantly. They take the form of head nodding of either affirmation, or lateral movements of denial. Again, there may be a spasm of the face, either onesided or bilateral. Another common type of tic is that in which there is a shrugging of one or both shoulders. These tics vary greatly in their development, course, and termination, offering many variations, so that it is difficult to give you a typical picture. The duration is probably unusually long and the course of the tics varies greatly, dependent on the early diagnosis and subsequent care.

The *paralyses* which occur in shell shock are probably the most frequent and important of the neuroses. They simulate very much the organic paralyses and may be either spastic or flaccid. Probably the flaccid type is the more common, just as in the hysterical paralyses we get almost invariably the flaccid type. There are monoplegic, hemiplegic, and paraplegic. The etiological factors in each one of these paralyses are very similar. Like most of these motor disturbances in shell shock, the paralyses occur in those cases where a great shock has been received, but no wounds. It is, therefore, a form of cerebrospinal emotion. They may present themselves immediately after the traumatism or not until the patient has recovered consciousness, again illustrating what Charcot described as the phase of meditation.

Two points I want to call to your attention in regard to the paralyses are, first, that they are very frequently preceded by pain. Thus, monoplegia of the leg may be preceded several days by pains in the knee and ankle. Secondly, the point at which the traumatism strikes the patient has no bearing whatever on the appearance or the location of the paralyses, thus, a blow at the shoulder may very readily produce a paralysis of the leg, and just as much of the leg as of the arm. The arm is more often affected than the leg. The trunk is sometimes affected, but the face and tongue rarely. The physical signs which accompany the hysterical paralysis of shell shock are identically like those of hysterical paralysis seen in civilian life, that is to say, the member hangs flail-like, the reflexes are normal, and the muscular tonicity is equal on both sides. The superficial reflexes also remain normal. Bear in mind, especially, that Babinski's reflex is never present in an hysterical paralysis. Therefore, the symptoms which accompany the paralysis of shell shock are variations in sensibility, loss of power, trophic disturbances, vasomotor changes, and electrical changes.

The hemiplegia is the least common of the three types, the monoplegia being the most common. In addition to these paralyses, there occur, but less frequently, paralyses, circumscribed in character, affecting one particular portion of the body—thus it is not uncommon to have a complete paralysis of the foot, of the hand, or of certain portions of the body. These paralyses will be more clearly pictured to you if I use the word contracture. The contractures of the trunk are very remarkable and interesting. In some the trunk is at right angles to the body, in others it is bent to one side, in still others the patient stoops forward or backward, remaining in that condition for an indefinite time.

Gaits.—The fact that there are disturbances of gait is proof that a particular patient may have an emotional state which is not itself active, others a state of suggestibility, in which there is fixed an upheaval or disturbance of the function of walking. Like the tremors, the gaits may be typical or the reverse. The typical gaits are those which imitate the classic, ataxic, hemiplegic, drop foot, and choreiform gaits. There are four or five atypical forms which are difficult to describe and which do not resemble any particular type of walking.

There is also the condition known as astasia-abasia. This, as you probably know, is a condition, in which, when lying down or sitting, the patient can use his legs or feet in any way he desires and is able to perform any sort of motion, but when he stands up and attempts to walk it is impossible for him to take a step, and he has to push or drag his legs and can only progress with the aid of a cane, and then only for a short distance.

There are also instances in which the patient is typically lame and limps or drags one foot. These patients pretend to be lame because they suffer, whereas in reality they suffer because they are lame.

Special Sense Disturbances.—The sensory disturbances can be divided into two large headings—the pains and the anesthesias.

The *pains* are of course the more important because they interfere more with the usefulness of the patient, because they are more lasting, and because the patient who suffers from them demands relief. The pains involving the lower extremities, the legs, are the most frequent, the most easy to feign, and the most difficult to control. The onset of these pains is variable. They may be sudden and spontaneous in their onset, or they may follow some slight illness and then persist, or they may follow directly a shock or blow. The previous

condition of the patient seems to play but little part in their onset, and they appear in soldiers of all ages, from the youngest to the veterans, in those who are apparently without a neuropathic taint, as well as in those so predisposed.

It is best to adopt the following classification and put them down as: (1) Pains in the legs, by far the most frequent; (2) pains in the arms, the rarest; (3) pains of the trunk and spine, fairly frequent; (4) pains of the neck and head; (5) visceral pains.

The pains of the lower leg are of several types—sciatic, coxalgic, and the neuritic type. There are also pains which appear only when the patient walks or makes use of the legs. The pains in the arms are much less frequent and usually unilateral. The characteristics of these hysterical pains are that they are illogical in their appearance, irregular, and erratic in their localization. Thus, there may be pain of the hands, whereas the patient has a complete paralysis of the entire arm. The distribution of these pains does not follow any nerve, plexus, or any sensitive point. They are mobile, and shift from day to day in their localization. They are inconstant, sometimes producing slight, and sometimes severe sensations. There are of course no physical signs which accompany the appearance of these pains. The pains in the trunk, and those of chest and abdomen, take the form of pleurisy, intercostal neuralgia, and appendicitis.

The *anesthesias* are far less important than the pains because they are not observed by the patient and only appear following a medical examination. There is of course not sufficient reason for placing the patient in a hospital. It is difficult, well nigh impossible, to say anything about the onset of these conditions, because you will readily realize that they are not perceived by the patient. There may be small spots or vast zones. Whether it is anesthesia or analgesia, hyperesthesia, or hyperalgesia, it is rare to find them occurring separately, and they usually form part of a complex syndrome in which motor troubles predominate.

The Autonomic Symptoms.—The symptoms referable to the autonomic system, that is to say, referable to the parts of the body that are not under voluntary control, are very common. There is no soldier in the trenches who does not have, to a slight extent, some of these symptoms. They are: palpitation of the heart, profuse perspiration, restlessness, and sleeplessness, without any organic lesion. Another prominent symptom which occurs in connection with these is the "all-gone sensation" which one feels in the abdomen. This is largely due to a change in the distribution of the blood supply under the stimulus of fear.

II. The *mental symptoms* of shell shock and other war neuroses are numerous, variable, and unless systematically arranged, confusing. Ames in his book says that they vary from the extremes of the ideational to the emotional. I think you will find it easier, however, if you divide them into two large groups, and call one the mental and the other the emotional.

Under mental I would place five symptoms, and under emotional five. I am going to enumerate these various symptoms to you and then I am going to take up each one in turn and say a few words about it. If you are taking notes I would suggest that you simply put down these five headings: (1) Speed of thought; (2) sluggishness of thought; (3) confusion; (4) memory disturbances; (5) anxiety.

Under emotional symptoms: (1) Restlessness; (2) crying; (3) general discontent; (4) great irritability; (5) phobias; (6) fatigue.

Let us now take up each one of these symptoms in detail and for a moment talk about it. By the speed of thought, I mean exhilaration, the same condition which presents itself in the manic stage of manic depressive or circular insanity, and in acute mania. As you probably know, in these conditions the patient has a constant flow of ideas. He is rapidly changing from one subject to another, never completely finishing one. His speed of thought is also accompanied by rapidity of movement, a constant desire to do things, great mental stimulus, simulating, only much more so, a state of mind following a small ingestion of alcohol.

The second symptom is sluggishness of thought, and is just the reverse. It is known as depression and is the symptom which follows the depressed stage of circulation insanity and is the leading characteristic of melancholia. In this condition there occur great mental inertia and great physical inertia; the cerebration is slow, new ideas come with great difficulty, and old ones can hardly be completed or their plans executed. Procrastination accompanies the condition and the patient may sit in front of a clock and let hours go by without having carried out a single plan.

The third symptom, that of confusion, arises somewhat as a complication resulting from either the exhilaration, the depression, or the mental fatigue. It is especially noteworthy following marked periods of either one or the other. It becomes worse as the condition advances and is most harassing to the patient and distressing to the onlooker. The sufferer becomes confused as to his environment and surroundings, especially confused as to his actions. He is at a loss to know what he should know, what action he should take, and he begins to wonder if he is in any way following out the right course.

The fourth symptom, that of memory disturbances, is one which may take the form of loss of memory either for recent events or for those of several years back. I should say that it was more apt to take the place of recent events. It may be one of many grades, ranking from a slight impairment to one which is complete. The memory may be intact for events which happened previous to the shock, while at the same time the patient remembers nothing in regard to events occurring subsequent to the shock. To compare this with civilian life, to emphasize the resemblance of the shell shock suffered by the soldier and the shell shock suffered by the civilian, I am going to tell you of an instance which has recently been brought to my attention. A lady lost her husband, who dropped down dead. She attended his funeral, put on mourning, and arranged all his affairs. Two days afterward she became exhilarated, then depressed, and a week later absolutely denied that he was dead. She became confused and her memory for the two days following his death was com-

pletely lost, whereas she remembered everything of her early life up to the day of his death.

Anxiety, the fifth symptom, while I place it last, is one of the most important and one of the most common. It resembles the well-known anxiety condition seen in civilian life which we call the anxiety psychosis, a psychosis which is particularly evident in people of advanced age. The patient suffering from anxiety becomes a pessimist, sees no hope in anything, considers that his life is over, that the world is to be destroyed, and that all his efforts have been wasted and will come to naught.

Treatment.—War neuroses are curable. The treatment is a success from the medical point of view but a failure from the military standpoint. The mere fact of this statement will serve to emphasize the condition, to bring to your minds more closely just what is a war neurosis. These patients can be made well, but may have a recurrence of the same condition. The rule is that the patient who has suffered from shell shock or a war neurosis inevitably under the same conditions and environment will suffer a second attack. Here is another reason for the importance of eliminating these patients before they reach camp, and especially before they reach the battle front.

To understand the treatment of shell shock you must understand psychology. It is eminently a problem in psychological medicine. Dr. Salmon, who has been abroad and who has studied this question at length and in detail for the United States Government, puts the matter very aptly when he says that the first step is a careful study of the individual, an understanding of the personality. He means by that that each case is a law unto itself, and to be successful one must thoroughly understand the idiosyncrasies, the peculiarities, and the unusual trend of mind of the patient. The man who intends to treat shell shock must understand human nature and must be able to analyze and classify his individual patient.

There are several forms of treatment, several aids which can be brought to your assistance. I shall enumerate these and then discuss them. They are: (1) Suggestion; (2) Re-education of the patient; (3) Persuasion; (4) Hypnotism; (5) Occupation; (6) Hydrotherapy; (7) Electrotherapy. In attempting the first of these, suggestion, one must grasp the mentality, the caliber, and the possibilities of the patient. You can readily see that when you adopt suggestion as a method of treatment, you will have to use different language and make different appeals to the commissioned officer than that which you would use to the private; different to the man of education than to him who is ignorant; different to the man who has human feelings and affections than to the man who is cold, unresponsive, and without ties.

The next point is to lay especial stress on the incident which precipitated the neurosis. It may have been a shell explosion, or it may have been a crisis in discipline. The method of talking will be somewhat different in each case. During this psychological examination the physician must be careful not to disclose any too great chagrin or surprise at the revelations made by the patient. Suggestion means causing the patient to acquire confidence in his recovery, confidence in his physician, enthusiasm, interest, and desire to get well. Similar cases may be cited in which recovery has taken place. A general optimistic view of the whole situation should be imparted. Suggestive measures may be outlined whereby the patient may help with his recovery. In all of these the suggestions must not surpass the mental caliber of the patient. If this is done not only will you waste time and energy, but you will inspire confusion where confidence should exist. Suggestion must, of course, have a proper environment. The country is superior to the city and there is no doubt that suggestion near the battle front is more dramatic and more convincing than that which is undertaken hundreds of miles away with a hospital ward as the scene. It is in the acute cases that suggestion is especially valuable. When suggestion has failed, when the case has become chronic or of long duration, the next step is re-education of the patient.

Reeducation means to teach the patient the use of the apparently lost faculty. If it is that he cannot walk, take him by the arms and teach him each step, each motion of the foot and leg as you would a child. If it is that he cannot speak, begin with sounds, syllables, words, and finally sentences. Reeducation takes patience, a phlegmatic temperament, and time. I do not believe that every man is capable and competent to undertake the reeducation of nervous patients. One must have great resources of time, energy, enthusiasm, and interest, and no outside disturbing factors. Drills and physical exercises are part of the re-education of some cases, and from here it is but a step to occupation.

Nothing helps a nervous patient more than a suitable occupation. Again I refer to Salmon, who divides the occupations into bed, indoor, and outdoor. There are certain pastimes which the patient, who is bedridden from his neurosis, can follow. These are basket weaving, net making, and even knitting. For those who are up and about and yet unable to go out there are all the little occupations which can be done about the hospital and house, such as making the surgical dressings, sand papering, polishing, woodcarving, carpentering, bookbinding, cigarette making, and many others which your ingenuity and good sense may suggest. The best occupations of all, however, are those followed out of doors, such as farming, gardening, wood sawing, and wood chopping. Gymnastic exercises are, of course, always of value, but bear in mind that the practical and productive occupation is of much more importance and aids the patient both physically and mentally to a much greater extent than the non-productive. Therefore, as soon as possible, do away with that form of occupation which is only suggested for the purpose of killing time and assign to the patient an occupation which is productive, practical, and one in which he can see evident results. Nothing helps these patients more than an occupation which they feel is necessary and is doing some good and accomplishing some results. Among these occupations none is more valuable than swimming. You can readily see that when one of these patients is in a tank of water he has to make an effort in order to keep afloat, and nothing is better for the paralyses and gaits. This is espe-

cially so because all of these conditions, whether organic or functional, are less severe in water than in the air. You know that the treatment of locomotor ataxia can be, to a great extent, helped under water more than in the air.

Persuasion is so much akin to suggestion and the time for this discussion is so limited it seems to me that I can pass it over with a very few words. Persuasion, to be of value, must also take into account the type of patient, and must be carried out with skill.

Hypnotism is of some value. Personally, I am opposed to hypnotism, principally because it injures the morale and the mental control of the subject. If I hypnotize one of you there is no doubt that I exercise a certain control over you which I can exercise at any time I desire.

Hydrotherapy has a distinct value. It is especially good when applied in the form of spinal douches, when it exerts the double effect of shock and tonic to the nervous system. It is of more value when it is used in the form of the hot bath for the rigid backs, the contractures, the tics, and the paralyses. But both patient and physician must recognize its limitations. Too many people are apt to think that both water and electricity, when applied to a nervous patient, can be a cure-all.

Finally, in the treatment of these conditions, the environment of the patient is essential. The patient with shell shock and war neurosis ought not to be allowed to lounge about a sunny yard or to remain idle in a hospital ward. His mind should be constantly occupied as well as his body. He must be enthused with the idea that cure is possible and that cure is essential. He must be taught that he is still of value in the world and that if he cannot go to the front he can still go back to civilian life and there be of service. Shell shock produces a condition which is essentially infantile and childlike. The patient must, therefore, be treated as a child, led along, and slowly but steadily induced to think that he is better.

I think that it is the opinion of most men who follow these conditions that many of the present cases of shell shock will recover when the war is over. The important point, however, now is to reduce the cases and therefore there should be men skilled in this work, psychiatrists and psychologists, as near the front as possible who can take these cases and by the methods of suggestion, re-education, persuasion, hydrotherapy, and occupation exert an immediate cure. Many cases have been cured in a very short time. Of course probably most shell shock cases would be better away from the battle line, but bear in mind that if this is done to a great extent you will encourage many of the milder nervous cases to acquire and feign the war neuroses.

Drugs are of very little value in treating shell shock. Digitalis has practically no effect on the pulse rate. So far as using bromides in quieting the patient, their result is not satisfactory, as they serve rather to depress than quiet. Veronal is probably the only drug which has the slightest effect. It does help the insomnia and does induce sleep. It is needless to add that there are no conditions in shell shock in which opium is warranted.

41 East Sixty-third Street.

THE MEDICAL TREATMENT OF EXOPHTHALMIC GOITER.*

By James Francis Rice, A.M., M.D., F.A.C.P.,

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If you will allow me tonight the luxury of an etiological theory merely as a working basis, it will help us, I believe, in the review of what must be done for the unfortunate patient and it will furnish a working basis for the relations of internist and surgeon in the solution of the thyroid problem.

Crile's theory of the kinetic drive' has been, I believe, probably the most helpful of recent contributions to the study of this problem; and, with your kind indulgence, I wish briefly to recall the main features of this theory.

The kinetic drive, according to Crile, is the excessive excitation of the kinetic system. The kinetic system is the brain and the muscles, together with the suprarenals, liver, and thyroid.

"The organs," says Crile, "which from moment to moment vary and control, accelerate and retard the driving force of the *brain* are the *suprarenals*, the pacemaker of the kinetic system is the *thyroid*, and the final act of adaptive energy transformation is performed by the *muscles*."

The activators of the kinetic system are: physical injury, heat and cold, emotions, infection, autointoxication, pregnancy, excessive food, poisons, and others.

Crile tells us, "perhaps the most typical of the kinetic diseases is exophthalmic goiter. In exophthalmic goiter the kinetic system is driven by a continuous activation, because in this disease there has been established a pathologic interaction between the brain and the thyroid, whereby the threshold of all stimuli is kept continuously low * * *. The principal phenomena of exophthalmic goiter are identical with the leading phenomena of any other kinetic drive of a corresponding degree of intensity, and may be duplicated by fear, anger, sexual excitation, physical exertion, overwork or acute infection. Conversely, many of these activations cause hyperplasia of the thyroid. Thus fear, anger or sexual emotion may cause temporary enlargement of the thyroid; there is hyperplasia of the thyroid in pregnancy, in chronic infections, and perhaps in intestinal autointoxication as well."

The recognition of a disease as a process rather than a condition calls not so much for a remedy as it demands a program.

Viewing the process of exophthalmic goiter as one form of the kinetic drive, the problem of its control becomes the question of blocking the effect of the activators of the kinetic system. This may be accomplished quickly and easily, but only temporarily, by the use of opium, which raises the threshold of effective stimulation of the kinetic system. Similarly the diminution of the blood supply to the thyroid or the removal of part of the gland, serves to restore normal equilibrium by diminishing the supply of activating substance delivered by the thyroid to the blood-stream. The difference

*Read before the Surgical Section of the Buffalo Academy of Medicine, April 3, 1918, as part of a Symposium on Goiter.

between these two methods of control suggests their different use in the treatment of the disease. Should we not restrict the use of opium to the paroxysmal periods of the disease process, and should we not consider surgery curative because it effects an internal readjustment? The surgical intervention which breaks the vicious circle cannot, however, accomplish the patient's restoration to health, unless the favorable situation it produces is made use of for the prolonged medical care of the patient's mental and physical hygiene. There must be accomplished, not only the anociation of the patient, that is, the blocking of the effect of the activators of the kinetic system, but also the removal of these excitants, in order to prevent re-establishment of the same vicious circle. The patient's trouble is originally a medical problem; and, if the surgeon's work is successful, it becomes again a medical problem. Does this not suggest earlier recourse to surgery, with more definite acknowledgment of the chief responsibility of the internist?

A rough classification of cases of exophthalmic goiter for the purposes of this paper, may be made as follows:

(1) *Incipient* Graves' disease, in which the diagnosis must be made by the family physician or internist;

(2) *Advanced mild cases*, including cases even of marked exophthalmos and very prominent goiter, in which the disabling symptoms occur in brief paroxysmal periods;

(3) *Rapidly developing severe* cases, and

(4) *Advanced severe* cases.

Incipient cases of Graves' disease should be rested and environmental readjustment made. Hygiene should be corrected, diet should be supervised, autointoxication and any focus of infection should be remedied; but the fundamental requirements are rest and environmental readjustment. For example, a girl of sixteen; ambitious, overworking at school, active in outside interests, and harassed by her responsibilities at home, was not much helped by dropping a few of her studies at school, or by general hygienic measures, but she was promptly relieved of symptoms by the return of her father. The father had been away for months, leaving the patient as the eldest daughter in actual charge of the house, because the mother is mentally defective. This patient was evidently driven by anxiety, one of Crile's "activators." She was undoubtedly a fit case for the care of an internist. The case is cited as illustrative of the correctness of the principle of readjustment, and not because its course is typical. Usually the process of restoration to health takes much longer. There is often evidence of intestinal toxemia, there may be focal infection.

An *advanced mild* case of exophthalmic goiter can sometimes be carried along with a minimum of treatment and helped over the crises by a few doses of morphine. I remember the case of a woman of about 50, a widow with a family of grown children, who sent for me on two or three occasions when she had been made worse by some emotional excitement, responding very satisfactorily to a half-grain of morphine in the course of 24 or 36 hours by mouth, given in solution with the direction that a teaspoonful (containing gr. 1 24) be taken every hour or two until she felt better. (She was not told what she was taking, and the drug was dispensed by the physician himself, who left this limited amount for her to use either within a few hours or "spread out" as she might prefer.) This case is cited as an extreme instance of how little need of a physician seems to be felt by some of the most slowly developing cases.

A *rapidly developing severe* case should be seen at once by both the internist and the surgeon for this reason: if delay is caused by the use of any other than surgical measures, the integrity of the myocardium is endangered. Of course, rest and environmental readjustment should be carried out as far as possible; but may we not consider that in this group of cases such procedures are properly to be undertaken after surgical intervention has improved the prognosis? Before operation medical measures are needed by way of preparation; but, when careful medical preparation is not feasible, an early operation seems to have less risk than a delay of weeks or months with the resulting inevitable impairment of cardiac reserve.

An *advanced severe* case should probably be considered a neglected case. The outlook for relief is equally dubious, whether medical or surgical measures are recommended. There is so little left to work with. Heart, liver, and kidneys have been too severely punished.

Does it not seem, therefore, as if we should follow our early diagnosis with the prompt summons of the surgeon? To block the vicious circle, should not the thyroid be thrown promptly out of gear, so that the careful application of recognized measures of medical care may restore to complete health a much larger percentage of our cases? If the kinetic drive be interrupted by the surgeon's work upon the thyroid, its control must still be continued for weeks and months, and the patient, whose cooperation in this program of medical care is essential, will be encouraged to recovery by the confidence developed by the knowledge that his heart has not been exhausted nor the rest of his kinetic system worn out.

Diet.—The accelerated metabolism which is characteristic of exophthalmic goiter makes necessary the closest attention to the problem of nutrition. Some authorities tell us that the hyperthyroid case should have a low-protein diet, while others emphasize the need of forced feeding and a diet rich in proteins. May we not consider diet one of the unsettled problems of the disease? For practical purposes the prominence of either an intestinal toxemia or a glycosuria should often prove to be the determining factor.

Certainly there will have to accumulate a much greater volume of recorded observations of metabolism in Graves' disease before we can generalize upon the dietary requirements of this disease. Meanwhile the acute cases will have to be fed whatever they will retain. A milk diet will continue to be our sheet-anchor.

Water.—All authorities apparently agree in the advice that the patient should drink water different from that of the locality in which he lived during the development of the disease.

Climate.—It has been suggested that the proper climate for patients suffering with exophthalmic

goiter must be cool and dry, with sunshine and no fogs, only moderate winds, and an elevation of from 1500 to 2000 ft.[2] At any rate, a change of climate from that of the patient's home is apt to be of value, for the sake of a different water supply.

Psychotherapy.—There are few diseases in which the patient is so dependent upon the medical counselor for optimism and the will to survive. Fatigue is a cardinal symptom of exophthalmic goiter, and peace of mind is a fundamental feature of successful treatment.

Rest.—Rest must precede operation; it must follow operation. The opinion of an eminent surgeon[3] that 90 per cent. of all goiters can be so improved by medical treatment as to make operation unnecessary was probably based upon observation of the effect of rest, for rest is the common element in all the various forms of treatment that have proved successful. (That opinion, by the way, is Kocher's, indorsed by Charles H. Mayo.) Rest in bed is inevitable in the severe cases. If improvement is accomplished, the comparative rest secured by a change of scene must be ordered. The theory of the kinetic drive helps us to remember how indispensable to success is rest—rest of mind and body.

Exercise and Gymnastics.—We must be careful in carrying out the essential rest of the patient that we do not neglect the business of first passive and then active exercise, and later perhaps gymnastics under careful supervision. This is a very long and tedious chapter.

Hydrotherapy.—The use of the various applications of water certainly has its place in every complete scheme of treatment of so long a process as the uphill climb to health of these patients. In the acute stages the sedative effect of water-applications is of the first importance, and it is probable, if hydrotherapy were more frequently employed then, that the problem of nutrition would be less troublesome. In the long process of recovery, hydrotherapy has undoubted value in its stimulant and tonic phases.

Massage and Non-surgical Mechanical Measures.—These procedures have a share in the restoration of muscular tone and strength, which is so large a part of the program of recovery, after the acute stage has passed.

Heat and Cold; Light and Electrotherapeutics.—Under this head there should be mentioned the use during the acute stage of an ice-bag or Leiter coil over the thyroid, over the heart or in both places.

Electrotherapeutics and the use of light have, of course, their part in the coaxing of the patient back to health and strength.

Radium.—There are a few who seem to be encouraged to believe in this agent for the destruction of thyroid tissue. Abbe of New York, Turner of Edinburgh, and Wickham of Paris have made contributions to the study of this comparatively recent addition to our resources.[4] I think you will agree with the view, however, that any new procedure in the treatment of exophthalmic goiter must be tested through a series of years before it can have any standing as a remedy for the disease.

Roentgen Ray.—It is possible that a field for the use of the Roentgen rays in Graves' disease will be found in those cases of retrograde thymus following strumectomy, especially in young patients, of which Halsted has reported six cases with favorable results.[5] Halsted quotes Capelle, assistant to Garré, as finding thymus persistens hyperplastica at autopsy in 95 per cent. of fatal cases of Graves' disease. Halsted's cases had failed to recover after extirpation of the thyroid, and promptly got well after Roentgenization of the thymus.

Drugs, Organotherapy, Vaccines, and Serums.—We come to the side of our problem which presents so many different aspects to the student of medical history. It would be an unwarranted trespass upon your good nature and kindly endurance, to attempt even an outline of the changing customs in the use of chemical and biochemical agents that have been employed in times past and present in the treatment of exophthalmic goiter.

Each of these many remedies has had its successes and its period of popularity. To each has been attributed some part of the large percentage of recoveries that would probably regularly occur in the absence of all treatment. It undoubtedly is because of the usually favorable prognosis in this disease that we still find in the text-books lists of "things to be tried."

At present we may not conclude the consideration of the medical treatment of exophthalmic goiter with the reflection that, just as opium is the agent of temporary relief in the paroxysmal crises of the slowly developing cases, so surgery is probably the agent of internal readjustment which should be promptly and early invoked in the rapidly developing cases for the release of the threatened heart from the vicious circle of a process which, though sure in most cases to come to an end of itself, inevitably and inexorably, while it lasts, injures the heart.

If this point of view be generally adopted, we shall care less about recovery from goiter, but much more shall we strive for the protection of the endangered myocardium. We shall be unwilling to allow a disabling disease to run its unabbreviated course, and we shall have fewer nominally recovered patients carried off by the accidents that are fatal in the presence of myocardial degeneration.

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441 Elmwood Avenue.

EXPERIMENTAL TEST WITH COPPER AND POTASSIUM CYANIDE IN TUBERCULOSIS.

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Inasmuch as Dr. Koga's cyanocuprol has been brought to the attention of the medical profession as a curative agent in tuberculosis, and has elicited favorable comment in some of the medical journals, particularly in the article of George H. Evans in

the October 6, 1917, issue of the MEDICAL RECORD, I deemed it my duty to avail myself of my opportunities of reporting the preliminary findings after giving a fair trial of this remedy so liberally furnished me by the Kitasato Institute.

This report is based upon twelve cases divided as follows: Six pulmonary, three pulmonary with laryngeal involvement, one kidney case, and two skin cases. Tubercle bacilli were found in all the cases excepting those of the skin. Six of these cases were in a sanatorium during the treatment. All the other cases were treated at home. The remedy was administered intravenously at intervals of two weeks in the pulmonary, laryngeal, and kidney cases and every week in the skin cases. After each injection, the patient was confined to bed for six days; no other medication was given during the course of treatment, except an occasional dose of codeine in those with an unusual racking cough; all the other directions contained in Dr. Koga's circular were strictly adhered to.

Some of the cases received decreasing doses, others increasing doses; the kidney case received the same dosage during the entire course of treatment. This course of treatment was followed as outlined by Dr. Otani.

The preparation is claimed to be composed of the salts, copper cyanide, potassium cyanide, and calcium chloride, used in doses varying from 4 to 24 milligrams.

CASE I.—Hubert D., American, white, age 28, clerk. Admitted to the Verona Sanatorium August 10, 1916. Father and mother dead. Cause not known. The disease dates back five years when he was operated upon for mastoid trouble. Denies venereal disease. Does not drink. Complains of weakness, cough, shortness of breath, and a slight hemorrhage occasionally after coughing. Weighs 124 pounds. Temperature 99° A.M. to 100° P.M. Pulse 90. Did not improve while in sanatorium. Sputum positive. Poorly nourished, anemic; has extensive bilateral involvement; moist rales at both apices extending to the third rib anteriorly on the right side. Probably a small cavity on the left side at the angle of the scapula. No complications.

First injection, March 31, 1917, 4 c.c. of copper and potassium cyanide.

Second injection, April 14, 1917, 4 c.c. No reaction. Temperature as usual.

Third injection, April 28, 1917, 4 c.c. No reaction. Lost 1 pound.

Fourth injection, May 11, 1917, 3 c.c. No reaction. Lost ½ pound.

Fifth injection, May 26, 1917, 3 c.c. Slight hemorrhage next day.

Sixth injection, June 6, 1917, 2 c.c. No reaction. Lost 2 pounds.

No change in the condition of chest. Patient feels the same. Sputum still positive.

CASE II.—Eugene P., American, while, male, age 34, metal worker. Admitted to sanatorium December 6, 1916. Mother and brother died of tuberculosis; wife also has the disease. Patient had pneumonia and pleurisy two years ago and was subject to colds. Present disease started about eight months ago, with a cough and pain in the chest. Weighs 120 pounds. Temperature 98.3° A.M. to 99.2° P.M. Sputum positive. Patient is somewhat emaciated. Chest very little involved. Expansion limited, with dullness and bronchovesicular breathing on the right side. A few rales after coughing, extending from apex to second rib. Rough breathing on left side, a few rales after coughing.

The first injection was given March 31, 1917, 4 c.c.; the second on April 14, 1917, 4 c.c. On April 20 he sustained an injury of the head and went to the hospital. Returned with same condition in chest.

Third injection was given May 6, 1917, 2 c.c.; three days later complained of pain in stomach.

Fourth injection on May 20, 1917. No change in weight, chest or sputum.

CASE III.—Edward F., Irish, white, age 31, advertising agent. Admitted to the sanatorium January 24, 1917. Father died of tuberculosis. Patient had pneumonia five years ago. Present condition started three year ago with a cough, followed by a hemorrhage. Drank moderately. Denies venereal disease. Temperature 99° A.M. to 101.3° P.M. Sputum positive. Physical examination showed the patient quite emaciated; disease moderately advanced; retraction above and below both clavicles, dullness extending from apex to fourth rib on right side, and hyperresonance on the left side. Moist rales over both sides of the chest; cavernous breathing at the angle of scapula on the left side. No applications. Was losing weight gradually since he entered the sanatorium.

First injection, March 28, 1917, 4 c.c. in reaction. Gained 1 pound between time.

Second injection, April 14, 1917, 4 c.c. Lost 1 pound.

Third injection, April 28, 1917, 4 c.c. No change.

Fourth injection, May 11, 1917, 3 c.c. Lost 2 pounds.

Fifth injection, May 26, 1917, 2 c.c. Lost 1 pound.

Sixth injection, June 6, 1917, 2 c.c. Lost 1½ pounds.

Patient died November 16, 1917. Sputum was positive until death.

CASE IV.—Elsie V., Italian, white, age 14, school child. Admitted to the sanatorium December 19, 1916. Family history could not be obtained. Had pneumonia some time ago. Present disease started with a cold, followed by a hemorrhage while the patient was on the way to this country. Examination shows patient well developed and fairly nourished. There was muscular rigidity on both sides of the chest, limited expansion on the right side, few rales after coughing at the apex on the right side, bronchovesicular breathing on left side. No complications. Sputum positive.

First injection, April 14, 4 c.c. No change.

Second injection, April 29, 4 c.c. Lost 2 pounds.

Third injection, May 11, 3 c.c. Lost 1 lb.

Fourth injection, May 26, 2 c.c. Lost 1 pound.

Fifth injection, June 9, 2 c.c. Lost 1½ pounds.

Condition much worse, weaker, has night sweats and chills. Rales extending on the right side as far as the base.

CASE V.—Chester C., Italian, white, age 16, schoolboy. Admitted to Verona Sanatorium for the second time October 8, 1916. Father and mother died of tuberculosis. Two brothers are in the sanatorium now. Had pneumonia twice. Present condition started a year and a half ago as a result of pneumonia. Examination shows patient's general condition fairly well developed. Physical signs of an active tuberculosis extending from the apex to the lower edge of the shoulder blade on the right side. Moist rales on the left side and cavernous breathing between the third and fourth ribs on the same side. No complications. Tubercle bacilli numerous.

First injection, March 31, 1917, 4 c.c. No reaction.

Second injection, April 11, 1917, 3 c.c. No reaction.

Third injection, May 26, 1917, 2 c.c. Felt weaker.

Fourth injection, June 9, 1917, 2 c.c.

Patient has grown much weaker since the first injection; lost 7 pounds. Chest and sputum the same.

CASE VI.—Felix S., Irish, white, age 37, single, leather worker. Father died of tuberculosis. Had nephritis about three years ago, otherwise was never sick. Had been a heavy drinker. Denies venereal trouble. Present disease started about eight months ago with a cough, weakness, loss of weight, and hoarseness. Coughing. Examination shows patient quite emaciated. Disease in the chest moderately advanced, both sides involved, moist rales over the entire right side and on the left side as far as the fourth rib. Larynx on examination showed marked infiltration of the epiglottis, erosions of both cords, and a thickening at the interarytenoid space. Sputum positive.

First injection, February 28, 1917, 4 c.c.

Second injection, March 14, 1917, 4 c.c.

Third injection, March 28, 1917, 4 c.c.

Patient claimed he felt better and could eat better right after the first injection, and after the third injection he lost four pounds and was much weaker; by the advice of his regular physician cyanocuprol was discontinued.

Case VII.—Bessie N., Hebrew, white, age 23, single, dressmaker. Admitted to the sanatorium June 6, 1916. Patient complained of hoarseness and pain in the chest. Family history negative. Was never sick before. Present disease started with a considerable hemorrhage three and a half years ago. General condition of patient fair. Examination of chest shows both apices infiltrated. Rales after coughing on both sides extending to the third rib. Examination of larynx shows infiltration of entire epiglottis and ulceration of the right half of the cord. Sputum positive.

First injection, April 21, 4 c.c. No reaction.
Second injection, May 4, 4 c.c. No reaction.

She lost two pounds and requested to discontinue injections. Chest and sputum the same.

Case VIII.—Stefan F., Russian Pole, white, 34 years, metal worker, married. Habits good. Family history negative. Was never sick. Had been six months in the sanatorium, leaving there six months ago. Present disease started a year ago with hoarseness and shortness of breath. Physical examination of chest shows disease moderately advanced, involvement on both sides. Moist rales over the entire right and partly the left side. A probable cavity at the angle of scapula on right side. Examination of larynx shows erosion of right cord with infiltration at the right ventricle. Sputum positive.

First injection, February 21, 4 c.c.
Second injection, March 8, 6 c.c.
Third injection, March 23, 6 c.c.

Patient stopped coming. After the second injection he complained of losing weight and not feeling as well as before. Chest was the same and sputum positive.

Case IX.—Harry H., American, white, single, 36 years, electrician. Brother died of tuberculosis. Was never sick in his life with the exception of gonorrhea. Present disease started nine months ago, when he noticed he was losing weight and was getting weaker. Was since then in a sanatorium and felt much better. Examination shows patient's general appearances good. Is only six pounds below his normal weight. Physical examination shows infiltration at the right apex; a few rales after coughing; harsh breathing and prolonged expiration at the left side; sputum positive.

First injection, February 21, 6 c.c. No reaction.
Second injection, March 7, 8 c.c. No reaction.
Third injection, March 21, 10 c.c. No reaction.
Fourth injection, April 4, 12 c.c. No reaction.

No change in chest, general condition, or weight. Patient refused further treatment.

Case X.—Richard M., Italian-American, white, age 19, student. Referred to me by Dr. Miningham for treatment with the diagnosis of tuberculosis of both kidneys. Family history negative. Two years ago was operated on for a double inguinal hernia; since then has lost about twenty pounds. Complains of a dull pain in the inguinal region and a boring pain at the dorsal region. Examination of chest negative. Cystoscopy and catheterization show that both kidneys are involved. Examination of urine found tubercle bacilli and a great deal of pus.

First injection, March 28, 4 c.c. No reaction.
Second injection, April 14, 4 c.c. Lost 1 pound.
Third injection, April 28, 4 c.c. No change.
Fourth injection, May 11, 4 c.c. Lost 2 pounds.
Fifth injection, May 26, 4 c.c. Lost 2 pounds.
Sixth injection, June 6, 4 c.c. No change.

General condition slightly improved. Less frequent urination, and on examination of urine tubercle bacilli could not be found. No decrease in the amount of pus.

Case XI.—Evelyn H., colored, age 8 years. Referred to me by Dr. Wallhauser with diagnosis of lupus vulgaris. Mother died of tuberculosis. Patient was never sick before. Present disease started five years ago as a small tubercular eruption on the middle of the left cheek. The tubercles gradually ulcerated and resolved, leaving scar tissue. New crops appeared and spread, developing the same ulcerations as the original, until the entire side of the face was involved. Examination shows patient well developed, chest negative.

The lesion involving the left side of the face about the orbit extending down the cheek presents an aggregation of ulcerating tubercles, outlining a cicatrized area corresponding to the original site from which gradual extension occurred.

First injection, March 3, 2 c.c.
Second injection, March 11, 3 c.c.
Third injection, March 20, 4 c.c.
Fourth injection, March 30, 5 c.c.

Patient did not show any change and it was advised by her physician that she be put on tuberculin.

Case XII.—Julia S., Austrian Pole, white, age 28, single. Referred by Dr. Wallhauser with the diagnosis of lupus vulgaris. Family history negative. She was never sick before. Started four years ago as a small tubercular eruption at the middle of left cheek. These tubercles gradually ulcerated and spread peripherally until the entire cheek was involved. Examination of the patient shows general appearance good, chest negative. Lesion consists of numerous apple-jelly tubercles with pale granulation between, extending from the angle of eye to the ear above and the angle of the mouth below.

First injection, March 7, 6 c.c. No change.
Second injection, March 14, 6 c.c.
Third injection, March 21, 4 c.c.

Ulceration became more pronounced and started to spread very rapidly. Injection discontinued.

Conclusions.—I did not notice any focal reaction in any of the cases. Pulse, temperature, sputum, and chest were practically running the same course as they were before the treatment was instituted. The weight (as to loss or gain) was also the same. One of the pulmonary cases was always subject to slight hemorrhages and these occurred during the time the injections were given. None of the patients complained of pain at the seat of the injections, nor in any other part of the body, during the trial with the remedy.

The kidney case shows some improvement. The patient was sent to the country two days before starting the treatment, and therefore it is very hard to determine whether the improvement was due to the change of climate and rest, or to the treatment.

In only one case was noticed a psychological effect after the first injection, the patient claiming he felt better and could eat better immediately.

From the experience with the above remedy, I cannot subscribe to the favorable reports that have been advanced from this treatment. On the other hand, I did not notice any detrimental effects. I therefore would say that a further trial may be justifiable.

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THE STIGMATA OF ABRAMS IN HEREDITARY SYPHILIS.

By ALBERT ABRAMS, A.M., M.D., LL.D.,

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My contributions to the Medical Record[1] have engendered so much correspondence on the part of physicians desirous of learning more concerning the "Electronic Reactions of Abrams,"[2] that the writer is prompted to place on record, several new signs heretofore unrecorded which are frequently encountered in hereditary syphilis.

Electronic Reactions—Sufficient evidence has accumulated warranting the assumption that these reactions may be accepted as diagnostic of syphilis and to enable the cognoscenti to differentiate hereditary from acquired syphilis. Geo. O. Jarvis,[3] found the electronic tests of Abrams positive in nearly 100 per cent. of syphilitic affections hereditary or acquired and he comments as follows: "In the diagnosis of syphilis, the Wassermann reactions were not positive in every case in which the elec-

tronic tests showed the presence of syphilis and in which the clinical history and therapeutic results showed beyond reasonable doubt that the Wassermann reaction was at fault."

W. J. Caesar has published a report of 192 blood

FIG. 1.—Auricular sign.

tests made at the State Hospital, Stockton, Cal., (March 6, 1918) using exclusively the 'electronic reactions." The specimens were submitted by physicians of the hospital including the pathologist, under rigorous conditions, with the object of eliminating any previous knowledge on the part of the executant relative to the disease or the patient from whom the blood was derived.

The specimens included syphilis (congenital and acquired), tuberculosis, carcinoma, syphilis and tuberculosis, and syphilis, tuberculosis, and carcinoma. In the latter instances, the specimens of blood on the same paper were derived from different patients. The electronic reactions were absolutely correct in 186 instances among 192 specimens of blood submitted for examination (3 very small specimens were not examined, making 189 actually examined).

Reference to the foregoing is made with the object of emphasizing the correlation of the signs to be cited in hereditary syphilis. The value of a positive Wassermann test in hereditary syphilis may be seriously questioned considering the beneficial results of antisyphilitic treatment in cases with a negative Wassermann. Syphilitic infection must always be considered in all chronic diseases. Stoll[4] avers that in "late" hereditary syphilis, the patient may present no sign of syphilis but a single obscure symptom which may be so distressing that more or less complete invalidism results. Jarvis[4] quotes Kaskell, who observes, that while a positive Wassermann can be elicited in about 40 per cent of the wives of paretics and tabetics, yet only a small percentage of their children yield a positive reaction to that test.

"Familial syphilis" may be suspected or predicated if any of the following statements are made as to the cause of death in relatives: (1) Tabes, (2) Paresis, (3) Aneurysm, (4) Apoplexy (before 50 years of age), (5) Cardiorenal disease, (6) Headaches (not relieved by the usual means), (7) Nervousness (without obvious cause), (8) Rheumatism (obscure), (9) Tuberculosis in several members of the same family. Hereditary syphilis according to Fournier, strongly predisposes to tuberculous infection later in life.

Ubiquity of Syphilis.—The electronic reactions demonstrate the ubiquity of syphilis and emphasize the dictum of Fournier, that general pathology should be made a mere annex to syphilography. That the world is becoming civilized is debatable, but that it is syphilized is unquestionable.

I have recently found that when the voltage of the radioactive energy of the blood of any individual is augmented about 1300 per cent., the electronic reaction of congenital syphilis is always present. The writer has shown experimentally (MEDICAL RECORD, Oct. 6, 1917) that the spleen is the usual nidus for the luetic virus. This heterodox conception is sustained by William J. Mayo, in his Carpenter lecture (Oct. 18, 1917) as follows: "Hibernation of spirochetes in the spleen permits luetic reinfection of the body."

Sabouraud[4] makes a practice of applying the Wassermann test in all dubious affections in children, and observes that all who do this will be appalled at the findings. The German diagnostician avers:

> "Was man nicht diagnostieren kann,
> Sieht man als n' syphilis an."

In free translation, the latter may be expressed as follows:

> When your diagnosis goes amiss,
> Always think of syphilis.

It was said of Ricord, who was a confirmed skeptic as to the morality of the race, that he would have submitted Diana to treatment with his mineral specifics and prescribed a course of blue pills for the vestal virgins.

Fournier observed that 98 per cent of the children of syphilitic parents are syphilitic. The electronic reactions show that they are all syphilitic.

The tale of syphilitic parents may be inscribed as follows: sterility, stillbirths, miscarriages, abortions, progeny dying in infancy of marasmus, meningitis, convulsions, etc. Hochsinger's observations, embracing 208 children of syphilitic parents, show that 89, or 43 per cent, had some affection of the nervous system. Among these, which is in vivid

FIG. 2. Digital sign.

contrast with my observations as will be shown presently, in only 6 was the Argyll-Robertson pupil demonstrable . Congenial syphilis is unfortunately identified with its manifestations at birth and we are liable to forget that it may not develop until

adolescence or late in life. Congenital is practically a replica of acquired syphilis.

Certain anomalies in physical structure have been sufficiently emphasized and attention is here directed to new signs in heredosyphilis.

Argyll-Robertson Pupil.—This sign is regarded by many as positive proof of nervous syphilis. No attention has been directed to the slow or sluggish pupil (reflex to light) which the writer finds to be fairly constant in hereditary syphilis, irrespective of implication of the nervous system. It may be equally a unilateral or bilateral phenomenon. Although the light response may be fairly good in the first test, subsequent tests show its rapid exhaustion, a phenomenon almost as important as a partial Argyll-Robertson.

Auricular Sign.—This consists of a distinct ridge (Fig. 1) running from the antitragus downward toward the lobule. Localized elevations of the skin in the region in question must not be accepted as evidence of the auricular stigma. It may be unilateral or bilateral. In the Da Costa Edition of Gray's Anatomy (Fig. 752), there is a picture of the external ear which reproduces my auricular sign.

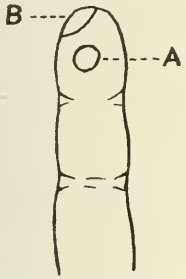

FIG. 3.—Vasomotorial sign. A and B, sites of pallor in heredosyphilis; B, site of pallor in acquired syphilis.

This must be due either to a faulty execution of the artist or to the selection of a supposedly normal ear. The auricular sign is fairly constant in heredosyphilis.

The ridge is felt to be of cartilaginous consistency when palpated between two fingers. This morphological anomaly like all deformities of the auricle is essentially always the result of othematoma.

Digital Sign.—This consists of an incurvation of the little finger, usually implicating the second phalanx (Fig. 2) and is fairly constant.

Vasomotorial Sign.—If the subject faces the geographical west with feet on a grounded plate and the hands are elevated in proximity to a window, it will be noted after thirty seconds that a circumscribed pallor is demonstrable at the terminal phalanges of all the fingers, notably the little fingers, at definite points. At the palmar surface of the terminal phalanx and on the inner surface and extreme end in heredosyphilis (Fig. 3). In acquired syphilis, the circumscribed pallor on the palmar surface is not demonstrable but is seen in the other area only (extreme end). It is evident that mere elevation of the hands is productive of some anemia but the latter is universal and not circumscribed. The hands should be manipulated in relation to the light so as to bring the anemic areas into evidence if not readily seen. Other vasomotorial signs are present in other diseases and have been explained elsewhere.[7]

Ocular Pigmentation.—This sign is tentatively submitted and refers to an intense bluish pigmentation at the sclerocorneal juncture. While this pigmentation may be present in the norm, it appears to the writer that it is specially evident in heredosyphilis.

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2135 SACRAMENTO STREET.

SOME OBSERVATIONS ON THE BLOOD SUPPLY OF THE UTERUS—WITH SPECIAL REFERENCE TO THE OPERATION OF VAGINAL HYSTERECTOMY.

BY HOWARD CRUTCHER, M.D.,

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CONSIDERING the immense importance of the uterine artery from a practical standpoint, it is surprising how small a space it usually occupies in anatomical literature, and of the small space that it does occupy much of what has been printed concerning it is unconsciously misleading. Anatomical works, whose unchallenged authority has become a proverb, describe the origin of the vessel with commendable precision, but its course after its arrival at a point near the uterine neck is not only the opposite of precise, but is befogged by demonstrable absurdities. Our first knowledge of this artery is more than likely to have been derived from a familiar old print in which the vessel is pictured as running a zigzag course, from below upward, to disappear in a more or less remote network of diminishing anastomotic threads. Some of which is true, but is only true in those cases in which the original course has been altered for the most definite of natural reasons. In the virgin subject no such course is pursued. In the virgin state the artery follows a tolerably straightforward course from its origin to a point at which its identity is blended through numerous branches with anastomotic twigs that spring from the ovarian artery above.

During the years of 1892-94, and occasionally in subsequent years, I performed a series of painstaking dissections of the uterus in virgin subjects, preserved careful notes covering my work, and meant to present my conclusions to the MEDICAL RECORD had not the loss of a valued letter file prevented my doing so. While I must speak from memory, I may say that in none of the subjects examined did the uterine artery describe anything approaching a tortuous course. And, indeed, taking a broad survey of the larger works of nature, is

there a single instance, in all the realm of general anatomy, in which nature prefers a sharp curvature to a gentler course, unless there be some definite purpose to be served by so doing? A series of zigzags appearing in the course of the uterine artery is no more in harmony with the general design of nature than are those gigantic bends in the channel of our great inland river, both arising in response to evolutionary forces and not because of a preexisting design.

In the case of a uterus that has undergone ripening and fruition, its principal artery presents a remarkable series of angles and curvatures, and for the simplest and most conclusive of reasons. At full term the artery traverses a course a foot or more in length. Within a few hours, possibly within a few moments, that course is reduced to a few inches, and the vessel is thrown of necessity into a series of folds by the forces of muscular contraction, precisely as a dangling rope, suddenly released from its fastening above, is hurled into loops by the power of gravity when it meets with a resisting surface at the end of its descent. Generally speaking, the uterine artery is relatively straight in the virgin subject, it undergoes great growth in length during the progress of gestation, and is thrown into unavoidable curves by the forces that promote fetal expulsion. This teaching is not only supported by strong natural analogy, but by the revelations of everyday practical experience. It is also in full accord with available konwledge and with common sense.

In a former paper (MEDICAL RECORD, April 13, 1918), I directed attention to the extensive lacerations that often involve the uterine tissues to an almost incredible degree. During the performance of hysterectomy I have frequently been impelled to express astonishment that spontaneous recovery should have followed childbirth in many such cases. Enormous tears sometimes extend laterally far into the broad ligaments and upward almost to the dome of the organ. In this great wreckage of soft tissues the uterine artery must escape dangerous injury for obvious reasons, or the patient would die speedily from bleeding. Subsequent processes of repair may involve the vessel in irregular masses and planes of scar tissue, which are likely to prove highly distressing at times to those who are impelled more by adherence to some mechanical ritual than they are by a wholesome respect for the principles of operative surgery. In all cases of laceration followed by extensive scarification it must be borne in mind that the artery is subject to the widest variations, both as to its supposed course and to its immediate relations.

The earnest and capable student of one branch of natural science will usually find the subject so stimulating and profitable that he will develop a keen desire to pursue the wider fields of general scientific knowledge. The great sciences of physiology and pathology, so vital to higher human welfare, are mere branches of those greater sciences of growth and decay, which are fundamental to all forms of life. Nature's resources are so immeasurably rich that prodigal waste is disclosed on every hand. Many of nature's general processes, however, are directed to the ultimate elimination of waste, and it is the true mission of science to penetrate the secrets of nature for a similar purpose. The mightiest convulsion of nature recorded in our national existence occurred in the heart of the Mississippi Valley in the year 1811, one notable effect of which was the reversal of the current of the great river for nearly an hour, that a vast chasm in the crust of the earth might be filled with water. But no familiar convulsion of nature, however violent, may justly be compared in magnitude with those alterations wrought in the human uterus by the processes of reproduction. From a small pouch of modest dimensions, the womb rises to the exalted dignity of the first of bodily organs. It is in perfect accord with nature's wasteful methods that so great an upheaval of human tissues should be productive of occasional irreparable damage. Muscular tissue, nerve tissue, blood-vessels, and connective tissue are involved in a common wreckage. The uterine artery, despite its extraordinary powers of resistance, does not always escape serious injury or possible destruction in such a turmoil of conflicting forces. Moreover, a vicious curvature in the nutrient artery, wholly trivial from a mathematical standpoint, ought to be quite as significant in principle to the pathologist as some stupendous freak in the course of a great stream is to the student of another department of natural science. Above all, it must not be taken for granted that the uterine artery pursues anything approaching an unalterable course from its source at the anterior trunk of the internal illiac until it disappears as a definite tissue somewhere within the variable folds of the broad ligament. Its variations are fully as pronounced comparatively as are those of other structures of the human body.

So far as uncomplicated vaginal hysterectomy is concerned the uterine artery ought no more to be involved in the procedure than the internal pudic is in the usual operation of perineal lithotomy. This vessel does not normally penetrate the uterine substance at any point, but flows through the loose connective tissue more or less distant from the body of the womb, and it may easily be pressed clear of all danger in the earlier part of its course by the finger of the operator, precisely as the ureter, the base of the bladder, and other structures of lesser importance may be dealt with in similar fashion. The splendid and harmonious design of nature does not admit of the coursing of a blood-vessel through the heart of muscular tissue, where its channel would be obstructed by the exercise of the normal functions of the muscle. Just why it should occur to any operator to plunge headlong into the needless and dangerous exploit of ligating the trunk of the uterine artery, when no such course is indicated, nay, when all the principles of rational surgical practice condemn it, may well be left to those who are more concerned with the observation of the letter of some ritual than they ought to be in the useful work of conserving human vitality. My conception of a classical hysterectomy is an operation pursued with the fixed determination of removing whatever tissues may threaten human life, with the least possible disturbance to those tissues that bear no such odium, and in the simplest, safest, and shortest

manner possible to human skill. If the uterine artery, or any other vessel, obstruct the main purpose of the operator, the artery must be sacrificed in the interest of sound surgical practice. But the whims of no operator, however celebrated, must be permitted to befog the luminous teachings of scientific surgery. The large and beneficent additions to the surgical art that have sprung from the labors of Kocher and Bassini are founded upon the clearest principles of natural science, and not upon the trivial likes and dislikes of individual students of natural principles. Art may assist nature by imitating her methods, but the highest art is admittedly that which most perfectly conceals its own existence.

Of all the dangers that arise from the operation of hysterectomy, unchecked bleeding stands preeminent; but the greater risk from this cause comes properly from branches above, and not rightfully from the main trunk below. The most dangerous field for copious bleeding will be found most probably in those dense upper bands of the broad ligament that are attached to the body of the uterus, when all reasonable danger to the main part of the uterine artery, the ureter, and other structures has been passed in safety. Through this part of the broad ligament the artery often lies in a series of loops, certainly none of which when severed can bleed when all have been securely compressed within the blades of a dependable clamp. To be more specific, after the main stem of the uterine artery has been driven from the field of operations, the danger of possible bleeding increases as we proceed upward, where a network of anastomotic twigs, quite variable in size, are generally found. The fundus of the uterus having been drawn well forward into the wound, the clamp is pressed home from below upward, closed securely, and well locked, where every movement is under the eye of the operator. I use the word clamp, being fully conscious of some of the absurd objections that have been raised against it, even by those who have never employed it. My preference for that instrument is based upon the reasons that it can with ease be employed in situations where no ligature can be applied, and generally in a fraction of the time that a man of the highest skill can tie a secure knot. The practical results of the operation speak for themselves.

This is not the time for a full consideration of vaginal hysterectomy, with its important complications, or even for a more extended word on the subject in hand. I am, however, gathering the essential materials for a more complete survey of this great topic, beginning perhaps with the work of the celebrated von Langenbeck, and presenting it in such form as may prove helpful to those who love science for its own sake and art supremely for its value in the saving of human life.

Mild Type of Typhus in Portugal.—Cases of exanthematic typhus have appeared in various parts of Portugal. They appear to be well scattered and thus far without mortality. The disease seems to have spread from the cities to the rural districts and a number of the cases were traced to a prostitute of Oporto. Several cases developed in the medical and sanitary personnel.—*El Siglo Médico.*

TESTING FACTS AND THEORIES OF HEREDITY.

By CASPER L. REDFIELD,

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We observe that an unsupported thing will fall to the ground. By investigating the matter we find that there is a law, called the law of gravitation, which controls falling bodies. By studying that law, and by making some tests under it, we become satisfied that it is universal in its application to physical bodies, and that there is no such thing as an exception to the law of gravitation. But some person who is ignorant of the facts, or who wants to play upon the ignorance of others, might point to a rising balloon as evidence that the law of gravitation was a mere hypothesis not sustained by the facts. But, by reason of our knowledge of the fluidity of air, and the relative specific gravities of air and balloons, we know that the rising balloon is itself an illustration of the action of the law of gravitation. The contradiction is apparent and not real, and is due to the fact that the lighter of two bodies is visible to the eye and the heavier is not. When observation makes contradiction apparent, we may know that more than one factor enters into the problem.

It has been demonstrated that superior offspring come from older parentage, and that inferior offspring come from younger parentage. It may also be shown that inferior offspring come from older parentage, but it cannot be shown, except in a very qualified and limited sense, that we can get superior offspring from younger parentage. The term "parentage" here refers to the age of the parents at birth of children in several successive generations. "Superior" and "inferior" applied to offspring refer to their mental and physical powers and not to such things as the color of their hair or the shape of their toenails. It also refers to improvement or degeneracy continued through several generations. The fact that we may get both superior and inferior offspring from older parentage makes it clear that more than one factor enters into the problem. The statement that I have advanced the age of parents as the one overwhelming factor in heredity and evolution is a misrepresentation.

My friend says: "Mary is a superior girl. She is at the head of her class in school, and is a fine musician. She was born when her mother (Jane) was about seventeen years old; her mother was born when her grandmother (Susan) was about seventeen; and the grandmother was born when her mother (Nancy) was about seventeen. How about it?"

The question is a fair one and is entitled to a fair answer. That answer must necessarily touch upon methods by which facts are determined scientifically. But that touching must be both light and brief, as we cannot here give a treatise on scientific methods.

When we speak of Shakespeare, Franklin, and Humboldt as being superior men we are referring to completed life histories, and not to the relative standing of school boys. Shakespeare had "small Latin and less Greek," Franklin had almost no schooling, and in childhood Humboldt gave no in-

dication that he might later become one of the master intellects of the world. The fact that Mary is at the head of her class in school is no indication that she will become another Hypatia, Madame de Staël, Charlotte Bronté, or Harriet Beecher Stowe. The superiority ascribed to Mary is not sufficient for us to take her alone and compare her with the ages of her mother, grandmother, and great-grandmother. But I will not dodge the issue in that way. While there is nothing in the facts presented to show that Mary will become a remarkable woman, there is nothing to show that she will not. Some day, when this matter is better understood, the ages of these female ancestors will be considered as sufficient for us to say that Mary could not possibly become one of the remarkable women of the world, but we are not warranted in using that argument at the present time. We will simply concede that Mary is a bright girl and may become a woman who is rather more intelligent than the average woman in the community.

Mary is a bright girl, but the evidence presented by my friend does not indicate that she is any improvement over her great-grandmother, Nancy. In fact, she may be inferior to her great-grandmother. If we are to test the effect of ages of parents on offspring we must know whether there has been improvement or the reverse. When we pick such a monumental intellect as Sir Isaac Newton we know that there must have been an improvement, as it is out of the question that his ancestors several generations previously should have been his equal.

My friend gives the ages of Jane, Susan, and Nancy—female ancestors in three generations. But in the same generations, Mary had eleven other ancestors, the ages of whom are not given. These all have their influence on Mary's heredity, and for all that my friend says, the average age of the fourteen ancestors in three generations may be above the average for the community. Practically every pedigree extended for three generations shows some young parents in it, and these young persons may be at any places. The most that is set forth for Mary's pedigree is that there are unusually young persons in three-fourteenths of the places.

The age of parents is one factor in the problem. The other factor is the intensity with which Mary's ancestors were educated. When we know how hard those ancestors studied, and how many years that study continued, then we know how much they were educated. When we know how much they were educated, then we know to what extent their mental powers were developed by mental exercise, and the degree of that mental development is the real thing.

Mary is now a high school girl. If her mother had had as much as five years of schooling, then that mother had received considerable more schooling than was received by the average American child of the same date. If the grandmother received as much as four years of schooling, and the great-grandmother received as much as three years of schooling, then they also received more than the average children of their days received. The statement of my friend gives no information on this point for the three ancestors mentioned, and, of course, nothing for the eleven not mentioned.

When we take a large number of cases, properly classified with respect to some particular thing, we may concentrate on some particular point for the purpose of learning if that particular point is a factor in that particular thing. But when we have only one case, and want to measure it, we must know all of the factors, or at least, the principal factors. One of the factors in determining the weight of a body is its bulk, and one of the factors of bulk is length. But if we tried to determine the weight of a body by length alone we would find a kite string to be heavier than a cannon ball. In the case of Mary we have only part of the factors in one case, and, consequently, the question is indeterminate. We cannot say anything about Mary except that, with part of the factors small, she can not possibly be that kind of an extraordinary individual which is produced only when all factors are large. To show what effect age of parents has we must use entirely different data.

The eminent men of the world are superior individuals to whom our attention has been directed. The fact that our attention has not been directed to Smith of Jonesville is not evidence that Smith is lacking in qualities of superiority. It is well to bear that point in mind, as many persons go on the assumption that there is no existence to what they do not know. If we pick out several hundred of the most eminent men of the world we have a large number of persons classified under the head of intellectual power. With such a group we may direct our investigation to one possible factor, like the age of parents, and when we do so we find that these men were produced by fathers who averaged over forty years of age at the times when their eminent sons were born. We may also direct it to education as such, and when we do so we find that the eminent men not only came from fathers who were educated for many years, but fathers who were intensively educated.

But the most gigantic mass of reliable information on this matter to be found anywhere in the world is in the history and records of the American trotter during the nineteenth century. Analyzed and digested those records throw a flood of light upon what is necessary to bring about improvement in the human race. For example, the improvement in trotting speed was continuous and nearly uniform for a century of time. We have hundreds and thousands of animals which we may classify and which we may use to determine what factors enter into this improvement. We also have pedigrees in full for several generations for indvidual animals, and we may test these factors by applying them in individual cases. When we do these things we find that what we do for the development of the mental and physical powers of the race is exactly what we do for the development of the mental and physical powers of the individual. If a man wants to develop strong and powerful arms he must exercise the muscles of his arms. He cannot accomplish that result by studying law or wiggling his toes.

With trotters, improvement in trotting power from generation to generation came from sires and dams who developed their trotting muscles by hard trotting work before reproducing, and never came in any other way. Furthermore, the rate at which this improvement occurred in any particular line from generation to generation is proportional to

the extent to which sires and dams developed their own muscles by work before reproducing.

When Sir Isaac Newton said that bodies attracted each other directly as their masses and inversely as the square of the distance between them, he stated a mathematical proposition which was susceptible of direct proof or disproof. In saying that improvement in trotting powers from generation to generation was proportional to the extent to which sires and dams developed their own trotting powers before reproducing, I am stating a mathematical proposition which is susceptible of direct proof or disproof.

It is quite true that the amount of development acquired by exercise before reproducing cannot be determined exactly for any sire or dam, but it can be determined approximately in thousands of cases. When we make such determinations for the different animals in successive generations, we get the substantial equivalent of exact determinations. It is also true that there are some peculiarities in transmission which tend to obscure the relationship between parent and offspring, but when an improvement is traced through several successive generations, these are practically wiped from the slate. The thing to be noted here is that I am stating a thing which may be tested mathematically, and I am pointing to the records by which any one may verify my statements. In a way, such verification is simple, but it is not so simple that one can ignore half of the factors entering into the problem.

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Medicolegal Notes.

Hypothetical Questions—Evidence to Support—Reading from Books on Cross-Examination.—In an action against a school of osteopathy and a member of its faculty, who, it was alleged, while treating the plaintiff, negligently broke her sternum, what was said by the president and dean of the faculty of the school while making a diagnosis at the request of the defendant member, with reference to the condition of the plaintiff's sternum, ribs, etc., was admissible; it not being denied that such member treated the plaintiff as the agent and employee of the school. The statement of the defendant, while treating the plaintiff a day or two after the injury, to the effect that he was the cause of all the suffering, was admissible against him. It was held the trial court properly permitted the plaintiff to relate a conversation to the effect that, when she charged the defendant member with responsibility for her injuries, the accusation was not denied by him.

Every party has the right to put before the jury the scientific inferences properly deducible from such facts as the evidence tends to prove, and subject to the contingency that the jury shall find such facts to be as claimed. The rule is that the court will permit counsel to put to the expert, after his competency has been established, a question in which the things which the evidence adduced tends to prove, and which counsel claims to have proved, are stated as a hypothesis, and the witness is asked to state and explain the conclusions which, in his opinion, result. Then, if the jury should find that the facts assumed in the question have been proven by the evidence, they may use the technical information and instruction obtained from the expert in determining the ultimate facts; but, if they should find that the facts assumed in the question are not true, then, of course, the opinions based on them should be wholly disregarded.

It was objected for the defendant that the trial court erred in permitting counsel for the plaintiff to ask a medical witness the question as to whether or not Hulett (whom the witness had already testified was a recognized authority among osteopaths) in his book did not make the statement that "direct violence may cause depression, in which case there is likely to be a fractured cartilage, occasionally the row of cartilages on one side will be more prominent than those on the opposite." The objection was that it was "hearsay." Hulett's book, from which the statement was read, is a book recognized and used as a textbook by the defendant school for ten years, and the witness in question had so stated, and previously thereto had testified that according to the teachings of the defendant school there could be no fracture of the cartilage of the ribs. There was, therefore, it was held, no error in submitting the question. It is permissible in cross-examination to read to the witness statements contradictory to his opinions, found in books which he admitted to be authoritative, and to ask him to explain the contradiction. This practice is allowed on the theory that the books are referred to merely to test and discredit the knowledge of the witness.—Atkinson v. American School of Osteopathy, (Mo.) 202 S.W. 152.

Evidence in Malpractice Cases.—The Illinois Appellate Court holds that, in an action against a physician for damages for negligence in placing hot water bottles on the plaintiff's body during childbirth without protecting her body and limbs, the burden of proof of negligence is on the plaintiff. Evidence that the physician used a brass pin in opening a blister, caused by the use of a hot water bottle without adequate protection to the body of a woman at the time of childbirth, is inadmissible in such an action, where the only negligence was in negligently placing hot water bottles on the patient. The error was not cured by instructions of the court, where the only negligence charged was in negligently placing hot water bottles on the patient, and the purpose of the admission of the evidence was to inflame the minds of the jury. It was held that the defendant should be allowed to cross-examine a medical witness for the plaintiff, who attended the plaintiff after the injury and testified that on an examination he found the plaintiff's kidneys affected and that absorption from burns affects the kidneys, as to what diseases might have affected the kidneys. The gist of the action against a physician for malpractice is negligence and not the violation of the contract of employment.

The plaintiff, in such an action, must allege in her declaration her freedom from contributory negligence. Her failure to do so is not caused by verdict where an instruction directing a verdict and referring to the declaration is given that in effect informs the jury that it is not necessary for the plaintiff to prove that she was in the exercise of ordinary care. An instruction that the jury found for the plaintiff, then to enable the jury to estimate the amount of damages to the plaintiff for injury to her person it was not necessary that any witness should have expressed any opinion as to the amount of such damages, but the jury themselves must make such estimate from the facts and circumstances in proof was held to be misleading in referring to the damages as charged in the declaration, which enumerated physicians' bills, nurse hire, medicines, and being hindered and prevented from transacting her business affairs, as well as pain and suffering and weakness of body and mind caused by the injury. The damages for liabilities incurred and damages to her business affairs must be based on evidence of debts necessarily incurred and evidence showing the value of her mind and body are to be estimated by the jury in connection with their knowledge and experience in such matters.—Peters v. Howard, 206 Ill. App. 610.

Hypothetical Questions.—A party has the right to the opinion of an expert witness on the facts of the case as he claims them to be, and he may propound hypothetical questions assuming as proved all facts which the evidence in the case tends to prove.

It is a general rule that an expert witness should not be permitted to give his opinion upon the ultimate fact to be found by the jury. It is also another well-settled general rule that an expert may give his opinion upon any question within the realm of scientific knowledge. When the ultimate fact to be found by the jury is a scientific question, these two principles necessarily come into confusion, and one or the other must give way.—Sullivan v. Minneapolis, St. P. & S. S. R. Co., Wisconsin Supreme Court, 167 N.W. 311.

Military Medicine.

Medical Work in the British Army.—At a special meeting of the Toronto Academy of Medicine held on Monday, June 17, under the presidency of Col. A. Primrose, C. A. M. C. A., Col. Sir Arbuthnot Lane, R. A. M. C., gave a description of the remarkable plastic surgery and cosmetic work now being done in the special hospital at Sidcup near London. It was pointed out that face disfigurements were the worst, in that facial mutilations were so obvious. Men who had been wounded in the body or arms or legs returned to their families and received a hearty welcome, but in the case of face disfigurements it was an altogether different matter. The man who was thus disfigured often frightened his own children. Before the war plastic surgery was almost entirely unknown to British medical men, the only place in which Sir Arbuthnot had seen it was in Vienna. However, English surgeons had now learned the art thoroughly and this was demonstrated by the clear description given by the speaker of the remarkable manner in which the surgeons at Sidcup in collaboration with dentists, artists, and modellers in clay were able to build up or in many instances make a new face. It was described how the artist made a drawing of the face either from a photograph or from his inner consciousness as to what the face should be, after which it was modelled in clay and the parts lacking were supplied by bone, cartilage, and flesh taken from other portions of the body. Especially did the speaker lay stress on the bone grafting, drawing attention to the fact that while bone grafting in the extremities was a very uncertain procedure, because of the tendency to infection, in the head and jaw it was attended with quite extraordinary success. A "big chunk" of bone could be taken from the ischium, shaped and fitted into the jaw with no untoward consequences whatsoever. Emphasis was also laid upon the point that large pieces of epithelial inlay graft taken from the most suitable parts of the body could be used for the face with a very large measure of success. As for a lost eye not only could a very good substitute be supplied, but it could be made to move or rotate in so natural a manner that it was difficult frequently to believe that it was not a real eye.

Sir Arbuthnot Lane then spoke of the organization of the large military hospitals at Aldershot, the largest in Great Britain. His view as to the organization of such hospitals may be summed up in the statement that economy of labor makes for efficiency and such economy can only be gained by specialization. That is, each man should be given a certain line of surgical work to which he should wholly devote his time. It must be remembered that the ordinary medical practitioner is not called upon except in exceptional circumstances to do major surgery and therefore he is not a skillful surgeon. However, the exigencies of the war have rendered it imperative that all the available medical and surgical material of the entire medical profession of Great Britain should be called into service. Now it would be manifestly impossible, however apt to learn a man might be that he could cover the whole range of surgery, or even a considerable part of it in the comparatively short time at his disposal. But, if he specialized in a particular branch of surgery he might in a few months become competent and perhaps really proficient by thus concentrating his faculties. For example, an instance was cited of a general practitioner well endowed with this world's goods, who before the war had conducted his practice in a *laissez aller* kind of manner. When he was nailed to a specialty under the stress of endeavor and earnest hard work his hidden talent was discovered, and he has developed into not only a skillful operator but into one of the acknowledged authorities in Great Britain on genito-urinary diseases.

Col. Herbert Bruce, R. A. M. C., then gave a review of the medical and surgical work done at the front. With regard to the treatment of wounds it was pointed out that at the beginning of the war surgeons attempted to treat wounds on aseptic principles in the same manner as they had been accustomed to treat them in the hospitals at home. Under the conditions of war the results were exceedingly bad and for a time antiseptic treatment pure and simple held sway. This, too, was found to be unsatisfactory and various measures of one kind and another have been tested in order to discover a reliable means of combating sepsis. None of these has proved entirely successful. Wright's method has its advocates, and the Carrel-Dakin method is largely employed. However, it appears to have been demonstrated that effective drainage is of more consequence than the application of any antiseptic or of the use of any method for controlling sepsis. If a wound is thoroughly cleansed, however, it may be closed and frequently will heal by first intention. Attention was drawn to the fact that trench fever has been found to be infective, and that suspicion, almost amounting to certainty, has been directed to the body louse as the infecting agent.

Colonel Bruce held the opinion that the discovery that transfusion of blood is of the highest value in overcoming hemorrhage and hemorrhage plus shock was one of the most valuable results of the war from the medical standpoint. It was pointed out that not only fresh blood but citrated blood kept in cold storage could be employed for this purpose, and to Major L. Bruce Robertson must be given a great deal of the credit for establishing this mode of treatment. In the retreat of the Fifth Army a large number of bottles of citrated blood were captured by the Germans and it was suggested that it might be used by them to purify their own blood.

The great need for medical men was dwelt on and it was related how in the attempt to economize the time of the limited supply of doctors nurses were being trained to act as anesthetists. Especial praise was accorded to the work of the sanitarians and hygienists at the front and behind the lines. It was stated that at the present time there were only twenty-seven cases of mild typhoid fever in the entire British Army in France, a result due to inoculation and to efficient sanitary measures. The statement was made

by the speaker to the effect that while anti-typhoid vaccination was not compulsory in Great Britain, when the British soldiers were removed from home influence all opposition to the procedure seemed to vanish and vaccination was practically universal in the army in France.

Long Beach Hotel Taken for Army Hospital.—The Government has signed a contract for the use of the Hotel Nassau, at Long Beach, L. I. It is expected that the property will be taken over early in September. It is planned to use the building for a convalescent hospital for soldiers.

The Red Cross Organizes Overseas Communication Service.—The Atlantic Division of the American Red Cross announces that a communication service has been organized and that men are being sent to France in quest of casualty information. These men gather information concerning men in hospitals, write letters for them, and send news to the home folks. They also locate prisoners, seek the missing, and mark graves.

Casualties of the American Expeditionary Force.—The figures of the War Department, on July 12, show that up to that date there have been 1,629 men killed in action, 587 have died of wounds, 1,336 of disease, 501 have died from accident or other causes, 5,340 have been wounded in action, and 508 are missing. It is worthy of note that not as many men have died from disease as have been killed in action.

Mobile Hospital Units Ready to Sail.—Hospital units ready to sail or able to embark on two weeks' to a month's notice include base hospitals, evacuation hospitals, ambulance companies, railroad hospital trains, convalescent camps, and medical supply depots. All these are in addition to the regular medical department units. Fifty railroad hospital trains of sixteen cars each are on order in Europe or already delivered to the American Expeditionary Forces. Each of these trains has a capacity of 400 patients, with operating rooms, kitchens, etc. Each base and evacuation hospital comprises the personnel and equipment for a hospital with a normal capacity of 1,000 patients. Each ambulance company consists of 37 men and an officer and operates 29 ambulances. A convalescent camp is organized to care for about 10,000 patients and includes a 1000 bed hospital. Its personnel, as formed on this side, consists of 10 officers and 90 enlisted men. This is merely the medical personnel and will be augmented and later largely replaced by medical officers and enlisted men from among those convalescing. At these convalescent camps considerable reconstruction work will be carried on.

Wounded Soldiers in Scottish Woman's Hospital.—The Committee on Public Information, Division on Woman's War Work, states that fifty wounded American soldiers are being cared for in the Scottish Women's Hospital, Abbaye de Royaumont. America contributed $750,000 to the Scottish Women's Hospital, which was opened in December, 1914. The hospital started with 200 beds and has since increased the number to 500.

Elks Give Reconstruction Hospital.—Announcement was made at the fiftieth grand lodge reunion of the Benevolent and Protective Order of Elks, held in Atlantic City, on July 8 and 9, that a gift of a $350,000 reconstruction hospital had been made to the Government. Three weeks ago the cornerstone of a similar institution, costing $250,000, was laid in Boston. The second institution is to be located in New Orleans. The war relief commission of the Elks has charge of the distribution of $1,000,000 relief fund.

Women Health Officers for Munition Plants.—The Ordnance Department makes the announcement through the War Department that women health officers will be assigned to the munition plants to see that the women workers are kept healthy and their output of war material thus maintained at the peak of production. For the training of these inspectors an eight weeks' course of study is being given at Mount Holyoke College, South Hadley, Mass. The course is under Dr. Kristine Mann. The women taking the course are college graduates or women of equivalent technical education and almost all have had experience in dealing with working women. Many of the plants now have physicians and nurses to care for the workers when they are ill, but this work is to be done along entirely new lines, being entirely constructive and preventive.

Student Nurses Wanted for Training in U. S. Hospitals.—The Council on National Defense announces that 25,000 student nurses are wanted at once for training in American Hospitals. This call is for women between the ages of 19 and 25 years and is being issued jointly by Surgeon General Gorgas, Surgeon-General Rupert Blue, H. P. Davidson, chairman of the War Council of the American Red Cross, Dr. Franklin Martin, chairman of the General Medical Board, and Dr. Anna Howard Shaw, chairman of the Woman's Committee, Council of National Defense. The enrollment will begin July 29, and those who register will thereby be subject to call for training in the army nursing school or in civilian hospitals until April 1, 1919. The enrolling will be done by the Women's Committee of the Council of National Defense.

Four Schools Opened for War Cripples.—The first group of these schools has been in operation for some months and is known as the Red Cross Institute for Crippled and Disabled Men, at 311 Fourth Avenue, New York. This school teaches the manufacture of artificial limbs, linotype and monotype operating, mechanical drafting, and oxyacetylene welding. Similar schools are being organized in Chicago and St. Louis. The Smith-Sears bill recently passed by Congress provides an appropriation of $2,000,000 to be used at the discretion of the Federal Board of Vocational Education, which is working out plans in New York City. The law authorizes the commandeering of private and public institutions for the reeducation of crippled soldiers and sailors and, where necessary, the building of new schools.

Health of the Camps Excellent.—The weekly army health report, issued on July 11, states that health conditions at home camps are very satisfactory. Deaths during this week numbered 112, during the preceding week 81.

New Manhattan School Building Will Not Be Hospital.—The Board of Education of New York City has been notified by Surgeon-General Gorgas that the Government will not take over the new Manhattan Trade School for Girls as was announced some time ago. The reason for rescinding this order is that the arrangements for taking over the school were made without due authority. Surgeon-General Gorgas states that it is not the policy of the Medical Department to take over school buildings.

Ambulances Ready for Air Raid.—Five ambulnaces for use in connection with the Emergency Relief Organization in the event of an attack on the City of New York by enemy aircraft, submarines, or disaster of any kind, have been donated to the Police Department and have been placed in Police Department garages in various parts of the city. The donors of these ambulances are the Calvary Episcopal Church, Church of the Ascension, Knights of Columbus, Friars' Club, and the Fifth Masonic Division. The name of the donor appears on each ambulance.

Navy Has Plenty of Medical Supplies.—Secretary Daniels has made an official denial of the rumors that the United States Navy is short of medical and surgical supplies. He states that there is an abundance of all medical supplies on all ships, and that the medical supply depot at Brooklyn is packed with enough supplies to last for months to come. Private individuals should not attempt to supply ships unless requested to do so.

Girls Killed in Hospital Air Raid.—In a recent German air raid on the Belgians more than fifty girls were killed by air bombs launched upon an ambulance park at La Panne, behind the Yser front. The girls were engaged in making bandages and repairing linen for the wounded.

Shore Drives for Sick Soldiers.—A new line of war service work has been initiated by the Brooklyn branch of the National League for Women's Service. This organization has established a convalescent home for soldiers and sailors on the Shore Road at Eighty-ninth Street, Brooklyn, to which are brought convalescents from various military and naval hospitals for a day's outing. The home has received a letter from Secretary Daniels expressing appreciation of the work.

Sisters of Charity Join Red Cross.—American Sisters of Charity, for the first time since the beginning of the war, have enlisted as Red Cross nurses. St. Vincent's Hospital of Birmingham, Ala., has organized the Loyola Unit, known as Base Hospital 102, consisting of ten sisters, including a dietician, laboratory assistant, secretary, and 90 Red Cross nurses. The sisters wear the habit of their order but in all other respects submit to the rules of the Red Cross.

Army Doctor Sentenced for Neglect of Duty.—Charged with having contributed to and accelerated the death of a soldier through gross neglect of duty, in that a careless diagnosis was made with the result that proper medical relief was not furnished, an officer of the Medical Reserve Corps, stationed at Camp Dix, has been sentenced to be dismissed from the Army and to serve one year imprisonment at hard labor.

Influenza Among German Soldiers.—According to a cablegram to the Associated Press, it has been learned, through captured documents and statemade by German prisoners, that the Germans are suffering extensively in numerous zones from the influenza which is running through Europe. The affection is said to strike down the men so quickly that they drop in their tracks while on duty. They have high fever for two or three days and are usually laid up in the hospital for six days.

Roumania Honors American Physician.—Dr. J. Breckinridge Bayne of Washington, D. C., who recently arrived in Berne, Switzerland, after having been held a prisoner for a time by the Germans, had brought with him a decoration bestowed upon him by King Ferdinand of Roumania for his efficient work in fighting typhus in that country.

Dental Surgeon Killed.—Dr. Weeden E. Osborne, a Dental Surgeon of the Navy during the advance in Bouresches, France, on June 6, at great risk to his life, performed heroic deeds in aiding the wounded. He was struck by a shell while carrying an officer to a place of safety. He has been cited posthumously by Gen. Pershing for a Distinguished Service Cross.

American Wounded in London — American wounded are arriving in London in considerable numbers from the sections in France where Americans are brigaded with the British. As soon as they reach the hospital their arrival is reported to the American Army Medical Service and to the American Red Cross. It is expected that as soon as the Americans take over the two hospitals which the Red Cross recently announced were to be used exclusively for Americans most of these men will be transferred from the hospitals where they are to a hospital which has a staff of American doctors and nurses.

Rest Houses for Sick Soldiers.—The American Red Cross has opened its rest house in connection with the Walter Reed Army Hospital in Washington. This is one of forty-four such homes which the Red Cross has built or is building in connection with every camp hospital. These rest houses are being provided in connection with the army hospitals at the request of Surgeon-General Gorgas. They will also be built at all important naval hospitals. For the erection of the fifty or sixty that will be needed the Red Cross has set aside $512,000. In addition to that at the Walter Reed Hospital, houses are now open at Camp Upton, L. I., Camp Devens, Mass., General Hospital No. 1, New York, and Camp Dix, N. J. Thirty-nine similar houses are being rushed to completion at other camp hospitals.

Knights of Columbus Extend Work. — The Knights of Columbus now have 150 buildings in France and are rapidly increasing the number as the American Army expands. The organization announces that it has 350 secretaries in France and is now appealing for 2,000 more to man the 100 additional buildings now under construction. The organization now plans to expend $50,000,000 in its work for the coming year.

Another German Victory.—German aviators bombed the American Red Cross Hospital at Jouy, France, on July 15, killing two and wounding nine, among the latter a nurse. Miss Jane Jeffrey.

MEDICAL RECORD.

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ONE HUNDRED CASES OF ICTEROHEMORRHAGIC SPIROCHETOSIS.

NOLF and Ficket report this series in the *Archives Médicales Belges* for April. The material was seen during 1917. In regard to epidemiology the order of incidence is naturally of significance. But four cases were seen during the month ending June 20, and twenty-six the following month, with a drop to eighteen in the third, and a rise to twenty-seven in the fourth month. The monthly figures then fell respectively to eleven, ten, and four. There seems from this to be a relationship, then, between summer weather and disease incidence. The ten-day figures show two maxima at June 20-30 and September 10-20. Each of these periods was preceded by very hot weather. At the same time animal experiment makes it very probable that the sewer and trench rats act as reservoirs for the spirochete, while the intermediary, believed to be some stinging insect, has not yet been determined.

In practically all the material the patients entered the hospital on the fourth or fifth day of the disease—hence we have no first-hand knowledge of the early symptoms. From the testimony of the patients it is evident that the inception is sudden, with headache and prostration. Myalgias are complained of in the posterior aspect of the thighs, the calves, flanks, loins, and nuchal region. The muscles are extremely sensitive to pressure. There is moderate fever, while the pulse seldom exceeds 100. The blood pressure is very low, with 120 as the maximum. Prostration is marked, and this, with induced muscle pains, makes even turning in bed a hardship. An experienced practitioner will make the diagnosis from this behavior alone. The conjunctiva and ciliary body are injected and the subject complains of pains in the eyeballs whenever he looks upward or sidewise. A bronchitis is present with an harassing cough. The sputum, which is scanty, may be streaked with blood or at times there is hemoptysis without physical signs of bronchitis. The presence of blood in the sputum is the earliest hemorrhagic symptom as it is the most constant. Only when the subject is hemophilic do we find purpuric and scorbutic types of hemorrhage.

Tests of coagulation time show that this is somewhat delayed, varying directly with the degree of the hemorrhagic tendency. At the outset the stools are of normal color and consistence. Diarrhea was present in but 4 per cent. The liver is but slightly enlarged. There are anorexia and vomiting, the former constantly and the latter commonly present. Quite a degree of meteorism is frequent. There are almost always albumin and urobilin in the urine in the first few days. There is habitually a leucocytosis with polynucleosis.

The symptoms grow steadily worse from the first to the sixth day, at which period the conjunctiva is seen to be icteric. On the following day icterus becomes generalized. Bile is now present in the urine. The stools may or may not become blanched, depending on the degree of icterus. The latter appears to represent a stage of acme of the disease, and around the ninth or tenth day all of the symptoms begin to improve notably. For some five days more the patient, although without fever, is very weak, though no longer prostrated. The cycle of the icterus is about eight days.

Defervescence is followed by critical polyuria, which persists for perhaps a week, the patient voiding from three to five quarts daily for four days. But all is not over with these crises, for the malady is essentially remittent; somewhere between the fifteenth and twentieth days the temperature rises and stays up for a week, reaching a higher mark at times than the initial fever. There is, however, no accompanying general reaction of severe subjective symptoms. The second defervescence occurs on the twentieth to the twenty-fifth day, but the patient may not regain his normal status until the end of about six weeks, and this takes no account of residual weakness, anemia, vertigo, shedding of hair, etc.

The above description fits the typical case of moderate severity in which recovery occurs. In certain cases the subjective manifestations or the prostration are especially in evidence, but the authors do not mention any fatal cases such as have been described especially by the Japanese.

THE ACRIDINE DYES IN THE TREATMENT OF SEPTIC WOUNDS.

WITHIN the past year or so the bactericidal properties of acridine dyes have been highly extolled, and attention has been drawn to the fact that contrary to most antiseptics their action is enhanced in the presence of serum. In *American Medicine* for May, 1918, are two notable papers on this subject, one by Dr. R. Tanner Hewlett of London and the other by Dr. Douglas H. Stewart of New York. Hewlett deprecates the excessive praise that has been showered upon flavine recently by certain observers and he points out some of its drawbacks, especially its slow action as a bactericide. Hewlett quotes the conclusion of Drummond and McNee as regards the practical treatment of wounds with flavine, to the effect

that flavine appears to have many advantages in the treatment of recent war wounds, such as (*a*) absence of all toxicity, (*b*) prevention of suppuration and spreading sepsis, (*c*) the primary dressing need not be changed for two or three days, (*d*) the wounds are not inflamed or painful. But flavine cannot be classed as a success in the treatment of the later stages of war wounds. The wounds tend to assume a stagnant condition during which the processes of repair are almost in abeyance. After a few days when the dangers of gas gangrene and of spreading sepsis have, to a large extent, passed off, flavine should be stopped and another treatment adopted. In the majority of cases, wounds are not rendered bacteriologically sterile even by the prolonged use of flavine.

Hewlett, like so many others, who have had experience in the treatment of war wounds, has been forced to the view that "good surgery" is the essential for success. That is, thorough cleansing and complete removal of all foreign bodies and material, and free drainage. He questions, moreover, after this has been done, whether hypochlorite solutions are better than some other antiseptics and would like to see some of the high coefficient phenoloid disinfectants, which have a comparatively low toxicity, and some formalin containing disinfectant applied by the Carrel-Dakin method and the results compared with those from Dakin's solution.

Dr. Stewart points out that on account of the innocuousness of brilliant green and especially acriflavine, when applied to damaged animal tissues, contact with these dyes does not incommode parasites. In some instances, when conditions were favorable, maggots were observed by Stewart to crawl over the green stains without being discolored or appearing to suffer the slightest inconvenience. Nevertheless Stewart states that the good results that have followed the application of the green solutions are all that have been claimed for them, save for one disadvantage. Stewart sums up the drawbacks of the greens when dissolved by stating that they are excellent germicides, but not parasiticides, and when gauze bandages are soaked with such solutions and placed upon wounds these adhere.

It would seem that the value of the acridine dyes from the antiseptic standpoint have not been, by any means, accurately assessed as yet. It is likely as Hewlett suggests, from a consideration of the results gained from experiments and practice by others that the use of flavine in the treatment of wounds may be as a primary agent extending over a few days, other antiseptics being then substituted for it.

FRACTURES OF THE TIBIA FOLLOWING THE REMOVAL OF A BONE GRAFT.

Apparently it has not been sufficiently realized that a tibia from which a bone graft has been removed needs protecting splints for a rather extended period, if one would avoid the danger of fracture; for although such fractures have occasionally been reported, it is evident that the fact that the weight-bearing property of the maimed tibia and its power of resistance to lateral strain have been markedly interfered with, and are not regained for many weeks, needs to be emphasized.

This is well shown by the experience of John A. Brooke, *American Journal of Orthopedic Surgery*, June, 1918, who reports three cases in which fracture occurred in patients who were allowed to walk without support to the weakened tibia, at the end of four or five weeks. In his first case, a man of 24 was allowed to walk without support at the beginning of the fifth week. About a week later, upon rising from a chair, he made a misstep and slipped on the floor. There was immediate severe pain in the leg, and radiography showed a fracture beginning at the upper and inner angle of the cleft from which the graft had been removed, and extending obliquely upward nearly through the shaft. The second patient was a physician, 38 years of age, who was allowed to walk without support at the end of four weeks. A few days later, while going downstairs, he slipped, and brought sudden weight on the leg from which the graft had been removed. The *x*-ray in this case showed a fracture beginning at the lower angle of the space from which the graft was removed and extending obliquely downward well across the shaft. The third case, that of a man 47 years of age, occurred in the service of Dr. James K. Young. This patient made a misstep while walking in the yard, during the fifth week after operation, turned his ankle, and fell. The *x*-ray showed fracture of the tibia beginning at the upper angle of the area from which the graft was removed, and extending obliquely across the tibia. In all these cases the graft was removed by motor saw, hence it is reasonable to suppose that the minimum of trauma was inflicted.

Very little evidence of regeneration at the site of removal of the graft is shown in a radiograph which accompanies one of the reports, and it is evident that a tibia from whose crest a graft is taken should be supported for considerably more than the four or five weeks allowed in these cases. Adequate prophylaxis is so simple and easy, and the results from its neglect may be so disastrous, that accidents of this sort seem particularly regrettable as well as unnecessary.

ETIOLOGY OF DYSENTERY.

Aldo Castellani, the distinguished authority on tropical medicine, now connected with the Italian naval medical service, contributes an article on this subject in the *Annali de medicina navale e coloniale* for January-February. The distinction between diarrhea and dysentery was known to Hippocrates and equally to Charaka and Susruta. In Sanskrit dysentery was denoted by a word meaning bloody-mucous-diarrhea, of which an acute and a chronic form were recognized. The conception of these troubles has come down to us

undisturbed. The author recognizes dysentery proper and pseudodysentery or dysenteriform syndromes. The former is divided according to the exciting cause into four groups, bacterial, amebic, ciliate, and spirochetic, while dysenteric syndromes are due to malarial parasites, Leishmania, various worms, and certain arthropoda, and finally to mineral poisons.

Passing by the well known amebic and bacterial types, we note that of the various ciliate parasites in the human intestine, only one—*Balantidium coli*, is known positively to cause a true dysentery, although seven other species may possibly set up the disease. Spirochetes have been accused on rather doubtful authority by a few writers. The flagellates, such as Trichomonas and Lamblia—genera accused by Escomel and others as causing dysentery—are exculpated by the present writer.

In the diagnosis of dysentery it is necessary to exclude the pseudodysenteries. If a malarial subject develops dysentery it is most often the case that a true double infection has occurred, but exceptionally the plasmodium is able to set up a dysenteriform syndrome. In the latter case the symptoms subside promptly under quinine. The same may be said of kala-azar and dysentery, when antimony has a specific control of the bowel syndrome. Under pseudodysentery from worms the author relates a case due to one of the schistosomata. If there is a suspicion of mercurial poisoning in a case with dysenteric stools, the urinary examination at once clears up the diagnosis.

"Spanish Influenza."

During the past six weeks or so, much has been said in dispatches from Europe of a mysterious malady which appeared first in Spain and spread thence to other parts of the Continent. The German army is said to have suffered severely from its visitation, and it was even conjectured that the delay in the long-expected drive was due to its prevalence among the troops of the Crown Prince. At first, the disease was unrecognized, and the public press and even some medical papers gravely discussed its symptoms, which, when analyzed, were seen to be those of ordinary influenza of rather mild type. As a matter of fact, it is nothing more than a widespread epidemic, almost a pandemic, of influenza. We learn from *El Siglo Medico* that it first attracted attention in Madrid during the celebration of the religious festivals in May, when the town was packed with visitors. The mysterious part of it was its sudden outbreak in that one locality, but inquiry showed that it had prevailed more or less for some time in other cities of Spain. A little earlier, Chauffard, in Paris, called attention, at a meeting of the Société médicale des hôpitaux, to the epidemic incidence of a febrile affection recalling in its general features the influenza of 1889. Influenza prevailed in this country also to an unusual extent in the early spring. On March 30 it was stated in the news columns of the Medical Record that the Board of Health of this city had issued a warning regarding exposure to grippal infection, it being said that not since 1889-90 had the disease cut so heavily into the working forces of large employers of labor, both in offices and shops. A week before that one hundred cases were reported in Sing Sing prison, and two weeks later it was reported to be crippling the work of the Ford Motor Company in Detroit, 2,000 of the employees having been attacked within a period of ten days. And so the mysterious "Spanish influenza," which the Germans call "Flanders grip," is merely epidemic influenza, which appears to have started on its travels from America, going eastward in a direction opposite to that usually taken by the great pandemics.

Saliva as a Vulnerary.

The fact that a dog heals its wounds aseptically by constantly licking them has been explained by the formation of antibodies generated by the swallowed disease germs or toxins; the veterinaries indeed give the wound discharges to wounded animals by the mouth after and even in the absence of sterilization. The only other explanation of this fact, if it be a fact, is the bactericidal and vulnerary powers of the saliva. In the *Journal de Médecine de Bordeaux* for May, 1918, Dr. Grevin deplores the fact that he has neither laboratory nor library to investigate this subject, but he believes that a study of the ingredients of saliva could throw much light on the preparation of an antiseptic solution to be used as a wound dressing. The belief in the vulnerary properties of saliva *per se*, aside from any possibility of conferring immunity by swallowing, is old and the simple admonition to spit on a recent insect bite as the utmost that is necessary is encountered at times among practical members of the laity who come much in contact with these injuries. Such advice used to be given by a veteran insect exterminator whose empirical knowledge must have stood for something.

News of the Week.

German Hospitals Change Name.—The German Hospital in Manhattan has changed its name to the Lenox Hill Hospital. The German Hospital in Brooklyn will take the name of the Wyckoff Heights Hospital.

Infants Examined in Straus Milk Stations.—Nathan Straus has given instruction to Dr. Michael Schuman, physician in charge of the Straus milk activities and to his assistants to begin the examination of children who may be brought to the depots with a view to advising the mothers of these children as to the health needs of these infants. The work is part of the plan of the Federal Children's Bureau to save 4,700 children's lives in New York City.

Cholera in Russia.—According to a report coming through London, hundreds of persons in Petrograd are daily fallings victims to cholera. Authorities state that it is impossible to do anything to combat the epidemic owing to the very serious shortage of food, it being impossible to furnish even a quarter of a pound of bread daily. The Russian Council of Commissioners had made a most urgent appeal to the councils in the corn

provinces and to the railways to send food to Petrograd as rapidly as possible.

To Fight Yellow Fever in Ecuador.—An American sanitary commission, including four doctors and six nurses, headed by Dr. A. K. Kendall, has arrived in Guayaquil for the purpose of cooperating in the endeavor to wipe out yellow fever in that locality. The commission was sent by the Rockefeller Foundation.

Students in Maternity Hospitals.—It is reported that many mothers are being attended in childbirth by medical students at the Chicago Lying-In Hospital as a result of the shortage of regular surgeons. Publicity has been given to this innovation by an investigation of the State to determine whether the procedure is legal.

Call for Classification of Convicts.—The New York State Commission on Prisons, of which Dr. Walter B. James is chairman, met in the New York Academy of Medicine on July 12, to discuss problems in connection with mentally defective criminals. Resolutions were adopted calling for a classification of prisoners on a mental basis. The resolutions set forth that if a record were kept of each inmate's brain capacity prison authorities would be able to follow better methods in dealing with convicts.

Medical Jurisprudence Society is Defunct.—The majority of the members of the American Association of Medical Jurisprudence have filed an application in the Supreme Court for the dissolution of the corporation. The petition shows that the membership has decreased from 200 to 23, and that there is a general lack of interest in the organization. An order has been signed directing all persons interested to show cause, on July 30, why the corporation should not be dissolved.

Floating Hospital Begins Season.—The Floating Hospital of St. John's Guild of New York made its first trip for the present season on July 12. The floating hospital makes trips between various points in New York and Brooklyn to the hospital of the Guild at New Dorp, S. I. This is the fifty-second year that the guild has given this service to sick children of the poor.

Rally for New York Infirmary.—The auxiliary committee of the New York Infirmary for Women and Children, New York, recently held a patriotic rally at the Hotel McAlpin for the purpose of discussing ways and means of raising the $200,000 needed to continue the work of this hospital. This is the second rally held within a couple of weeks for this object. Dr. Angenette Parry is chairman of the committee.

Act to Incorporate Medical Society.—The Senate, on June 30, passed an act to incorporate the Medical Society of the District of Columbia. This society was originally chartered by Congress in February, 1819, and the charter having fallen into disuse was revived in 1883. By the enactment, in 1896, of the medical practice act for the District of Columbia, a large part of the charter which formerly had licensed practitioners of medicine was repealed. The society is planning to acquire a building of its own in which to transact its business and for this reason the revival of the charter has been requested.

Feud in Birth Control League.—An official announcement from the headquarters of the Birth Control League in New York City states that this organization has severed its connections with Mrs. Margaret Sanger, who served thirty days in the Queens County Jail for the dissemination of information about birth control. The reason given for this action is that a disagreement has arisen between Dr. Frederick A. Blossom, one of the founders of the league and Mrs. Sanger as to the management of the league, and the league is supporting Dr. Blossom.

Amend City Ordinance to Help Hospitals.—The New York Civil Service Commission announces that a serious situation arising in the city hospitals due to the ordinance passed in 1913 requiring that all city employees be citizens of the United States has been met by an amendment of the ordinance by the Board of Aldermen, permitting the employment in institutions for the sick and infirm, and in dispensaries, clinics, and laboratories, of aliens of neutral or allied countries. Until this ordinance was amended the city faced the prospect of closing many of the hospitals because many employees in these institutions had been drafted or had enlisted and a large number were enemy aliens whose services were dispensed with as soon as war was declared.

Blind to Use Braille Type.—The American Association for the Blind, after ten years' discussion, has adopted the revised Braille type as best adapted for the use of blind readers. The other forms of type for the blind will be gradually discarded in future publications.

Dr. Friedrich August Richard Strensch, a practising physician of this city, a graduate of the Baltimore Medical College in 1898, has been arrested on a presidential warrant as a dangerous enemy alien.

Dr. Maud Kinnaman, formerly of Washington, N. J., has been made head of the new medical college at Vellore, India.

Dr. George T. O'Donnell has been appointed health officer for the Connecticut Valley district to replace Dr. W. S. Hitchcock, who has been made director of the division of communicable diseases.

The Des Moines Valley Medical Association, at its annual convention in Des Moines, Ia., on June 27, elected the following officers: *President*, Dr. S. K. Davis of Libertyville; *First Vice-President*, Dr. M. F. Moore of Ottumwa; *Second Vice-President*, Dr. T. P. Jackson of Albia.

English Birth Rate Falling.—Sir Bernard Millet, the Register General, in a recent lecture, stated that in England and Wales the births registered in 1913 were 881,890; in 1915 they fell to 814,614, in 1916 there was a still further fall to 780,820; in 1917 they fell to 668,346, a decline from the 1913 figures of 24 per cent. Up to the present England and Wales are said to have lost in potential lives 650,000 on the standard of 1913. It is believed that without exaggeration it may be said that the war has thus far cost belligerent countries of Europe not less than 12,500,000 potential lives. At the present time every day of war is said to mean a loss of 7,000 potential lives among the Allies and the Central Powers. Race

suicide on a colossal scale has been the outstanding result of German militarism.

British Women Want Schools for Defectives.—A special subcommittee of the Joint Parliamentary Advisory Council, composed of women social workers and members of Parliament, has just issued a report upon existing permissive educational provision made for defective children. The report calls attention to the need of making the acts of Parliament dealing with these children compulsory and not permissive. The report states that there are in the country to-day between 37,000 and 40,000 children, who are cripples or otherwise defective, the greater number of whom are being deprived of educational advantages. There are in London thirty-seven schools for the physcially defective with an attendance of 3,700 children. There are fifteen districts in England and Wales that possess these schools. The special committee is asking for compulsory powers under the education bill and for the establishment of special residential schools for defective children.

Hospital Cornerstone Laid.—The cornerstone of the new People's Hospital was laid with appropriate ceremonies on the afternoon of June 30. The building is located at 203 Second Avenue, New York City, and will be a ten-story structure with all modern facilities.

Obituary Notes.—Dr. William Hunt Hall, a graduate of the New York University Medical School, in 1858, died at his home in New York, on July 8, aged 85 years. He was surgeon in charge of a Confederate base hospital near Petersburg during the Civil War.

Dr. N. Curtice Holt of New York, a graduate of Bellevue Hospital Medical College, in 1896, died suddenly in Webster, N. Y., on July 8, aged 65 years. He was a brother of Dr. L. Emmett Holt of New York.

Dr. Aaron A. Mendel, a graduate of a medical college in Roumania, in 1896, died at his home in New York City on July 12.

Correspondence.

PART-TIME NURSING SERVICE.

To the Editor of the Medical Record:

Sir:—The Red Cross demands the enrollment of 25,000 nurses for the army and navy, for public health work connected with the encampments, and for reconstruction work at home and abroad. This will greatly deplete the number of trained nurses available for private duty. The Red Cross exempts those nurses who are indispensable to the Department of Health and to the visiting nurse services, and a chevron indicating this recognition of their patriotic service at home will be issued to these nurses.

The needs of the country require a sacrifice on the part of the nurse-employing public and physicians to engage a private-duty nurse only when absolutely necessary. To meet the need of the public the Visiting Nurse Service of New York, administered by the Henry Street Settlement, is ready to answer calls from all classes of society where the full time of a nurse is not essential. The staff consists of about 150 nurses, all graduates of recognized hospital training schools, and especially trained in the technique required in visiting nursing. They are qualified to carry out physicians' orders for special treatments as well as general care. Every precaution is taken to safeguard the patients, and a special group of the staff is assigned to the care of patients suffering from contagious diseases and another special group takes care of maternity cases only. The nurses caring for general medical and surgical cases also observe a very careful technique as they pass from case to case.

This letter is addressed to those of your readers who may not be aware that the Visiting Nurse Service is meant for people of all classes. It is sincerely hoped that they, and their patients, who up to this time have used the full time of the nurse, will recognize the obligation to free such nurses whenever possible for war service.

Lillian D. Wald, R.N.
L. Emmett Holt, M.D.

New York.

THE STATE NARCOTIC DRUG LAW.

To the Editor of the Medical Record:

Sir:—The representatives of the Medical Society of this city who failed before Governor Whitman in their opposition to the law for a State commissioner of drugs will restate the objections which they placed before him in regard to this measure before the informal convention of the Republican party of this State at the Saratoga convention this week.

The result of drug laws in this State up to the present time has been to demoralize the practice of medicine so far as relates to the prescribing of opium. They have caused untold suffering and death to those having to use this drug, owing to drug laws harshly enforced by ignorant administrators. They have developed a new criminal industry more profitable and less risky than robbery, crimes of violence, or ballot box stuffing, from all of which vocations many of its members have been recruited. This class the police are powerless to suppress, for what reason is not known. The law for a commissioner of drugs has advantages of political patronage. It penalizes physician and patient and lets the drug peddler alone. Many physicians today are afraid to prescribe morphine in sufficient doses to patients dying of cancer. Of course, they are ignorant of their right to do so, as they have been terrorized by drug laws. Such a patient, using morphine in quantities, cannot be admitted to a public institution of mercy without having to be committed there like an incompetent, an inebriate, or a criminal.

John P. Davin, M.D.

New York.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE MEDICAL SIDE OF RECRUITING—MURDER OF PROFESSOR POZZI—SMALLPOX IN LONDON—HOSPITAL SUNDAY FUND—CARDIAC AFFECTIONS IN THE SOLDIER.

London, June 19, 1918.

Sir Auckland Geddes, the Minister of National Service, has had rather a difficult task of late in the House of Commons to explain to a body of lay-

men the medical principles upon which the grading of recruits are founded. In stating that there had been no change in the standards of medical fitness required for classification in Grades 1 and 2 since the Ministry of National Service took over recruiting from the War Office, he pointed out that Grade 1 meant men who presented "a normal standard of health and strength and are capable of enduring the physical exertion suitable to their age," quoting the words from the Recruiting Code, and added that in the medical grading of recruits current statistics covering a large number of examinations showed no increase in the proportion of men placed in Grades 1 and 2 by his Ministry. Grade 2 was generally equivalent to Category B1 and Category C1 in the old military classification, and included men passed for garrison service at home and abroad. Sir Auckland Geddes stated further that the number of complaints by the recruits as to the methods or results of examination by the civilian boards was not large, and that most of the cases, when inquired into, were capable of satisfactory explanation. But while for medical reasons the simple classification into three grades, or at any rate into a small number of divisions has every merit, it is clear both from Parliamentary questions and communications to the lay press that the tribunals are now seeking a more detailed grading of the men in order to facilitate their work in allotting the men to military or civil positions. Such grading complicated with questions concerning any man's particular fitness for military or civil work is hardly the duty of civilian medical boards, who have to decide simply to which of certain grades of physical fitness a man belongs. When it became fairly certain that the military age would be raised by a new Military Service Act, the matter of grading was carefully considered by the Ministry of National Service, the lines of possible procedure being clearly two: (1) To institute a new system of grading for the men of the older years; (2) to continue the system of grading already in use and apply it to the older men. The view taken by the Medical Department of the Ministry was that, to introduce any system of grading with a lower limit at such an advanced age as 43, though the idea would surely appeal to the lay mind, would have no firm foundation either on medical reasons or on reasons of efficiency for military or civilian work, while the innovation would interfere with the system of grading already in operation. The Medical Department of the Ministry consulted high medical authorities and received the opinion clearly and firmly expressed, that it would not be possible to establish different systems of grading for men of different ages. As a result the existing orders to medical boards place upon these boards an entirely new responsibility for this country, though it is one with which the countries where military conscription holds are quite familiar. All the foreign military powers have an older army which is developed alongside their younger army. From these older men military work of a certain character and up to a certain standard is expected. It is the hard case of this country that similar work is expected of our middle-aged men without the early training.

A real tragedy was enacted in Paris on June 13 when Professor Pozzi, certainly one of the most famous European authorities not only on gynecology but on abdominal surgery was murdered in his consulting room by a lunatic patient, who thereupon committed suicide. Samuel Pozzi, who was seventy-two years of age, though he presented a far younger appearance, was a native of Bergerac, was educated at the neighboring lycées of Bordeaux and Pau, and just fifty years ago went to Paris as a pupil of the great Broca. His gynecological work attracted public attention from the beginning, and at the age of thirty he was appointed to the professorship in the subject founded by the municipality of Paris at the University. A man of wide learning outside professional subjects, no narrow specialist within these subjects, a fair linguist, a prolific writer, and a picturesque personage, Pozzi acquired a world-wide reputation as a scientific ambassador. To him the French Government entrusted scientific missions on various occasions to all the European powers and to the United States, and he became a general interpreter at international congresses of the aims and accomplishments of different schools of medical thought. He acted as Secretary-General of the French Congress of Surgery, was President of the Surgical Society of Paris, and Vice-President of the International Congress of Gynecology held in that city in 1900. He was a Senator, a member of the Academy of Medicine, and shared with (among others) W. W. Keen, G. W. Crile, Harvey Cushing, W. J. Mayo, and J. B. Murphy the rare distinction of the honorary Fellowship of the Royal College of Surgeons of England. Pozzi is not the first well-known doctor to be murdered by a patient, while attempts on the lives of doctors by disappointed invalids have been chronicled in every country. In England the threatened doctor is usually the alienist upon whose certificate detention in a lunatic asylum has followed, but though the threats are quite common the attempts are rare.

The epidemic of smallpox in London, to which attention was drawn in your issue of May 4 in one of these letters, has not quite died down. Only 3 cases were notified during the month of May, and only 3 cases remained at the beginning of June in the Fever Hospitals of the Metropolitan Asylums Board, as against 13 at the beginning of May, and 30 at the beginning of April.

June 23 will be Hospital Sunday, and on that day collections will be taken up for the Metropolitan Hospital Sunday Fund in many places of worship of all denominations within the metropolitan area, the money being devoted to the voluntary medical charitites of London and the immediate environment. King Edward's Hospital Fund for London, though a much more modern institution, is larger in capital and in scope than the Metropolitan Hospital Sunday Fund, and it was at one time feared that the public might consider that subscription to the Royal foundation removed any lien upon them to subscribe to the older charity. The apprehension has been found incorrect. The Metropolitan Hospital Sunday Fund receives every year from the charity of worshippers a sum of between £40,000 and £60,000, and this is about the same sum that used to be received before the late King

Edward VII (then Prince of Wales) started the noble movement with which his name will ever be associated. There is again this year, as there has been for the last three or four years, a very pertinent reason why the public should give ungrudingly to the support of the voluntary hospitals of the metropolis, and that reason is that so many beds in these hospitals, general and special, have been placed at the disposal of the War Office on extremely favorable money terms for the use of the sick and wounded of the war. For these patients the War Office makes a capitation payment, but the prices of food, heating, lighting, and medical material have all increased so enormously that the capitation grant, though it has recently been increased, only slightly lightens the financial burden of the hospital authorities. The old capitation grant was 4s. per diem, but during this year the figure has been raised to 4s. 9d., and even at this rate a considerable debt is due to the hospitals. A recent report on the subject issued by the War Office and signed by Dr. E. N. Burnett and Mr. R. Orde, has been distributed by the British Hospitals Association, and throws interesting light on the manner in which civilian hospitals have assisted in the care of sick and wounded soldiers. It is clear that the additional burden placed by these patients upon voluntary hospitals during the war has been manfully met, but it is clear also that some of the hospitals are run in a vastly less economical manner than others. The cost to different hospitals for food, for fuel, and for laundry varies extraordinarily and in a way that cannot be accounted for either by any special character of the institution, by locality, or by the class of patients received. The range of prices for surgical dressings, the extent to which salaries have to be paid, the daily cost of surgery and dispensary, including the consumpton of surgical dressings; all these things apparently are governed by no general law, some institutions being quite extravagant, and others remarkably parsimonious. The War Office has no doubt distributed the report to show that it is not the Government that is parsimonious, but the charities which are profligate in the use of public money. This is not the general conclusion to be derived from a study of the evidence, but none the less the report forms a very pertinent reminder to hospital managements that good and worthy objects cannot be treated as a complete excuse for extravagance or for perfunctory supervision. The reminder is needed in a good many places.

A memorandum forming one of the Special Report Series of the Medical Research Committee, and supplementary to previous reports, has been issued by the Committee, dealing with the position of soldiers who have been sent back from active service as cases either of disordered action of the heart (D. A. H.) or valvular disease of the heart (V. D. H.) The latest memorandum has been written by Dr. Thomas Lewis, a prominent member of the research staff of the Committee, and assistant physician to University College Hospital, London, and it forms a detailed comparison of the plight of patients falling under one or other of the categories. The syndrome of effort, as displayed by soldiers returned to hospital, is found mostly among those offering no physical sign of structural disease, though it is also displayed by those in whom clear signs of mitral or aortic regurgitation are present. Of those who displayed symptoms on active service the non-valvular cases show a higher percentage, but this is because many valvular cases have been returned to hospital in the course of training. But naturally those in whom the valvular lesions have escaped detection are those in whom those lesions are the least serious. When disordered action of the heart is associated with signs of structural disease the condition has generally occurred among men who have been recruited to the army from sedentary and light classes of work, but it must be remembered that recruits are taken generally from more arduous employments. A high percentage of cases occurs in the sedentary and light classes, and is largely due to the unfitness of the men before they join, though faulty or too rapid training plays a part. But even among the soldiers invalided for grave heart disease the larger percentage occurs among those employed formerly in light work. Among the non-valvular cases, previous infections of various kinds play a great part, promoting a liability to cardiac failure in some 50 or 60 per cent. of cases where the effort syndrome is uncombined with clear signs of structural disease. This point has already been made in a previous memorandum of the Medical Research Committee, and Dr. Lewis now finds that the incidence as far as past histories of infectious disease are concerned is not dissimilar, whether in valvular or non-valvular cases, though in valvular disease the onset, when marked by any special event, dates most frequently from rheumatic fever. Gas poisoning and shell shock both have an influence analogous to that of infection. The sobriety among the men of the new British armies both before and after joining the service makes the question of the consumption of alcohol rather academic in the discussion of the etiology and development of cardiac disease.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

GOOD HEALTH CONDITIONS IN THE AMERICAN CAMPS —AN AMERICAN BASE HOSPITAL—WORK FOR CHILDREN AT TOUL—PROVIDING FOR THE TUBERCULOUS AT PARIS—AMERICAN FUND FOR FRENCH WOUNDED.

PARIS, May 28, 1918.

MOTHERS of America have no cause to fear for the welfare and health of their sons in France. Sanitary conditions are of the best in all the camps, and there is very little illness. Though the winter has been treacherous, and the men had to commence camp life at a bad time of the year, they have not suffered in the least, as particular attention has been paid to the supply of warm clothing and all of the buildings at the various camps are well heated. The field hospitals are in fine running order, and the men are as well taken care of as in any of the first-class hospitals of a city. It is most gratifying to see these boys who are so far away from home and mother being taken care of by good American nurses, and to find them so happy and contented with their surroundings.

In visiting the American camps, I looked in at one of the base hospitals. It was the first base hospital to be established for the American troops, and came over with the first contingent last June. The staff is composed of the Johns Hopkins Unit from Baltimore, with Miss Bessie Baker as the general directress and chief of sixty-two nurses, with a major as ranking officer. At present about 800 patients can be cared for, and new buildings are being constructed to bring up the capacity to 5,000. The barracks are strongly built, with perfectly equipped operating rooms, and a most efficient medical staff. The hospital is pretty well filled up for the moment with both surgical and medical cases. A number of the wounded have come from the trenches, but the majority of the patients have received their wounds accidentally in the camps or have had colds or appendicitis, but whatever their troubles are they are all as happy as possible under the circumstances. At first, there were more medical cases than surgical, but now there are about as many surgical cases. Although one hears a great deal about the soldiers having colds, and not being able to stand the French climate, there have been very few cases of pneumonia. Indeed, there has been much more pneumonia in the training camps in America than in France.

The hospital has comfortable quarters for the nurses, with nice, bright living rooms and dining rooms, and the food is excellent and plentiful. Entertainments are given for the nurses once a week, and they seem contented and interested in their work. Both the Y. M. C. A. and the Y. W. C. A. have had a share in making the hospital comfortable. There is a Y. M. C. A. hut near, which affords great pleasure to both the staff and the convalescent patients, and the Y. W. C. A. has contributed in many ways, such as giving a piano and gramophone for the recreation room, etc. The hospital was built and occupied by the French before America came into the war, and was turned over to the Americans in July. The staff is entirely American, with the exception of the lingerie staff. It is the French women of the village who do the laundry work and look after the linen.

Toul has become the center of great war activities, particularly in relief work, since the American Red Cross has made it a center of the important work for the children. The accomplishments of the Red Cross in its affiliations with M. Mirman, the prefect of Meurthe-et-Moselle, whose name has become sacred through his wonderful devotion to his people of the department, are truly marvelous. From a meager beginning last July, when M. Mirman telegraphed to the American Fund for the French Wounded that help was needed for 350 children who had suddenly been put in his care, has grown one of the most far-reaching organizations in a matter of real help to the French people that the Red Cross has yet undertaken to nourish. These same 350 children to whom the Red Cross rushed a group of eight emergency workers, to find them herded together in an old barrack that was dirty and unfurnished, and had nothing in the way of sanitary appliances, etc., are now being cared for under the very best conditions. New buildings have been erected and installed with all modern improvements. The hospital, dispensary, and refugee home, where mothers as well as children are cared for, are all well organized and in perfect running order; and what counts for more than anything else, these same little children, now numbering about five hundred, who have been brought from the villages back of the lines, where asphyxiating gas bombs were being dropped, are supremely happy. There are about 35 or 40 American women, nurses, aides, playground instructors, and other trained workers, to look after the children, with Dr. Maynard Ladd in charge of the medical department.

Arrangements are being made to extend the work in many directions under Dr. Ladd's supervision. Toul is to have 700 beds in all, and other bases are being established at Nancy, Pont-à-Mousson, Lunéville, and later there will be a base at Epinal; and sentiment has demanded that Einville be made a base for American work, as it is the village where the first American wounded were brought, and where the monument will be erected. Dr. Ladd has two points in mind in carrying out this work: First, the welfare of the children of France; and secondly, though equally important, the effect that such work will have on the morale of the French army. This may sound somewhat vague, but it is undoubtedly true that the French soldiers can remain in the trenches in a much better frame of mind when they know that their children are being given the best possible care. The workers are looking far into the future, and have in mind conditions after the war; and the fathers in the trenches realize this fact, and, with this vicinity being such a center for all the Allied soldiers, the news of the work is rapidly spreading, and it is bound to have its effect. The bad conditions that were supposed to be found here when the Red Cross came have been greatly overestimated. The French were doing a great work under the direction of M. Mirman, but after three years of war they had reached the point where they were overwhelmed with the burden and had to call for help, so the Red Cross came to the rescue. They came to help and not to teach, and have worked in the closest cooperation with M. Mirman, who is so beloved in this part of the country.

There is no part of France where the French have shown such efficiency in relief work, and there is also no part of France where the need has been so great. The workers have taken children from the villages all along the line where gas bombs were being dropped. In some cases the mothers are with them, but on the whole the work is confined to children alone. It has not been necessary to remove the mothers from the villages, as the adults can wear gas masks; but the little children do not use them successfully, and therefore must be moved to places of safety. The military authorities try to remove all the children under eight years of age. Knowing that their children are in a safe place and are being well cared for, the peasant women are urged to remain and harvest the grain in that district.

Dr. Ladd says that he is increasing the work by opening a new hospital of 200 beds. In fact, the recent raids on Nancy have already opened it. About forty beds are devoted to a maternity ward, which they expected to open next week, but M. Mirman notified them that a bomb had struck a maternity hospital in Nancy, and twelve women would have to be moved immediately, so they rushed

things up to meet that need, and within thirty hours after they received the notice the twelve women were comfortably installed in the hospital, and a baby was born.

The Red Cross can be doing no better work in any place in France than at this base at Toul. The sanitary conditions have been made perfect, and nothing has been left undone that will make the children, who are to be the future of France, strong and ablebodied. It is plain that every department has been looked after in the minutest detail by one who is intensely interested in the work. A special feature is being made of the recreation department, which is under Miss Cleveland of the University of California, where the children are made happy in a dozen different ways and taught to play. The dental department has been greatly developed recently under Dr. Stevens, a woman dentist. Particular attention has been paid to the operating rooms, and every branch of the medical department has been made as perfect as that of any hospital in the cities.

Ground has already been laid out and cleared for a family colony and village community for 1,000 tuberculous refugees just outside of Paris. The plans have just been approved of by the Finance Committee of the American Red Cross. The houses will have three or five rooms. Each will have a porch, and will be of a type which can be dismounted and transported to the devastated districts when the war is over. Dr. William Charles White, chief of the Red Cross Tuberculosis Bureau, and author of the scheme, believes that the Red Cross is thus aiding in solving in France the problems and difficulties presented by the overcrowded cities of America. It is a new opportunity in the history of the world, he declared. The daily entrance from behind the German lines of people useless to Germany, hundreds of homeless folks without any resources for resuming life, has created a problem similar to that of the misfit families which have troubled all big American cities. Many of them are tuberculous. These repatriates without homes create the necessity to provide dwellings in cities where all houses are already overfull. This has opened an unprecedented opportunity to the Red Cross to do what has hitherto been impossible in America, to meet the menace of tuberculosis without breaking up the family group. Fifty acres of meadow and woodland at Malabry, near the American Red Cross Hospital at Plessis-Robinson, has been turned over for the period of the war by the Department of the Seine, and the French Government will pay more than half the cost of the maintenance of the refugee families who will be installed there, so that the total cost will only be about $265,000. All the elements of a thriving French village will be developed. Schools and playgrounds, recreation facilities, a cooperative store, village laundry, community bathhouse, and dispensary, will be established, all in demountable wooden houses capable of transfer to the liberated districts when the military situation makes that possible. Industrial education for those well enough to undertake it, and training in hygiene for all, are also a part of the project. Hitherto, hospital care has meant the breaking up of families. In this case refugee families without tie and connections in the city will be moved bodily to the country village. Dr. White firmly believes that the example of Malabry will be one invaluable contribution to the solution of world-wide problems of urban congestion.

The American Fund for the French Wounded has taken over new duties in its affiliation to the American Red Cross in searching for the American wounded in the French hospitals. Inasmuch as the fund is in communication with 4,000 French hospitals scattered all over France, and having depots in practically every department, it is more capable than any other organization of finding these men who have been picked up seriously wounded and taken to the nearest hospital, and whose whereabouts, for that reason, are often not heard of for a time. The president of the fund says that mothers of America need have no fear of their sons falling into the hands of foreigners who could not understand their language, and therefore be incapable of seeing to all of their little needs, for the A. F. F. W. is everywhere in France, and its one great service is the personal attention that it gives the wounded.

Mrs. Benjamin G. Lathrop, the president of the organization, has recently made a trip to America, where she had a talk with the mothers of fighting men, and she knows what they want. She made addresses in many of the States to the thousands of women who have been supporting the A. F. F. W. and making thousands of garments for the French wounded for the last three years. She gave some idea of the surroundings of the soldiers and the great good that had been rendered through these American gifts. She raised $90,000 without half trying, even though she had gone on another mission altogether, and said that everywhere she went the women were saying "What shall we do? What shall we make? What is most needed?" and that no task was too great for them.

The A. F. F. W., through its president, made it clear to the women of America that its theory as to its method of work was unity of action. "It is not one American boy that is to win the war, as any mother might be inclined to think of her own son," said Mrs. Lathrop, "but it is the big fighting force, and the relief workers are a part of that force just the same as the soldiers. The women at home realize that the unity of force is necessary, and they are all joining the Red Cross because it is our national organization, and working as a body, and it is for the personal touch that they look to the American Fund for the French Wounded. In explaining the conditions in France the work should be divided into three duties: First, the duty of General Pershing; second, the duty of the Red Cross; and third, the duty of the women; and that is the basis on which the American women are working."

146, Avenue des Champs Elysées.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

July 4, 1918.

1. A Critical Discussion of Sugar in Its Relation to Infant Feeding. Lewis Webb Hill.
2. Dental Diseases in Relation to Diseases of the Nose and Throat. Kurt H. Thoma.

2. Dental Diseases in Relation to Diseases of the Nose and Throat.—Kurt H. Thoma refers to the frequent relation which exists between oral diseases and diseases of the nose and throat. The diagnosis of

dental disease requires careful and painstaking investigation and even though the Roentgen ray has facilitated it, the application of temperature and electrical tests as well as the diagnostic use of local anesthesia are often necessary to ascertain the exact location and nature of the difficulty. Thoma takes up certain typical lesions. He points out that the connection between malocclusion and nasal diseases was noticed by Hippocrates. Bottle feeding and thumb sucking are primary causes of compressed V-shaped arch and protruding maxillary bones; the lack of lateral development prevents expansion of the nasal passages and invites the formation of adenoids, which in turn causes mouth breathing. In such cases nasal respiration must first be established and the jaws given proper orthodontic treatment, which, of course, must be undertaken at an early age. Treatment should be supplemented by a diet which forces the child to masticate and by special exercises of the muscles of the face. Maxillary sinusitis, according to Brophy, in about 75 per cent of cases is due to diseases of the teeth. If large abscesses occur on the upper molars or bicuspids, sinus disease should be considered as a possibility, and, on the other hand, the teeth should be roentgenographed in all cases of maxillary sinusitis. Chronic pharyngitis is frequently associated with pus discharge from sinuses of chronic tooth abscesses, from pus pockets due to ill fitting crowns and bridges, or from pyorrhea alveolaris. Pharyngeal abscesses also are sometimes of dental origin. The fact that pain originating from some dental or oral cause may be referred to distant parts of the face and head is explained by the extensive area of distribution of the trifacial nerve and its frequent communications with other cranial nerves and the sympathetic system. The pain quite often simulates symptoms of sinus disease or is referred to the ear (otalgia dentalis). The tympanic plexus is connected with the second division of the fifth nerve by means of the splenopalatine, or Meckel's ganglion, via the great superficial petrosal nerve, and the third division communicates through the small superficial petrosal nerve and otic ganglion, which also gives a branch to the tensor tympani. The most frequent causes of the condition are pulp-stones (calcareous nodular formations in the tissue of the dental pulp), chemical or thermal irritation of the pulp, pulp infection of chronic character, or abscesses between teeth. The pressure and pain are due to the mechanical force exerted against the obstruction in the effort to come to the surface, or to pressure absorption, affecting a neighboring tooth. The author has been able to collect data to prove that the pain is due not only to the pressure of the occlusal surface of the tooth against the obstructing tissue, but in many cases is caused by the development of the roots in the opposite direction, where they may encroach upon the inferior dental nerve. Thoma reports a number of cases to illustrate his remarks and adds to the value and clarity of his article by the reproduction of some excellent roentgenograms.

New York Medical Journal.

July 6, 1918.

1. Device for X-Ray Location of Bullets and Other Foreign Bodies in Wounds. Sinclair Tousey.
2. Unusual Hyperpyrexia in Pneumonia. J. P. Crozier Griffith.
3. The Action of Radium on Cataract. Isaac Levin and Martin Cohen.
4. A Case of Dyspitultarism. H. Climenko.
5. A Plaster of Paris Bandage Roller. William H. Bennett.
6. Mechanical Comminution of Food in Therapeusis of Acute Alimentary Disturbances of Infancy and Childhood. Harry Lowenburg.
7. Analytic View of the Psychic Factor in Shock. George M. Parker.
8. Dispensary Abuse. Ira S. Wile.
9. A Brief Biblical Evolution of Medicine. Joseph H. Marcus.
10. The Epidemiology of Trench Warfare. Vincent Bardou

3. The Action of Radium on Cataract.—Isaac Levin and Martin Cohen report three cases of different types of cataract which were subjected to radium treatment. In each of these cases improvement of vision was noted within a week of the commencement of treatment, accompanied by an increased visibility of the fundus reflex which could only be due to a decrease in the lenticular opacity. The writers point out that a similar phenomenon has never been reported to have occurred spontaneously or to have been caused by any other agent. It is impossible as yet to say whether this improvement will be permanent or not. The writers, however, have undertaken a broad study of the subject on animals and on clinical material and a complete report will be presented at a future date. A detailed report of the technique employed will also be published later. They state in the present paper that the treatment was based on a case reported in 1911 by Fleming, in which a malignant tumor of the orbit was treated with comparatively small doses of radium. The tumor was diminished to such an extent that the cornea became visible and then a senile cataract was found which was not influenced by the radium nor was the perception of light impaired. They therefore decided that for the treatment of cataract as large quantities of radium should be employed as are now used in the modern treatment of cancer, but with strong filtration so as to avoid doing injury to the normal structures of the eye.

The Journal of the American Medical Association.

July 6, 1918.

1. The Campaign Against Infantile Tuberculosis in France, and the Preservation of Childhood Against Its Ravages by the System of the "Oeuvre Grancher." Paul Armand-De Lille.
2. Secondary Tuberculous Peritonitis: Its Cause and Cure. W. J. Mayo.
3. The Sin of Treating Symptoms. H. S. Ward.
4. Chronic Septicemic Endocarditis, With Splenomegaly Treatment by Splenectomy. David Riesman.
5. A Clinical Study of Five Hundred Cases of Cholecystitis, With Special Reference to Diagnosis. W. H. Bodenstab.
6. The Circulation of Arsenic in the Cerebrospinal Fluid John B. Rieger.
7. The Nature of Nervousness in Soldiers. Foster Kennedy.
8. Trench Fever: A report of Clinical Observations and Research as to the Etiology, Pathology, Prophylaxis, and Treatment of Trench Fever Among Troops. Major W. Byam, Captain J. H. Carroll, Lieutenant J. H. Churchill, Captain Lyn Diamond, Lieutenant L. Lloyd, Captain V. N. Sorapure, and Lieutenant R. M. Wilson.

3. The Sin of Treating Symptoms.—H. S. Ward points out the dangers arising from the observation of one leading symptom in diagnosis without considering the patient's condition as a whole. Medicine is no longer the business of an individual; the time has come for team work, and diagnostic units are essential. The clinician must not allow the laboratory and the specialist to make his diagnoses, and the physician who waits for the laboratory to find tubercle bacilli in the sputum waits too long to be of real value to his patient. Many mistakes have been made in diagnosis; inoffensive appendixes have been taken out, normal tubes and ovaries have been sacrificed, and useful gallbladders drained; ptosed viscera have been stitched up or colons removed and healthy stomachs opened only for some painstaking surgeon later to diagnose a diseased kidney. In nervous diseases, the Wassermann test is not sufficient to diagnose syphilis; nor are prolonged rest and polypharmacy enough in chorea; and something more definite than "overwork" must be looked for as the cause of nervous breakdown. Finally, due importance must be attached to oral infection, pyorrhea, and abscessed and carious teeth. The writer reports cases to illustrate the various points raised. In regard to oral infection, he asks, in view of the frequency of diseased teeth in indigents, whether there may not be some connection between this and being "down and out"? As far as the future generations are concerned, the teaching of oral hygiene will remedy matters to some extent. At the present time, however, should the treatment of this condition be radical or conservative? Many deaths have occurred as a result of too radical treatment, and the best results have been obtained by the gradual cleaning up of the pathological condition—by doing a little at each sitting, the patient resting in the meantime. Oral infection will find its proper place in medicine if the whole condition of the patient is considered as a diagnostic problem.

The Lancet.

June 15, 1918.

1. The Conditions Under Which the Sterliization of Wounds by Physiological Agency Can Be Obtained. Colonel Sir Almroth E. Wright, Captain Alexander Fleming, and Captain Leonard Colebrook.
2. Note on a Method of Dealing with the Divided Ureters when Implantation Into the Bladder Is Impossible, or When That Viscus Is Absent. W. Blair Bell.
3. Warfare Injuries of the Larynx. W. Douglas Harmer.
4. Cecoplication? Surgeon-General Sir William Watson Cheyne and Surgeon-General Arthur Edmunds.

1. The Conditions Under Which the Sterilization of Wounds by Physiological Agency Can Be Obtained.—Colonel Sir Almroth E. Wright, Captain Alexander Fleming, and Captain Leonard Colebrook discuss in some detail their observations on the treatment of bacterial infection of wounds, giving a careful description of the technique adopted. They point out the fallacy of the assumption that the organism is unable to deal with the infecting microbes—in which case there would be bacterial infection from which nobody could recover. They add that in order to ascertain what the body is capable of achieving, we must find out how to bring its powers effectively to bear. They state, (1) Serum from normal blood and normal lymph constitutes for the vast majority of the microbes met with in foul wounds a very unfavorable culture medium; only the streptococcus, the staphylococcus and certain diphtheroid bacilli can grow in unaltered serum, and when a minimal implantation is made the streptococcus alone gives a growth. In other words the microbes of wounds fall into two catagories: serosaprophytes, which grow in corrupted, and serophytes, which grown in uncorrupted blood fluids. Hence, (a) a wound that contains serosaprophytic organisms contains corrupted discharges; (b) if the wound can be flooded with wholesome serum and that serum kept uncorrupted, the infection will be reduced to a purely serophytic, generally to a streptococcic and staphylococcic infection. (2) Trypsinized serum provides an excellent culture medium for practically every species of microbe. (3) Neutralized or partially neutralized serum, such as obtains in every condition of collapse is a medium in which serophytic as well as all the microbes of the gas gangrene class flourish. These latter, however, are not genuine serophytes but serophytes only of acidosed blood fluids, which means that a gas gangrene infection in tissues in cases where the circulation is uninterrupted can be combated by drawing away the acidosed lymph and replacing it by alkaline lymph. (4) The whole blood constitutes a medium of essentially the same quality as the serum, in which only saprophytic microbes will grow. These observers then show by means of experiment that what is essential to the achievement of bactericidal effects is the employment of freshly emigrated leucocytes—which from a clean wound surface are precisely the same as from blood clots—the keeping of these alive and active, and the removal of the excess of serum which would carry the microbes out of reach. The solution of the problem of sterilizing the actual wound surface they believe will be found along these lines. They submit experimental data to show that it is possible to sterilize the superficies of a wound by the agency of antiseptics, provided that the surface has been washed perfectly clean from albuminous substances. Finally they conclude with the following statement of facts proved to be true as against that which has been shown to be erroneous: (1) It has been erroneously inculcated that every wound should be sterilized before closure; and that, therefore. *primory suture* should be avoided and *secondary sutures* undertaken only after a course of antiseptics. There is now no question, with respect to primary suture, that the wound taken after early surgical cleansing and resection is as good as sterile; and, with regard to *secondary suture*, undertaken with a wound in good condition and a purely serophytic infection, that such operative procedure, provided it leaves behind no infected dead spaces, directly contributes to sterilization. (2) It has been taught that we should judge of the fitness of the wound for closure by necro-pyo-cultures and direct microscopic examination of the pus. We have learned that it would be infinitely more reasonable to base our judgments upon the results of bio-pyo-culture. (3) It has been taught that suture cannot be successful in a wound containing a hæmolytic *Streptococcus pyogenes*. We have seen that leucocytes can, given proper conditions, successfully combat this, and of course all other streptococci; and that these conditions can be realized in connection with the suture of wounds. (4) It has been taught that for the removal of sloughs from foul wounds chemical solvents are required. We have learned that sloughs can be removed by tryptic ferment set free from disintegrated leucocytes, and that the liberation of this ferment can be greatly accelerated by breaking down the leucocytes in the discharges with hypertonic saline solution. (5) Lastly, it has been taught in connection with antiseptics that sterilization is obtainable only by continuous or very frequently repeated application. We have learned that there is nothing to prevent any part of a wound surface which has been washed quite clear of albuminous matter being sterilized by a single application of antiseptics.

British Medical Journal.

June 15, 1918.

1. A Lecture on Some Features of Gunshot Wounds of the Chest. Lt.-Col. J. F. Dobson.
2. War Scars and Their Pains: With Special Reference to Painful Amputation Stumps. Major Edred M Corner
3. The Emergency Treatment of Wounds. Lt.-Col. A. J. Hull.
4. Temporary Cecostomy in Resection of the Distal Portion of the Colon for Non-obstructive Conditions. Major Gordon Taylor.
5. The Local Application of Liquid Glucose in the Treatment of Certain Superficial Bacterial Infections. T. H. C. Benians.
6. The Intravenous Injection of Eusol in Chronic Arthritis. Harold Fairclough.
7. Deformity of Sternum and Malposition of Viscera. J. S. Manson.
8. Treatment of Fractured Femur. Captain J. H. C. Fegan.

2. War Scars and Their Pains: With Special Reference to Painful Amputation Stumps.—Major Edred M. Corner points out that war scar tissue is an irritant, containing contracting fibrous tissue, inflammatory foci, and pathogenic organisms. The irritation ascends the stump and starts infective inflammation in the muscles, arteries, veins, bones, connective tissue, and nerves. The pain is of composite, not necessarily nervous, origin, from the osteomyelitis of bone or the arteritis of an artery, in which case it is folly to confine treatment to the nerve trunks. In one case, in which the arm had been shattered about the elbow and amputation made below the shoulder joint, Major Corner and Professor Marinesco discovered a piece of metal about the size of a pin's head in the nerve some months after the wound had healed. These observers also noticed the frequent occurrence of dark patches on their sections. These they concluded were shrapnel pulverized by the action of the body juices on masses embedded in the wounds and carried upwards by the lymph stream. They also found particles of fibers, probably silk, which also had been carried up into the structures including the nerve ends in these painful stumps. They consider these as probably relics of the fragmentation by the body fluids of silk ligatures, carried away by the lymph stream. From all this they conclude that silk is an irritant—a kind of internal seton—some of which is carried upwards by the lymph stream and some shed outward from abscesses, sinuses, and discharges of the wound, and that war time scar tissue is unable to encapsulate an unabsorbable suture; that, therefore, silk should never be used in war wounds, the great pathological characteristic of painful stumps being the presence in them of foreign bodies. Corner furthermore calls attention to the fact that a nerve divided always regenerates. In general it regenerates so as to reinnervate the deinnervated parts. But if the deinnervated parts have been removed by amputation then the fibers of regeneration seem to innervate all structures they meet, and sooner or later they must come across the inflammation infested scar tissue, when we have the simple algebraical equation: nerve + inflammation focus = pain. The particular function of the nerve affected does not seem to matter. War tissues must therefore be done away with before much regen-

eration can take place, and this may be accomplished by heat, light, *x*-ray, radium, vibration, electricity, and ionization. Should the regenerating fibers encounter an obstruction, they form a tumor—a *regeneration neuroma*. They then flow on. If this infective scar tissue is not removed, reamputation will become necessary and, of course, will have to be done much higher up. In the nerve end the irritation may cause arteritis, endarteritis, phlebitis, lymphangitis, and thrombosis in the intraneural vessels. The irritative process travels more freely and further along the vessels than along the nerves, and the vessels should therefore be cut short at every amputation.

Berliner klinische Wochenschrift.

April 29, 1918.

The Similunar Plica; a Prodromal Symptom of Measles.—E. Meyer describes a sign which he considers an even earlier one than Koplik's. It consists in a tumefaction of the semilunar fold at the internal angle of the eye. The redness of this fold is in contrast to the normal vascularization of the surrounding conjuctiva. It may happen that the fold becomes covered with minute white spots making it analogous to Koplik's sign on the buccal mucosa.

An Epidemic of Dysentery at Dresden in the Summer of 1917.—R. Lämpe sifts the data collected from an epidemic whose primal cause was the food restrictions of war and the indigestible quality of the food, particularly black bread and dried vegetables. In the resulting debility of the people, the dysenteric bacilli flourished with facility. The writer also admits the possibility of the transformation of already preexisting bacteria. The symptomatology of the epidemic did not appear to offer any particular characteristics, while of the various treatments resorted to with such drugs as bolus alba, bismuth, vegetable carbon, simaruba, rectal irrigations with tannin, antidysenteric sera, etc., bolus alba gave the best results, but could not be long continued on account of the absolute disgust which overcame the patients to its use. The writer at length employed Carlsbad salts and bismuth subnitrate. During the phase of frequent stools a coffeespoonful of bismuth was given in the morning and a dose of 30 centigrams was given six to eight times during the day. Lämpe was not able to detect any difference in the clinical evolution of the affection in the cases in which the Shiga-Kruse bacillus was found from those in which the organism was absent and thinks that it is safe to admit that in the cases he observed both direct and indirect contagion were in play.

Münchener medizinische Wochenschrift.

April 23, 1918.

The Prophylaxis of Erysipelas with Antistreptococcic Serum.—Rost having remarked the insufficiency of the various treatments of erysipelas when once developed, as well as the present frequency of this nrocess following operative work on infected wounds, has injected antistreptococcic serum at the time of the operation in cases where this complication was to be feared. Although the writer is unable to offer precise statistics, he believes that this practice has a sure effect. He thinks that the immunity thus obtained lasts for about ten days. Rost has observed reactions of the "serum disease" type following these prophylactic infections but the exhibition of calcium chloride will prevent these seric reactions, which the writer regards as anaphylactic in nature.

The Importance of Early Marriage for Repopulating After the War.—A. Ploetz in the first place proves by his statistics that marriage among young people results in greater fertility, not merely from the viewpoint of a longer duration of the child-bearing period but also for the annual percentage of births which result. Besides other factors related to late marriage (alcoholism, syphilis), late marriage appears to be one of the principal obstacles to the renewing and expansion of the population. This reasoning applies to all classes of society but is more keenly felt among the more educated. A condition *sine qua non* for rejuvenation of marriage among those belonging to the liberal professions consists in better salaries in the case of certain employees of the state (school masters, officers, assistant physicians, etc.) and above all shortening the time now required in preparatory studies. The writer advises reducing the number of school and university years and winds up with considerations on measures of a moral order, consisting in opposition to individualism and rationalism, both of which are on a wide increase.

Deutsche medizinische Wochenschrift.

April 25, 1918.

Plastic Operation on the Face for an Exceptionally Extensive Loss of Tissue.—J. Joseph offers two photographs of the patient before and after the operation to be described, which unquestionably was a brilliant bit of plastic surgery. Both cheeks, the nose, and upper jaw of the patient had been blown away by a missile. Therefore it was a question of restoring the entire middle portion of the face and in order to accomplish this, besides the prothesis of the jaw, Joseph mobilized a flap of scalp extending from ear to ear and containing both temporal arteries. At the first seance, this flap was brought forward and turned over, its raw surface being covered by Thiersch's skin grafts. At the end of a month the flap was again mobilized and again turned over, lowered and sutured on the anterior aspect of the face. The primarily under surface of the flap was thus made to form the bucconasal mucosa, covered as it was by the grafted epidermis. The scalp consequently formed the skin of both cheeks, nose and upper lip. The vitality of the tissues has remained in such excellent condition that the writer does not hesitate to say that it would be possible, if necessitated, to make a much larger scalp flap for the reconstruction of the entire face from the eyebrows to the chin. The cranial denudation was later on filled in with skin grafts and flaps made from the surrounding areas, so that only a little depression resulted from the loss of tissue required for the plastic operation.

The Radiological Diagnosis of Gastric and Duodenal Ulcer.—G. Singer notes that the diagnosis of duodenal ulcer becomes more frequent and this has revealed the fact that this pathological process has, in the past, given rise to the mistaken diagnosis of gastric neuropathies in all functional disturbances of the stomach. Singer develops his thesis by experience acquired since the beginning of the war and discusses the indications, recently developed, for radiography in gastric disorders.

Wiener medizinische Wochenschrift.

May 11, 1918.

Observations on the Etiology of Epilepsy, Particularly That of "War Epilepsy."—E. Redlich, after having given some more examples of epilepsy occurring on account of the war, without any recognized causal factor, concludes by admitting an "exaggerated epileptic reactivity" in certain subjects. This peculiarity enters into the class of individual variation and is not of necessity in relation to an hereditary taint or evident antecedents. It is this "reactivity" that is to be invoked in order to explain the frequency of epilepsies born from the influence of the moral or traumatic shock of war. In spite of all this, Redlich is not inclined to admit a true "war epilepsy," because such a morbid entity cannot offer a single character belonging properly to it and which could assign it to a special place among the epilepsies in general.

Disturbances of Micturition at the Front.—J. Polak's choice in the subject of his contribution to science brings to mind a poetical contribution of the late Eugene Field, "When Willie Wet the Bed," because he is quite unable to find in the diagnostic means at his disposal, likewise in modern physiological data, any explanation for the causation of the manifold forms of incontinence of urine which is frequent among the Teuton soldiers at the front. He takes the practical standpoint and divides the cases into three classes, viz.: (1) Complete incontinence, the bladder emptying

itself drop by drop, without any sensation of the need. These suojects are absolutely inapt for service. (2) Incomplete incontinence, the urine flowing only when there is a sensation of the need to empty the bladder. These subjects may be considered apt for service at the rear. (3) Pollakiuria, not a true incontinence, represented by frequent and imperious desire to void urine. This class of cases is susceptible of cure by means of special treatment (urological and neurological) so that these subjects may be entered into the active formations.

Wiener medizinische Wochenschrift.

May 4, 1918.

Traumatic Gastric Ulcer.—A. Edelmann reports four instances of this much discussed subject, showing the relation of cause to effect between abdominal trauma and the ultimate development of gastric ulcer, which appears to him unquestionable. All four of the patients had developed ulcer of the stomach following upon traumatism of the abdomen in warfare without offering an apparent surgical lesion. In all four cases the lesion resulted from an exploding shell at a little distance away. Edelmann underlines the fact that these patients in which he noted the lesion were vagotonic subjects, their condition being characterized by a nervous state in which there was an excess of autonomous nervous functions.

Observations on the Etiology of Epilepsy, Particularly That of "War Epilepsy."—E. Redlich studies the possible parts played in epilepsy by such factors as syphilis, helminths, burying by bursting shell, etc. The writer has met with other cases in which the epilepsy became manifest during service at the front, although he was unable to fix upon any etiological factor. Such instances may be related to a certain disturbance of the vaso-motor system.

La Presse Médicale.

March 18, 1918.

Study of Globular Resistance in Various Isotonic Saline Solutions.—Chauffard and Huber after a study of many assembled data state that saline solutions have in common several properties—isotonic, isosmotic, equimolecular. Does it also follow that they are isoactive chemically with reference to an anatomical element like the erythrocyte? Osmosis alone cannot explain the generality of cellular exchange. Saline solutions formed of electrolytes appear to escape the principle of equimolecularity by the more or less complete dissociation of their constitutive elements. This dissociation augments the number of molecules. In fact, the molecules in solution are dissociated into ions, water being the agent. This view of Arrhenius shows how much more complex are these phenomena than one has suspected. In addition to a molecular phenomenon like osmosis we have electrochemical interreactions between cellular elements and the media in which they live. As Starling says, in addition to osmotic or volume energy, each molecule in solution is endowed with chemical energy which does not depend alone on the number of molecules, but also on their nature. In the case of electrolytes or ionisable substances the chemical energy is measurable. Hence it would be an error to regard isotonic solutions as physiologically equivalent. Theories which are very simple are not always true. In regard to experimental hemolysis equality in osmotic tension is a protection to the living cell, but such protection is only relative and does not suppress the possibility of an injurious chemical action.

Role of the Periosteum in the Formation of Bone.—Leriche and Policard conclude that the periosteum is a physiological rather than an anatomical element. It contains two antagonistic components which, acting together, secure harmony of osteogenesis. One is responsible for growth of bone, while the other—the fibrous portion of the peritoneum—tends to limit the growth. Normally the two components are in a state of equilibrium. Surgical detachment of the periosteum ruptures the equilibrium and causes a series of phenomena of osteogenesis, whatever the subject's age. The surgeon is therefore able to create bone formation at will. This law is not peculiar to osseus tissue as we see it everywhere. The relation of periosteum to bone is analogous to that of the epidermis to the derma.

Il Policlinico.

March 17, 1918.

Adenoid Subjects with Pituitary Feminism.—Citelli and Caleceti refer to an earlier study of a psychic syndrome associated with adenoid. The leading features are loss of memory, somnolence or insomnia, mental insufficiency, and inability to fix the attention. This mental picture may also be seen in nasopharyngeal tumors and sinus disease, and is believed to be associated in some way with the hypophysis. In the present article they report three cases in soldiers, one of which is as follows: Soldier, aged 25, family history negative, save that a brother, aged 12, is a mouth breather and presents psychic disturbances. Has had nasal obstruction since childhood and an abscess in the right ear. He could make no progress in school, and at 14 began work in a sulphur mine. His outside life was solitary, and he slept poorly. At the age of 20 he began his military service, which was continued into the present war. He had always seemed preoccupied, and when he received a word of command would continue to repeat it lest he forget. He was rather indifferent to the opposite sex, and had had intercourse but a few times. Upon physical examination he presented hypotrichosis, his face being nearly smooth, with but a scanty growth in the axillæ and on the pubes. The absence of hair about the anus and on the perineum suggested the other sex. The head hair was fine and not overabundant. The texture of the skin was feminine. There was a suggestion of gynecomasty and feminine pelvis and hips. However, the frame was that of a well-developed male, including the genitals. From a different angle the man was a typical adenoid subject, with ogival palate and crowded teeth. The temperature and pulse having been repeatedly determined, the patient was tested for a reaction to pituitrin, an injection of which determined a slight increase of both along with sweating, restlessness, headache, palpitation, etc.

Nederlandsch Tijdschrift voor Geneeskunde.

February 23, 1918.

Three Cases of Epidemic Parotitis with Iridocyclitis.—Weve refers to the description by Heerfordt in 1909 of a uveo-parotid fever in which both the glandular and ocular processes pursued a chronic course. This author reported three cases of the malady which he concluded after the exclusion of lues, tubercle and pseudo-leucemia to be *sui generis*. Weve is now himself in position to report three further cases and is inclined to believe that the disease is essentially epidemic parotitis with secondary implication of the uveal tract. In other words, ordinary mumps with persistence of swelling and intraocular metastases. In the first case there was no history of exposure to mumps and no known case in the immediate vicinity, but the second case occurred after three cases had developed in the neighborhood and the third developed in a veritable epidemic of mumps. All the patients were children (under 16). If now we study the vagaries of mumps we find that sporadic cases occur and that the swelling instead of subsiding at a given date may persist for months (Osler). Various symptoms complained of by the different patients—such as pain in the joints—may occur in mumps. Of much interest are the known eye complications of mumps. These are rare and include optic neuritis with secondary atrophy keratitis and catarrhal conjunctivitis. Iridocyclitis is not mentioned, but could doubtless be masked under one of the other affections. Fuchs has seen double parotitis with lacrymal gland infection and this leads to a suggestion of Mikulicz's disease in which the parotids and lacrymal glands are synchronously involved. Now in this affection iridocyclitis has occasionally been seen, so that even if the syndromes of Heerfordt and Mikulicz are different affections there is apparently a bridge between them. We are also thrown back again on the hypothesis that Mikulicz's disease like many other rare affections is quite likely a result of lues, tubercle or other granulomatous process.

Book Reviews.

A Diabetic Manual. For the Mutual Use of Doctor and Patient. By Elliott P. Joslin, M.D., Assistant Professor of Medicine, Harvard Medical School; Consulting Physician, Boston City Hospital; Collaborator to the Nutrition Laboratory of the Carnegie Institution of Washington, in Boston; Major, M. R. C. Illustrated. Price, $1.75. Philadelphia and New York: Lea & Febiger, 1918.

In this little book the author gives, very briefly the modern ideas on diabetes and its treatment. The manual, which is quite elementary, is intended for the patient as well as the practitioner, as it is presumed that the two will cooperate. The first part gives in simple language a rapid survey of the subject, noting the most important points and emphasizing certain details. The second part contains an outline of the treatment of the more severe cases. In the third part will be found the diet tables and recipes which the author has found valuable in his daily practice. The last part contains a description of the simplest reliable tests for the estimation of sugar and acid bodies in the urine, sugar in the blood, and carbon dioxide in the alveolar air. There is a certain amount of repetition, but this is a decided advantage. Those of our readers who are acquainted with the author's larger and more complete work on the subject will be glad to know of this little book; those who do not know the larger work should certainly look at this volume.

A Manual of Clinical Diagnosis by Means of Laboratory Methods. For Students, Hospital Physicians, and Practitioners. By Charles E. Simon, B.A., M.D., Professor of Clinical Pathology and Physiological Chemistry in the University of Maryland Medical School and the College of Physicians and Surgeons, Baltimore, Md. Ninth edition, enlarged and thoroughly revised. Illustrated with 207 engravings and 28 plates. Price, $6.00. Philadelphia and New York: Lea & Febiger, 1918.

The new edition of this standard work has been thoroughly prepared; many sections of the book have been rewritten, and new matter and new illustrations have been introduced. Important new matter will be found in the sections dealing with the intestinal animal parasites, the diagnosis of acidosis, the examination of blood for transfusion purposes, and the colloidal gold reaction of Lange. As in the two former editions, the work is divided into two parts, the first treating of the technique of making the various examinations and tests, and the second giving the various laboratory findings in the different diseases. The reader may obtain some idea of the completeness of the work when he learns that the chapter on the blood contains more than 170 pages, that on the feces more than 60 pages, while that on the urine is nearly 200 pages in length. These chapters are almost encyclopedic in character. The second part of the book will prove most valuable to all practising physicians; it contains an account of the laboratory tests which may be of service in any given disease, and also shows how to interpret the various laboratory findings. The illustrations are numerous and excellent and add much to the value of a really useful book.

A Text-Book of Obstetrics. By Barton Cooke Hirst, A.B., M.D., LL.D., F.A.C.S., Professor of Obstetrics in the University of Pennsylvania; Gynecologist to the Howard, the Orthopædic, and the Philadelphia General hospitals. Eighth edition, revised and reset. With 715 illustrations, 38 of them in colors. Price, $5.00. Philadelphia and London: W. B. Saunders Co., 1918.

This new edition of Hirst's Obstetrics brings up to date one of the standard works on the subject. The volume, in spite of the revision, is a little smaller than some of its predecessors. As a text-book this work has few rivals, and in some respects it is superior to its competitors. The illustrations are numerous and well executed and have always been one of the distinguishing features of this book. Another characteristic is the inclusion of such gynecological operations and procedures as are necessitated by labor and its complications. There are few works on obstetrics which have reached an eighth edition and have held their own for a period of twenty years; a book which has accomplished this may be assumed to possess unusual merits, and to be well worth the attention of the general practitioner and the medical student.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics, Materia Medica, and Diagnosis in the Jefferson Medical College, Philadelphia; Assisted by Leighton F. Appleman, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. June 1, 1918. Price, $6.00 per annum. Philadelphia and New York: Lea & Febiger.

This issue of Progressive Medicine contains chapters on Hernia, by W. B. Coley; Surgery of the abdomen, exclusive of hernia, by A. O. Wilensky; Gynecology, by J. G. Clark; Disorders of nutrition and metabolism, diseases of the glands of internal secretion, diseases of the blood and spleen, by O. H. P. Pepper; and Ophthalmology, by E. Jackson. The present number is of more than ordinary value; it contains a number of timely and useful articles, such as: Hernia in relation to the war; the relation of trauma or industrial accident to hernia; the medicolegal aspects of hernia; military surgery; and Dr. Clark's always welcome discussion of the cancer problem.

Evolution de la Plaie de la Guerre. Par A. Policard. Collection Horizon. Prix, 4 francs. Paris: Masson et Cie., 1918.

This title naturally suggests the reaction of a wound and the process of repair without reference to infection or the results of treatment. As a matter of fact, however, the latter are fully considered and it is not readily comprehended why the book was not termed "War Wounds and Their Treatment." The publishers' notice styles the volume a novel departure in applied physiology, but to the reviewer the chief element of novelty is perhaps the large number of microscopic sections, especially those of low powers (about 100 to 150 diameters), which may certainly serve to broaden the conception of wounds and their sequelæ for the average reader.

Manual of Vital Function Testing Methods and Their Interpretation. Second Revised and Enlarged Edition. By Wilfrid M. Barton, M.D., Author of "Therapeutic Index and Prescription Writing Practice"; Associate Professor of Medicine, Medical Department, Georgetown University; Attending Physician to Georgetown University Hospital, Columbia Hospital and Washington Asylum Hospital. Price $2. Boston: Richard G. Badger.

The progressive physician has long been acquainted with some of the functional tests. Unfortunately, a description of these tests is generally to be found scattered in the periodical literature. The author of this little volume has performed a real service in collecting the most valuable of these tests into a handy volume. That the first edition was exhausted in less than a year proves that the book was appreciated. In this new edition a few additional articles are added, so that the volume now includes a description of the Van Slyke method of urea determination, Ambard's coefficient and McLean's index of urea excretion, test meal investigations of kidney function, and articles on sphygmobolometry, sphygmobolography and energometry. The volume contains all that is of practical value on the functional tests of the liver, kidneys, pancreas, heart, and ductless glands. Clinicians and laboratory workers, alike, will find the book well worth their attention.

Reagents and Reactions. By Edgardo Tognoli, M.D., Professor in the University of Modena. Translated from the Italian by C. Ainsworth Mitchell, B.A., F.I.C. Price, $2.00. Philadelphia: P. Blakiston's Son & Co., 1918.

These are a list of reagents and reactions compiled by Dr. Tognoli. They provide a handy means to refer to the more important chemical reactions arranged in alphabetical form of the name of the chemist who first applied them. The book should be of great value to the medical man.

Society Reports.

AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS.

Eighteenth Annual Meeting Held in Philadelphia, March 29 and 30, 1918.

DR. EUGENE L. OPIE OF ST. LOUIS IN THE CHAIR.

A Simple Method of Carrying Meningococcus Cultures.—Drs. J. BRONFENBRENNER and M. J. SCHLESINGER of Boston presented this communication. Cerebrospinal meningitis had achieved the reputation of being a "disease of infants and children" on account of frequent epidemics among young individuals. With the idea of adding to the knowledge of this infection in preparation for further possible outbreaks in the spring and summer, the present study was undertaken. Meningococcus strains had always shown great specificity, and for this reason curative sera were made polyvalent. This necessitated the carrying of many culture strains in each laboratory where this work was in progress, and it had become quite a problem to carry all the strains. On account of the difficulty of isolating the meningococcus and of cultivating it on prepared media a great deal of work had been done along this line. Numerous workers had advocated various media such as serum, ascetic fluid agar, Loeffler's serum, agar from placental extract, agar from beef heart, trypsin digested, etc. The best results, however, seem to have been gained by the use of liver agar medium, originally described by Dopter. This medium, however, had great variability in quality and with this in mind the authors had worked out a modification of the preparation of the medium, in order to render it more uniform. The method was as follows: (1) A liver infusion was made, using 1,000 grams of liver to 1,000 c.c. of water. The extract was collected through a single layer of cheese cloth, boiled, and stirred continuously. The reaction was not adjusted. The mixture was then strained through single cheese cloth and a thin layer of cotton. It was then sterilized at 10 lbs. pressure for 10 minutes. (2) A 3-per cent. agar solution in water was made and filtered through cotton, and to this was added 2 per cent. peptone and 1 per cent. NaCl. The reaction was not adjusted. It was sterilized at 15 lbs. for 30 minutes. Equal parts of (1) and (2) were mixed while hot and tubed into sterile tubes. This gave a clear transparent medium with a great deal of water condensation. Meningococcus colonies grew very rapidly upon such medium, which was important for detecting carriers.

The Value of a Cooked Meat Medium for Routine and Special Bacteriology.—Dr. W. L. HOLMAN of Pittsburgh read this paper. The object of the study was to bring to notice the cooked meat medium now so widely used in the study of the anaerobic bacteria of war wounds and to show its usefulness in routine bacteriological study as well as in more special lines of research. Theobald Smith, Tarozzi, von Hibler, Robertson, and Henry had shown the value of tissue media for cultivation of many anaerobic bacteria. The meat medium used since 1916 was made from beef muscle. The meat was freed from fat and gross fibers, finely minced, ground in a mortar and mixed with equal parts of water. It was then slowly heated to boiling with constant stirring to allow the soluble albumins to coagulate about the meat particles. These coagulated albumins in themselves served as favorable medium for anaerobic growth. It was then neutralized to rosolic acid or phenolphthalein, tubed and autoclaved for one hour. Before use the tubes were always heated to 100° C. for one half hour. The seeding was done by pipette or needle and the material thoroughly mixed with the meat particles. There were no further precautions for anaerobic conditions necessary. The author said he had grown all types of anaerobic bacteria from war wounds in such open tubes and all grew equally well. Thus it was found the best medium for mixed flora of wounds. One great advantage was that it was found that products of growth did not destroy the various forms, and the medium could therefore be utilized for reisolation of bacteria that had died out, or become overgrown into other media. The "buffer" action of the meat particles in preventing extremes of reaction, undoubtedly favored symbiosis. This medium was undoubtedly the best to be had at present for growth of anaerobic and also aerobic bacteria, for storing mixed cultures as well as pure cultures, and for the differentiation of the various types.

Dr. H. T. KARSNER of Cleveland asked Dr. Holman whether the meat was made neutral to litmus. They had used it a good deal and had always made it somewhat alkaline to litmus. It was found a most remarkable medium for cultivating all of the flora out of wounds. He had never taken the trouble to heat it beforehand. So long as the meat was tender and the culture deeply implanted, growth was secured. He had been particularly impressed with the beauty of the chains of streptococci as the organism grew in the meat.

Dr. W. L. HOLMAN said in closing that the meat was used with the reaction on the alkaline side of litmus, particularly for the anaerobes. It was useful in a great many ways. They had endeavored to bring out from the wound some of the stricter anaerobes, which are always more difficult to grow. Heating the meat one-half hour before seeding gave the best conditions for growth.

The Influence of Oxidizing Substance on the Catalase Value of the Blood and Tissues.—Dr. A. ARKIN of Morgantown, Pa., presented this subject. The work might be briefly summarized as follows: Sodium iodozybenzoate, an active oxidizing agent, which had been shown to have a stimulating effect on the production of antibodies, inhibited the development of local allergic reactions, and had a stimulating effect on phagocytosis in vitro. It had no effect on the catalase value of the blood of normal rabbits. The tissues of rabbits injected with the drug showed no change in catalase value with the possible exception of the spleen in which it seemed to be increased.

Experimental Trinitrotoluene Poisoning.—Dr. S. R. HAYTHORN of Pittsburgh presented this communication. He said that all recorded attempts to produce T. N. T. poisoning, save in those in which the inunction method had been employed, had failed thus far. Recent attempts to produce poisoning through the inhalation of fumes and gases had also failed, but the conditions under which the employees of T. N. T. factories are exposed to the inhalation of fumes and dusts from that substance had never been experimentally reproduced. The acute gasings (which was such a common form in the nitrating places) was an incidental poisoning and was not due to the T. N. T. proper. By means of inunctions there had been successfully produced dermatitis, discoloration of the subcutaneous tissues, early focal lesions, and fatty changes in the liver, and positive Webster's tests in the urine had been obtained. The best results had been obtained by feeding T. N. T. either as a powder or dissolved in milk. By this means discoloration of all of the fat tissues of the body, fatty changes in the liver and kidneys, and extensive necroses of the liver had been caused, while marked blood destruction accompanied by haemosiderosis of the spleen and haemoglobinuria had been noted. T. N. T. was soluble in all of the body fluids. The author stated that the more crude products were more poisonous than the chemically pure ones. It was also likely that the variations found in the percentages of those affected in the various factories were due quite as much to the relative amounts of impurities as to the unhygienic conditions. Further experiments were advisable, along the line of discovering whether certain forms of T. N. T. were less toxic than others. If such products could be obtained, in which, at the same time, the detonating power would not be lessened, the work would have been worth while.

Dr. LEO LOEB of St. Louis said he wished to point out that it was very easily possible to produce necrosis of the liver in guinea pigs. In some respects, therefore, these animals were not favorable for experimentation. He had no doubt, however, that in this case the lesions were entirely due to the substance employed.

Dr. ROBERT A. LAMBERT of Columbia University, New York, expressed his interest in Dr. Haythorn's report. He had worked in his laboratory on the same problem for the past 6 months. His results agreed on the whole with those of Dr. Haythorn. He had produced a state

of poisoning, sometimes fatal, with definite degenerative changes in the liver cells. So far, such changes in the liver cells, analogous to toxic jaundice of munition workers, had not been experimentally produced, that is, the changes practically identical with acute yellow atrophy. Dogs were selected, as being larger, and because of the objection to rabbits and guinea pigs mentioned by Dr. Loeb. The poison was administered in four different ways: (1) feeding T. N. T. dissolved in butter; (2) inunction (T. N. T. in lanolin); (3) subcutaneous injection of acetone solution; (4) intravenous injection of an acetone solution. The last two methods were unsatisfactory inasmuch as they did not correspond to the mode of intake in man. Feeding presented the difficulty that the dogs refused the food with T. N. T. and if they took it, they vomited afterwards. However, enough was ingested to produce symptoms in a week or two. These symptoms were lassitude, weakness, diarrhea, loss of weight. Some animals died in ten days or two weeks, one survived two months. Autopsy disclosed fatty and degenerative changes in the liver, particularly in the central part of the lobule. Blood pigment was encountered in the spleen and bone-marrow. The same results followed the inunction with T. N. T., when starvation and diarrhea caused death. The urine obtained by catheterization gave an early and positive Webster's test, regardless of the mode of administration. The test was evidently a very delicate one. The reason the animals did not show toxic jaundice was most likely because they did not live long enough. In munition workers there was most likely a latent period between exposure and development of the symptoms.

Dr. M. Abbott of Montreal said that a case seen in the hospital in Montreal would be of interest in connection with this subject. The patient, a medical student, who had been working for a short time in a dynamite factory, came into the hospital with quite a mild form of toxic type of poisoning. He was discharged after a short time with the direction that he should be careful through the summer and come back for his sessional work. He returned very ill with acute jaundice, was three days in the hospital, and then died. Autopsy showed an extreme form of jaundice with pronounced cirrhosis of the liver.

Dr. S. R. Haythorn said in closing that he had obtained vomiting in the guinea pig fed with the trinitrotoluene in milk. Also there was diarrhea. There were not only lesions of the liver but the reaction of blood destruction, hemoglobinuria, and pigment in the spleen, showing that there was marked absorption.

Autopsy Service in a Military Hospital.—Dr. Howard T. Karsner of Cleveland read this paper, which summarized the findings of a service of 8 months in a base hospital of 1,250 beds and included 87 autopsies. Only 6 of these were purely medical cases, including one case of diabetes, one of malignant endocarditis, and 4 of mustard gas pneumonia. The remaining cases died of infections resulting from war wounds, most of them being multiple shell wounds. The involvement of serous cavities appeared to be important in determining the fatal issue. Gas gangrene was the cause of death in a few of the cases, being due particularly to the *Bacillus welchi*. Pyemia appeared fairly often, metastatic infection in important situations appeared also but the most common condition was septicemia as a result of infection with the *Streptococcus pyogenes*. Attention was called to the value of instituting every possible therapeutic measure to shorten the time during which a patient has suppuration going on in his wounds. It was suggested that very often amputation was much more desirable than the saving of a mutilated member, the function of which would be impaired after recovery, for if suppuration were prolonged by such treatment there would always be the danger of permanent damage to parenchymatous organs such as the heart, liver, and kidneys.

Dr. J. J. Mackenzie of Montreal said that Dr. Karsner's experience was in an area where he spent nine months at a time when there was very little fighting and few postmortems from war infections. He would emphasize the importance, in military hospitals, of the work of the pathologist and its influence upon the treatment of the cases. This was amply demonstrated in his experience in the treatment of dysentery among the soldiers.

The Agglutination of Human Red Blood Corpuscles by Horse Serum.—Drs. Herbert W. Williams and Harold A. Patterson of the University of Buffalo made this communication. Nineteen specimens of normal horse serum or antibacterial serum were tested and twelve of these produced some agglutination of human red corpuscles in the test-tubes in 1 to 20 dilutions: two sera agglutinated in 1 to 200 dilutions. Washed blood-corpuscles were used in dilute suspensions (1-100 in the final mixtures), and after incubation with the serum one hour at 36°, were allowed to stand at room temperature in a cool place, as these conditions seemed to favor the detection of small amounts of agglutinin. (In the case of three sera that gave positive agglutination, two still gave agglutination but the third and strongest serum showed no agglutination when the tubes were kept continuously at 37°, using 1 to 20 dilutions of the sera.) The last tests were only made with a single sample of blood. How far test-tube experiments might be used as an indication of what happened in the living body was uncertain, however. Experiments on laboratory animals with alien sera had given results that were inconclusive. In view of the increasing use of normal horse serum and curative sera for the infections in large doses, frequently intravenously, the possibility that agglutination of red corpuscles might sometimes occur in the body seemed worthy of attention.

Intestinal Flora in Scurvy of Guinea Pigs and Infants.—Drs. Alfred F. Hess and J. C. Torrey of New York gave this paper. A study was made of the intestinal flora of guinea pigs on a normal diet, on a diet which produced scurvy, and again on a diet which cured this disorder. A parallel study was carried out on the feces of two infants, the object of the investigation being to note whether a definite overgrowth of putrefactive bacteria could be found under these conditions in the intestinal tract. Putrefactive organisms were present only in small numbers, and were not found to increase as the scurvy progressed, or decrease as it subsided. Dr. Hess presented this study from a purely bacteriological point of view, and emphasized the fact that the amount of putrefaction, and its effect on the tissues, could be determined only by further investigation.

Focal Degeneration of the Lumbar Cord in a Case of Infantile Scurvy.—Dr. Alfred F. Hess of New York presented lantern slides of a case of infantile scurvy in a baby 13 months of age, which showed an area of degeneration of the anterior horn cells of the lumbar region. This case was the first where the spinal cord had been examined in this disorder. It was therefore impossible to say whether this was a lesion due to the scorbutic condition, or merely associated with it. Further examinations of the central nervous system were called for in similar cases.

Dr. E. T. Bell of Minneapolis asked Dr. Hess what muscular changes were associated with the lesion. The picture appeared much like the Hoffman type of progressive muscular atrophy, except that the lesion was focal, which made a marked difference. If there were progressive muscular lesions of long standing the condition might have some relation to that disease.

Dr. Oscar Klotz of Pittsburgh said that the picture shown hardly suggested bacterial invasion. Investigations upon degenerative lesions of the cord, and the central nervous system showed the focal picking out of certain areas; this was very interesting. They had come to recognize that there were regions in the nervous system which might be affected in a peculiar manner by various agents. The peculiarity to lead was an instance.

Dr. A. F. Hess in conclusion said that there were no lesions of the muscles, as in progressive atrophy. The lesions found were quite typical of infantile scurvy, and the diagnosis was clear. He was much interested in what Dr. Klotz had said, particularly since he had recently read the work of an English investigator describing his experimental study showing similar focal necroses due to various bacterial toxins. Personally he felt that the condition was not due to bacteria, but that it was toxic in origin.

Method of Isolation and Identification of Bacteria of the Colon Typhoid Group.—Dr. J. Bronfenbrenner of Boston made this report. The question of infection of food, by being handled by "carriers" was considered. It was necessary to isolate all the varieties of patho-

genic bacteria which might happen to be present in a sample of stools. It was sought to find a medium which could be prepared in large quantities for rapid work on a large scale. Difficulties in preparing such media on account of the instability of its color were encountered. After much experimentation with media it was found that a lactose agar medium with proper mixture of rosalic acid and China blue was the most suitable. This indicator left the lactose agar (if properly prepared) without change in color. The slightest amount of acid produced by bacteria stained the colony intense blue, while bacteria not fermenting lactose left the media colorless, or slightly pink. Further problems arose with regard to the identification of bacteria which did not ferment lactose. To meet this problem it was arranged in preparing the medium, that the "buffer" was adjusted so as to permit the reading of the change in reaction as early as possible. If, however, the carbohydrate medium was made with the view of keeping the cultures for a long time then a suitable increase of "buffer" would prevent the accumulation of acid.

Certain Structural Changes in Subacute and Chronic Arthritis in Horses and Cattle.—Dr. S. A. GOLDBERG of Ithaca, N. Y., stated that nonspecific forms of arthritis were apparently more common in the larger domestic animals than they were in man. The structural changes in these inflammations were in many respects similar to *deforming arthritis* in man but they had not been found in the combination that characterized deforming arthritis. Etiological factors for these inflammations were stated to be: pressure on articular ends, faulty conformation, heavy loads, strains and stretching of ligaments and tendons. Infection evidently played a part in many cases. Umbilical infection was a frequent cause in the lower animals, and the fact that this was rare in man was due to better postnatal care. The dog and the cat were found to be more resistant to ordinary infections. Pathological changes were found to be thickening of capsular ligaments and connective tissue changes. Hyperemia and exudation were found in the synovial membranes, and proliferation was also observed. Changes of the articular cartilage, on the other hand, were mostly degenerative. A diffuse superficial necrosis of the articular cartilage appeared. In the majority of cases no apparent change in the periosteum was observed. Aside from the fact that various microorganisms were found in many of the cases studied, the pathological changes in the early stages were similar to those caused by infection.

The Relationship of the Leucocyte Count and Bone-Marrow Changes in Acute Lobar Pneumonia.—Drs. R. A. LAMBERT and S. S. SAMUELS of New York City presented this paper. Dr. Lambert pointed out that the leucocyte count in lobar pneumonia might vary within wide limits. Fatally ending cases showed either very high, or relatively low counts, while those terminating favorably usually showed a count between the two extremes. Two theories had been put forth to explain the low leucocyte count: (1) the bone marrow failed to react, either as the result of some previous injury (as chronic alcoholism) or from paralysis of blood forming elements from over stimulation by the pneumococcus infection; (2) the rapid spread of the pneumonic process took the leucocytes out of the blood faster than they were introduced into the circulation from the bone-marrow; therefore, the number of circulating leucocytes might be normal or slightly increased, even though the output from the bone marrow might be exceedingly high. There was still a third theory which might account for the phenomena, namely, that the leucocytes might be forming in some other organ; for instance, the spleen. Dr. F. A. Evans had pointed out that the gray, acute, splenic tumor of lobar pneumonia contained numerous myeloid cells, as indicated by the oxydase reaction, thus indicating a probable source of some cells of the pneumonic exudate. In a study of cases of lobar pneumonia which had come to autopsy, the authors made records of the leucocyte counts and the bone-marrow changes correlated. Specimens of bone-marrow were stained and studied. The summary of results was: Parallelism of leucocyte count and degree of hyperplasia of the marrow found in only half the cases; few showed inactive marrow and leucocyte counts above normal; on the other hand there were cases where the leucocyte count was low during life, but a hyperplastic marrow was found post mortem. One explanation of this might be the formation of leucocytes in the spleen or some other organ; a second, a hyperplasia of the marrow of the flat bones. The cases of hyperplasia of marrow with low leucocyte count were not easily explained. One could not prove that there was a rapid drainage of leucocytes out of the circulation.

Studies on Bacteriemia in the Agonal Period.—Dr. DEW. G. RICHEY of Pittsburgh reported observations on blood cultures taken at the time of death from the peripheral circulation of consecutive cases. In all, 206 cultures were examined. Seventy-six (36.8 per cent.) were positive and 130 (63.2 per cent.) were sterile. The pneumococcus was found on 32 occasions, or in 50 per cent. of the cases clinically diagnosed as acute lobar pneumonia. *Pneumococcus mucosus* was isolated five times. *Streptococcus hemolyticus*, as a class, was obtained in 27 instances. *S. viridans* in 3. *Staphylococcus pyogenes aureus* in 7, while the gonococcus, *Micrococcus pharyngis siccus*, *B. coli communior*, and *B. typhosus* were each found once. *Streptococcus pyogenes* comprised two-thirds of the hemolytic streptococci, while *S. anginosus* and *S. subacidus hemolyticus* were next in order of frequency. Out of twenty-five cases of periotonitis, only four yielded a positive culture. The acute traumatic (non-infectious) deaths gave positive findings in less than 3 per cent., whereas 36.3 per cent. of the chronic wasting diseases showed a bacteriemia. Sterile cultures were encountered in all cases of diabetes mellitus. In twenty-four instances, both ante mortem and immediate post mortem, blood cultures were taken. Eighty-three per cent. of these showed identical findings and 17 per cent. yielded organisms which were absent during life. Comparisons were also made between immediate post mortem blood cultures and cultures taken from the heart's blood at autopsy. Sixty per cent. showed the same results, and in 40 per cent. an altered bacterial invasion occurred. Cocci played the leading role at all times. Bacilli were proportionately increased in the autopsy cultures. The technique for cultivation did not include anaerobic methods.

Transplantation of Tissues into Nearly Related Members of the Same Family.—Dr. LEO LOEB of St. Louis presented this study. It was desired to know whether in transplanting tissues from parents to children, the tissues would behave in certain offspring like auto and in others like homeotransplants. Two sets of experiments were made. In one various organs were transplanted, either from parents to children, from one member of a fraternity to another, or from offspring to parent. Homeotransplants were also made. The results of both sets of experiments agreed. In the large majority of cases intermediate results were obtained, ranging between effects obtained between auto transplants on the one hand and homeotransplants on the other. In regard to the character of tissue planted, a few interesting facts were observed. Liver tissue was found to survive and even moderately proliferate after transplantation. Spleen remained alive in many cases. The uterus and ovary of the rat were readily transplantable. Lutein tissue might form anew in the ovary, and some eggs were found to withstand the effects of transplantation. The ovary of the guinea pig was not so easily transplantable as that of the rat. The homeotransplant gave results much more frequently than other varieties. Transplantation into relatives gave intermediate results.

Immunity and Tissue Transplantation.—Dr. LEO LOEB of St. Louis also made this presentation. Previous studies by the author showed that after homeotransplantation of certain normal tissue a lymphocyte reaction occurred. This was also present in homeotransplantation of tumor tissue in cases in which the compatability between transplant and host was not complete. Following a second transplantation of the tumor into the same host the lymphocyte reaction appeared earlier. In other cases, it was stated, a lymphocyte reaction might be absent after a first transplantation, but appeared after preliminary inoculation with modified tumor material. This would indicate that the reaction of the host towards a transplant is altogether a

response to the development of immunity, the lymphocytes being attracted by immunohomeotoxins and not by homeotoxins that form as a result of disturbed cell metabolism through incompatibility between host and transplant. A study was therefore undertaken to determine whether after grafting of tissue, or second inoculation of the same tissue, the lymphocytic reaction would be noticeably accelerated. A series of experiments were made in which thyroid of the guinea pig was homeotransplanted successively into the same host. The first transplant showed lymphocytic reaction, but at this time the second transplant was almost free from lymphocytic infiltration. In some cases, however, it would seem that the first transplantation might increase the lymphocytic infiltration in the second piece. Transplanted thyroids tended to disappear at an early date, but whether this was due to an immune reaction on the part of the host could not be determined. It was considered probable that the lymphocytic reaction was a response to the primary homeotoxins, and not merely to the effect of immunohomeotoxins, although the latter might cause an additional reaction.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Wednesday, March 27, 1918.

THE PRESIDENT, DR. FRANK C. HAMMOND, IN THE CHAIR.

Symposium on Nephritis: Symptoms and Diagnosis.—Dr. DAVID RIESMAN under this caption designated hysteria and uremia as two diseases manifesting themselves in protean ways. The greater frequency of uremia than of true hysteria emphasized the importance of a knowledge of its peculiar habits. He observed that while the cause of uremic poisoning was not known the fact of its exerting itself largely upon the central nervous system was well known; also that every one with hospital experience was familiar with the difficulty in a case of coma in determining the cause. No definite earmarks attended the comas of the various infections. A recent case was cited in which this difficulty was encountered in deciding between uremic coma and coma of acute cerebrospinal meningitis. Alcoholic coma and the coma of brain injuries frequently presented difficulty in differentiation from uremic coma. Catheterization and examination of the urine in such a case were regarded as of foremost importance. Enlargement of the heart and hypertension were said to point toward uremia; the eyeground changes were also mentioned as of valuable differential import. Mention was also made of the difficulty of differential diagnosis of uremic hemiplegia and of uremia aphasia. Those trained in the Philadelphia Hospital would remember the frequency with which a case diagnosed as apoplexy would at autopsy show no hemorrhage in the brain. Uremic hemiplegia was transitory in character with a tendency to recover. There was nearly always hypertension with cardiovascular changes of chronic Bright's disease and while the problem presented was that of a poisoning of the nerve cells, or of vascular crises in the brain, the transitory character of the picture might be compatible with either condition. The nervous condition of uremic headache might be the only condition of which the patient complained, and this so intense as to suggest brain tumor. Severe neuralgias referable to uremic intoxication were also mentioned. Uremic narcolepsy also was referred to as presenting difficulties in diagnosis. In a case brought into one of the hospitals sleep had been exactly like that produced by drugs. Autopsy showed the kidneys to be not much larger than a silver dollar; the only symptom, however, had been the narcolepsy lasting throughout six days. Uremic dysentery, though of rare occurrence, had been observed. Another manifestation of uremia was the so-called hemorrhagic diathesis, in which a patient would suddenly bleed from the mouth and nose and perhaps from the bowel, with patches of hemorrhage showing in the skin. In all such cases under Dr. Riesman's observation there had been the contracted kidney with high blood pressure and injured heart. In one case of uremic pericarditis there had been shortness of breath with symptoms of mediastinal tumor; tapping showed hemorrhagic fluid in the pericardium; at autopsy chronic interstitial nephritis only was shown to have been present. The diagnosis of uremia and of Bright's disease in general was to be made not upon one element but by the consideration of many. Urinary analysis might be misleading; the author had seen cases of Bright's disease with no albumen; greatly contracted kidney might be present with low blood pressure. A most valuable point observed was, that with the albuminuria of heart disease the urine was nearly always highly colored and contained a large amount of urates; the albumen was small in amount and casts few. It would, however, often test the skill of the best men to determine whether a given case was one of Bright's disease with cardiac failure, or purely a heart condition.

Functional Tests of the Kidney in Diagnosis and Prognosis.—Dr. O. H. PERRY PEPPER pointed out the following three difficulties in the study of kidney by functional tests: (1) The complexity of the kidney function; (2) the present lack of knowledge regarding the mechanism of urinary secretion; (3) the importance of extrarenal factors. Not only should the quantitative appearance of the ingested substance be measured but consideration be given the time relation, since even a markedly diseased kidney would always eliminate the increased amount of water, salt or urea if given time. It was not necessary, he observed, at this day again to kill the dead by referring to the entire usclessness of estimations of urinary urea if unaccompanied by exact control of the intake of all protein food and of the nitrogen loss in the feces. The extrarenal factors were too many for any reliance to be placed upon the test, except under extremely favorable conditions. The separate tests of the ability of the kidneys to dispose of known amounts of water, protein and salts might be combined and the patient placed on a diet containing known quantities of these substances and the results observed. This, however, was usually to be done in conjunction with studies on the blood. The determination of the freezing point and the estimation of urinary toxicity were other tests mentioned, not, however, widely employed. The blood sooner or later showed the results of any depreciation of renal activity. Attempts had been made to express the relationship of the urinary urea and the blood urea in a formula which would give the functional efficiency of the kidney in mathematical terms as an index. None, however, had proved wholly satisfactory and the plan was scarcely one for general clinical use. Another group of tests mentioned was that based upon the introduction into the body of some substance foreign to the organism but which is eliminated by the kidneys and of which it is possible to determine the rate and quantity of excretion. Of the various tests the three of special usefulness were said to be (1) The testing of the ability of the kidneys to eliminate water and to dilute or concentrate the urine; (2) The estimation of salt test; (3) The estimation of blood urea nitrogen; (4) The phthalein. Diagnosis by functional test might be considered from (1) The ability of the kidney to perform a given function; (2) an estimate of the degree of renal impairment by nephritis by one or more tests; (3) an estimate of the patient's condition at the time; (4) conclusions concerning the anatomical lesions in the kidneys. This, however, could not be successfully done with the present knowledge of the subject. The test of provoked polyuria was said to be of chief value in the recognition of acute nephritis, simple degenerative nephritis and of passive congestion of the kidneys. The test of chloride elimination often gave the earliest evidence of impaired renal function. The phthalein test Dr. Pepper regarded as the best all-round test of renal function and said there were few renal diseases in which it did not give a fairly true estimate of the renal function. Its especial value obtained in chronic glomerulonephritis. The tests mentioned were regarded as aids in prognosis only as they led to a correct diagnosis; a zero phthalein might occur in an acute nephritis and recovery ensue. It might also appear as a warning of imminent fatal uremia. In prognosis and for the control of treatment the author said that the functional tests must be repeated at intervals to obtain the best results. Emphasis was placed upon the importance of carefully excluding extrarenal factors and of always interpreting the tests in conjunction with

routine study of the urine, the blood pressure, and the patient.

Treatment of Nephritis.—Dr. WILLIAM E. HUGHES outlined the picture of Bright's disease as a condition due to retention of poisons, deterioration of the blood, interference with function of various organs and changes in the circulatory apparatus. To be remembered was the fact that the crippled condition of the kidney is aggravated by attempts to secrete even a normal amount of excrematous material. Treatment should include the attempt to prevent ingestion of further poisons, to take as much work off the kidneys as possible, to stimulate faulty function of other organs, to restore the blood condition, to minimize the injurious effects of circulation, and possibly to stimulate the faulty kidney to renewed activity. In the question of treatment food was regarded as the most important. Milk was probably the least injurious food. This might be taken as sweet milk, buttermilk, whole milk, or skimmed milk, and in some cases of Bright's disease such a diet was to be reverted to as the ideal. Meat was regarded as the most injurious form of diet because of its high nitrogen content. The nitrogenous foods apparently poisoned the most seriously and permanently. A certain amount of nitrogenous intake, except for a short period of time, was of course necessary, and for this eggs, rather than meat, might be adopted. Dr. Hughes' practical experience had been that a moderate amount of salt in the diet was not harmful. In the use of water he thought the tendency was to be extreme; by increase of the watery content of the blood a secondary danger to the kidney function was produced by the consequent rise in blood pressure. Effervescent beverages were said to hold a certain element of danger in their stimulative character. The state of the digestion was regarded as of exceeding importance in Bright's disease and to it treatment should be directed with the closest attention since through absorption of toxins in the intestinal tract additional irritation in the kidneys is brought about. Intestinal antiseptics Dr. Hughes had found to be of slight value; of these calomel was probably the best. Colonic irrigation was worthy of consideration. The poison produced by fatigue was mentioned among those operative in the production of Bright's disease or in its aggravation. In no other class of disease was the character of the wearing apparel believed to be of so much importance; woolen, of proper weight, worn the year around he believed served an exceedingly useful purpose. In climate California preferably and secondly Florida probably offered the best conditions for the patient. While fresh air and plenty of it were of great value, not infrequently an exacerbation of Bright's disease might be traced to too light bedclothing and too much fresh air at night. Emphasis was placed upon the importance of the skin circulation which was to be favorably influenced by baths and massage to a moderate degree. Anemia as one of the ill effects of nephritis should always be borne in mind. The drug of greatest value was iron; pylocarpin in small doses was also employed. The dropsy of Bright's disease was said to be in no way different from the dropsy in other affections; there were present the diseased vessels, poor heart power, and wrongly mixed blood. Of cardiac stimulants digitalis was regarded as the best. It was to be remembered that many cases of apparent apoplectic "stroke" were really cases of uremia, and that in such instances vigorous treatment must be directed to the kidneys. Work, so far as possible, should be taken off of the kidneys, and the intestinal tract should be cleaned. In the presence of much hypertension, if the patient were fairly well nourished and not particularly anemic he should be frequently bled.

Dr. M. HOWARD FUSSELL believed with Dr. Pepper that the use of the term "nephritis" as a substitute for Bright's disease, which was applied to many cases of nephritis, would be advisable. To the layman the name, Bright's disease, carried the idea of an absolutely fatal condition. It was well known that many cases of nephritis, if not curable, did not bring death in any short length of time. Although, as Dr. Riesman had said, in the vast majority of the arteriosclerotic types uremia might be easily recognized by the cardiovascular changes, in acute nephritis these changes were not present. Hemiplegia it had been observed sometimes persisted until death ensued. One case cited was that of a woman in the Episcopal Hospital with typical interstitial nephritis. She did not seem to be very ill but developed a leftsided hemiplegia. Death followed, due in Dr. Fussell's opinion, to apoplexy, but autopsy revealed no sign of thrombus, simply the presence of the sclerotic arteries. Reference was also made to a case in the University Hospital which in Dr. Fussell's opinion had a bearing upon Dr. Riesman's statement that in treatment it made little difference whether the arteriosclerotic condition be recognized as the basis of certain cases of nephritis. The case presented an excellent example of nephritis due to a general arteriosclerosis. There had been dyspnea with recurring attacks of edema of the legs. The arteries had the appearance of pipe stems. The man was 65 years of age, had polyuria with low phthalein output. From the results of treatment by rest and elimination the case was in all probability one of arteriosclerosis; it was not Bright's disease. He believed it a great mistake from the standpoint of treatment to regard such a case as nephritis. Such a patient with the rest he would have if placed in an old man's home would live for many years. He emphasized the fact that albuminuria did not always mean nephritis. It was also true, unfortunately, that a great many physicians did believe that albumin in the urine proved the presence of nephritis. Notwithstanding the disappointments from the removal of teeth and tonsils for the elimination of foci of poisons causing nephritis, search should be continued for such foci, but there should be increase of knowledge of the proper method of dealing with teeth. Dr. Fussell believed that in the treatment of nephritis each case was a law unto itself. With some patients, meat, however slight in amount, seemed to act as an actual poison. In acute nephritis diuretics were regarded as absolutely harmful. Absolute rest should be enjoined and the use of digitalis in the failing heart.

Dr. WILLIAM DUFFIELD ROBINSON emphasized the necessity of study by every method of research to determine the cause of nephritis. Much could be accomplished he believed by a proper dietary. One day of starvation a week was advocated, with the intake, however, of the usual amount of fluids. Great reliance was placed upon pylocarpin in the treatment of nephritis. The essential point was to seek the cause of the abnormal content in the blood of nephritis.

Dr. MOSES BEHREND said that any disrepute into which the operative treatment of nephritis might have fallen was probably due to the fact that most cases were brought to the surgeon too late and that the cases were not properly selected. Cases of chronic interstitial nephritis did very badly as did those of interstitial nephritis in the aged on account of the arterial changes and the changes in the kidneys themselves. The most favorable cases for operation were those of acute parenchymatous nephritis. The best results had been obtained by Edebohls and Lloyd. The former had operated on about 110 cases and the latter, 25 or 30. They give a mortality of 10 per cent and claimed a cure in 33 per cent of their cases with improvement in 43 per cent. This was an extremely good record; most of the cases were well selected. His own experience had not been at all satisfactory. He had operated on six cases; three were of the chronic parenchymatous type. The last case was that of a child of six years; death followed in from 24 to 36 hours. The case was an extreme one and operation was the last resort. He had operated for bichloride poisoning, stripping the kidneys, but the patients died as they usually did in severe bichloride poisoning. About 1912 the Editors of the *Medicale Clinique* had sent a letter to the various surgeons. Favorable reports had been received from Thiersch. Other operators reported no results. In operation for eclampsia the best results had occurred after labor. Before the puerperium the results were for the most part fatal. Litchfield's mortality was 1.73 per cent in 53 cases. Many writers, especially Lloyd, had said that a fibrous capsule redeveloped after decapsulation of the kidney and that this fibrous capsule was just as bad as the original capsule. This was denied by another writer. Opportunity for reoperating on these cases was naturally not very good. E. H. Goodman had noticed a rapid fall of blood pressure after decapsulation.

Stated Meeting, Wednesday, April 10, 1918.

THE PRESIDENT, DR. FRANK C. HAMMOND, IN THE CHAIR.

SYMPOSIUM: THE MODERN TREATMENT OF BURNS AND LEG ULCERS.

Treatment of Burns by Exposure to the Air and the Application of Dichloramine Through Paraffined Mosquito Netting.—Dr. WALTER ESTEL LEE and WILLIAM F. FURNESS presented this paper. They quoted Stewart's definition of an ideal dressing for severe burns, one "that would be (1) aseptic or (2) mildly antiseptic, (3) that would provide free drainage, (4) that would not macerate or (5) stick to the tissues, and (6) would not necessitate frequent changing." Still another provision which Dr. Lee thought might be added was one which should minimize the abnormal radiation of body heat from surfaces devoid of the protection of the skin and subcutaneous tissues. There was not at the present, the author said, any one treatment of burns meeting all these conditions, although ambrine and many forms of paraffin films at present in use did fulfill some of these requirements. The recent interest in paraffin film treatment had induced many surgeons to abandon a method which for some time had given excellent results, *i.e.* the exposure of the burnt surfaces to the air. The open-air treatment of burns, in Dr. Lee's opinion, more nearly met the theoretical requirements of an ideal dressing than any other which had been proposed. Of this method the author suggested the following modifications: The covering of the entire burnt area and a generous portion of the surrounding skin with a single layer of mosquito netting previously impregnated with paraffin wax, the netting being held in place by single layers of a circular turn of gauze bandage or by adhesive strips applied over the netting and the uninjured skin (never over the burnt area). Such a dressing was aseptic, and the large open meshes provided perfect drainage for the wound secretions to the outer surface of the netting. When the scab formation on the outer surface of the netting interfered in the slightest way with the drainage of the wound secretions it could be completely and painlessly removed by lifting the non-sticking paraffin net from the surface of the wound, usually once in twenty-four hours. The paraffin netting, it was said, rarely adhered to the wound surface, but a generous spraying with sterile paraffin oil would always loosen it. The only remaining condition to be met to have the air treatment fulfill all the requirements of the ideal dressing was the use of an antiseptic. In this connection Dr. Lee said that a 1 or 2 per cent. solution of dichloramine-T dissolved in chlorinated paraffin wax (after the method of preparation proposed by Dakin and Dunham) could be used on burnt surfaces without causing any objectionable subjective or objective irritative phenomena. This oil solution could be readily applied in the form of a spray (at the room temperature no heating was required as with the paraffin films) to the entire burnt surface before the paraffin net dressing was applied, and subsequently through the meshes of the net onto the surface of the wound, if for any of the above mentioned reasons it was unnecessary to remove the dressings each day. This modified air treatment of burns had been employed upon eighty-six cases at the Pennsylvania and Germantown hospitals during the past seventeen months. Dr. Lee observed that with this they had felt that because of the surprisingly small degree of infection occurring in the wounds these had healed more promptly and with more satisfactory scars than with any other method heretofore used. An outline was given of the preparation of the paraffin mosquito netting used to minimize the sticking of the dressings to and permit the drainage of the discharges from the surfaces of the wounds and extensive burns.

The Treatment of Burns.—Dr. ROBERT PERRY CUMMINS said that in the steel industry almost every type of burn was seen, the most common being those caused by molten metal splashes coming in contact with the tissues, those setting fire to clothing, and those due to back drafts from furnaces. As regarded treatment, burns should be regarded as infected wounds. To be considered also were shock, the question of primary dressing, the postinflammatory stage, and the sequelæ. For the treatment of shock Dr. Cummins placed more reliance upon the use of adrenalin and ergot than upon strychnine and digitalis. Caution against overstimulation, however, was given. For the cleansing of the wounds he had found high-grade benzine his best agent. He used warm sterile dressing or boric or physiological salt solution, changed once or twice every twenty-four hours, continued for three or four days. In the healing period the treatment with ambrine or one of its substitutes, or the open-air method, had given the best results in his hands. In the case of the ambrine treatment he would suspend its use for a few days that the wound might be freed of pus by the application of an antiseptic such as dichloramine-T. Dr. Cummins was decidedly opposed to the exclusive use of the ambrine method in burns of large area; also he would not employ it in a sloughing area. Exuberant granulations he believed should not be cauterized since these were soon strangled by the elements of regeneration of the skin. The absence of hard, poorly nourished scar tissue was mentioned as a striking characteristic of the ambrine treatment. The open-air treatment he had found more satisfactory in hospital than in ambulatory cases. Reference was made to the important role of splints, postures, and passive motion in scars and contractures likely to cause physical deformities, and in the treatment of the usually complicating toxic nephritis emphasis was laid upon the importance of an abundance of concentrated liquid food and water, stimulation, and elimination by every possible avenue. The prognosis was regarded as difficult and uncertain until recovery was well advanced. With alcoholics the chance of recovery in extensive burns was slight. The value of careful surgery and technique equaled that of the dressings.

Iodine Fumes in the Treatment of Ulcers.—Dr. JOHN J. GILBRIDE said that about a year and a half ago, having read in the *Journal of the American Medical Association* of the satisfactory results in treatment of ulcers with iodine fumes, he had employed this method in a severe burn of the leg from a hot water bottle in a patient who had had an appendectomy. The burn had resisted the ordinary treatment given for a month or two. At the time of the first application of the iodine fumes the ulcer was about three-quarters of its original size. One subsequent treatment was given and in a week following the ulcer had completely healed. He had since used the fumes in four other cases of burn with most satisfactory results.

Treatment of Leg Ulcers.—Dr. PENN-GASKILL SKILLERN, JR., in this communication, stated that the principles of the treatment of ulcer included sterilization of the ulcer and support of the part. Since congestion was the first stage of inflammation, the patient should be put to bed and the limb elevated to an angle of 20°. Sterilization of the wound should then be effected, which was best accomplished by the use of dichloramine-T. Following the application of a 20 per cent. solution of dichloramine-T, the paraffined wide-mesh mosquito netting described by Dr. Lee was to be placed over the area and secured at the edges with adhesive plaster. The next dressing was made in from twenty-four to forty-eight hours and consisted of a 5 per cent. solution of dichloramine-T. If the ulcer was large, skin grafting might be needed, the best method of which was carried out by Steele in 1870 and which utilized a greater thickness of skin giving a graft from the size of a pea to that of a finger nail. These grafts took hold and made a more pliable scar. The treatment subsequent to the skin grafting was the same almost as before, that by the open method. A basket of wire gauze was placed over the open wound and the graft allowed to heal underneath. The best treatment for a small ulcer, practically sterile with healthy granulations, when the patient was able to be up and about, was said to be that proposed as far back as 1776 by an English surgeon and revived recently, consisting of the application of imbricated adhesive plaster strips two-thirds around the limb from below upward in the direction of the venous current. These strips supported the edge of the ulcer, compressed it, and kept the blood out of the edge, thus preventing the granulations from becoming edematous. Discharge was thus reduced to a minimum by means of the compression, and calomel powder dusted on kept the

wound dry. If there happened to be a concavity between the floor of the ulcer and the surface of the leg the compression by the adhesive plaster strips could be transferred to the base. In certain cases of simple ulcer in which this method was not effective others might be used, the simplest of which was the Nusbaum operation. In addition to local treatment there must sometimes be exposure of the nerves supplying the ulcer area. Dr. Skillern emphasized that in the treatment of leg ulcer it was essential to remember the underlying congestion and the other fundamental etiological factors involved.

Dr. Edward J. Klopp stated that he had had opportunity to see Dr. Lee's method for the treatment of burns and believed it to be the best in vogue. His experience with the ambrine treatment had been limited, but disappointing. For the removal of the carbonized tissue in the third degree burn he believed that the dichloramine-T was probably not necessary. The method formerly employed had been the use of salt solution. Most of the textbooks gave as one of the best methods that of immersing the patient in a tub of warm salt solution at a temperature of 100° to 105° F. Unfortunately, in the majority of instances the water was not maintained at this temperature and the already shocked patient was further depressed. To facilitate the removal of carbonized tissue when the patient was anesthetized and to remove the tissue with the forceps, the surface was covered with narrow strips of sterilized gauze separated about ¼ inch. The surface was then covered with gauze saturated with warm sterile salt solution. The dressing could be changed and warm salt solution added without interfering with the wound. Dr. Klopp said he had nothing to offer that would take the place of the dichloramine-T. Concerning the end results he observed that it was sometimes several years before the maximum contraction of a scar was known. He was of the opinion that in the presence of a large burnt area with healthy surface, skin grafting should probably be attempted because it expedited matters. Here, of course, the method of choice was the Thiersch procedure.

Dr. William L. Clark said that the ulcers which he saw were usually advanced cases in which ordinary methods had failed and which were sent with the idea that electricity might be helpful. He had had much success, also some dismal failures. The diagnosis of the ulcer was of first importance. Syphilitic ulcer had been referred for epithelioma; epithelioma, for simple sluggish ulcer. For the different types different treatment was required. He had found that various physical measures often did good. The principle on which electricity was used was first, destruction of the granulations; second, sterilization; third, relief of passive congestion.

Dr. Kate W. Baldwin had found nothing to be more soothing in burns and giving more rapid healing than the application of the violet ray of moderate strength. The value of the treatment had been beautifully demonstrated in a child brought to the hospital in whom one-third of the surface of the body had been burned. The patient had been treated outside until it was in a septic condition. The child was placed on the table and without an anesthetic the moderate current was applied. Care had been observed to put the electrode in contact before turning on the current. The child went to sleep and remained asleep while the application was made over the entire surface involved.

Dr. Moses Behrend observed that the treatment of burns with ambrine had given good results in his hands. The scarring he had found to be as soft following the use of ambrine as that following dichloramine-T. He believed, however, that the dichloramine-T was the better method because of its antiseptic quality and because of the fact that the ambrine retained the discharges for quite a long time.

Krönig's Latest Results from Cancer Operations.—According to one of Krönig's assistants many cases of cancer treated by the knife at the Freiburg Gynecological Clinic have been followed up for 10 years with the discovery that only 5.2 per cent. of the women had survived that period. Hence Krönig is henceforth for *x*-ray therapy.—*Correspondenz-Blatt für Schweizer Aerzte.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners of Maryland.

December, 1917.

ANATOMY.

1. Define marrow, periosteum, compact and cancellous bone, epiphysis, diaphysis.
2. Bound the superior carotid triangle, and name the contents of same.
3. Name the organs of generation in the male and female, and describe the ovary.
4. Define hernia, and name and locate all hernias which occur in the abdomen (not traumatic).
5. State what muscles enter into the formation of (*a*) anterior wall and (*b*) floor of pelvis.
6. State definitely the result of cutting in living subjects the following nerves: Radial, peroneal, pudic, anterior femoral (below Poupart's ligament).
7. What anatomical structures pass through the sphenoidal fissure (foramen lacerum anterius)?
8. Name the salivary glands, and locate the orifices of their ducts.
9. Through what vessels does blood pass in going from the spleen to the under surface of the middle toe.
10. Name bones and ligaments entering into formation of the ankle joint.

PHYSIOLOGY.

1. State causes of pressure in the arteries, capillaries, and veins.
2. Name some of the bodily states which lessen the alkalinity of the blood.
3. Describe the process of osmosis and give examples in the human economy.
4. (*a*) Name the secretions of the alimentary canal, their reactions and functions. (*b*) Name the active principles of the digestive secretions.
5. (*a*) Describe bile and its uses; where first found; trace its course. (*b*) Name the bile salts.
6. State the general classes into which foods are divided, and give examples of each.
7. (*a*) What are the functions of the skin and its appendages? (*b*) What matters are excreted by the skin? (*c*) How may the function be affected as to the amount of excretions?
8. (*a*) Describe the functions of the kidneys. (*b*) Do both kidneys constantly act? (*c*) How does the impairment of the functions of the kidneys affect that of the skin and lungs? (*d*) Give the variations within limits of health in the specific gravity of urine.
9. Describe nerve-cells and fibers.
10. (*a*) Define reflex action, and give example. (*b*) Give illustrations of morbid reflex action.

CHEMISTRY.

1. Describe phosphorus, and name and give formula of three of its compounds.
2. Why should solutions of silver nitrate not be employed after irrigations with salt solution? Illustrate by formula.
3. How is chlorine made, and what are its chemical properties?
4. What are simple and what are compound proteins?
5. What is glucose? Why is it sometimes employed in solution intravenously?
6. Name three hydrocarbons, and give formula. Name three carbohydrates, and give formula.
7. What is Fisher's solution? What is its chemical effect when administered by the vein?
8. Describe two important chemical tests used in examining the stomach contents.
9. Describe two important chemical tests used in examining urine.
10. What chemicals are used in purifying water for drinking purposes, and how are they employed?

ANSWERS.

ANATOMY.

1. *Marrow* is a substance found in the marrow canals of long bones and the medullary spaces of cancellated

bone, and in the Haversian canals. It is composed of a fibrous matrix with blood vessels and myelocytes.

Periosteum is a fibrous, vascular structure covering bone (except where there is articular cartilage).

Compact bone is bone in which the constituents are so closely packed together that the bone appears (macroscopically) dense and like ivory.

Cancellated bone has an open or porous appearance.

Epiphysis is a process of bone which has a secondary center of ossification, and which is temporarily attached by cartilage to the principal part of the bone.

Diaphysis is the shaft of a long bone.

2. The *superior carotid triangle* is bounded, *behind* by the sternomastoid; *below* by the anterior belly of the omohyoid; and *above* by the posterior belly of the digastric.

The *superior carotid triangle* contains: Termination of common carotid, external and internal carotid arteries; superior thyroid, lingual, facial arteries and veins; internal jugular vein; vagus, superior laryngeal, hypoglossal and sympathetic nerves; upper part of larynx, and lower part of pharynx.

3. *Organs of generation in the male:* Testes, penis, prostate, Cowper's glands, seminal vesicles, vasa deferentia.

Organs of generation in the female: Ovaries, Fallopian tubes, uterus, vagina, mons Veneris, labia majora and minora, clitoris.

The *ovaries* are two in number, and correspond to the testes in the male; they are of a flattened ovoid form, vertically placed in the posterior part of the broad ligament. By its anterior border the ovary is connected to the broad ligament, and by its lower pole to the uterus by a proper ligament, extending to the superior angle of the uterus, and called the *ligament of the ovary.* The lateral surfaces and posterior border are free. The superior pole and posterior border are embraced by the Fallopian tube; on its inner surface it is in relation with small intestine in Douglas' pouch, and externally lies in a peritoneal fossa between the external and internal iliac vessels as they diverge. The vessels enter the hilum at the attached anterior border. —(*Aids to Anatomy.*)

4. A *hernia* is a protrusion of part of the parietal peritoneum, through some weak point in the abdominal wall, in the form of a sac; in this sac may be a portion of the omentum, small intestine, or occasionally some other abdominal organ.

Varieties of abdominal hernia (not traumatic):

1. Inguinal
   - Oblique
     - Acquired
     - Congenital
     - Infantile or encysted
   - Direct
     - External
     - Internal
   - Interstitial
     - Intraparietal
     - Interparietal
     - Extraparietal

   [Incomplete, or Bubonocele.]
2. Femoral
3. Umbilical
   - Congenital
   - Of infants
   - Of adults
4. Ventral.

The *inguinal* occurs in the inguinal region, above Poupart's ligament; the *femoral* in the femoral region, below Poupart's ligament; the *umbilical* in the region of the umbilicus; the *ventral* (generally) in one or more of the muscles of the anterior abdominal wall.

5. *Muscles entering into formation of anterior wall of pelvis:* Rectus abdominis, pyriformis, transversalis, external oblique and internal oblique.

Muscles entering into formation of floor of pelvis: Transversus perinei, compressor urethræ, accelerator urinæ (or sphincter vaginæ), erector penis (or clitoridis), levator ani, and coccygeus.

6. *Section of the radial nerve* (B. N. A. term for the *musculospiral nerve*) causes: (*a*) *Anesthesia.* If the nerve is divided in the upper third of the arm—*i.e.*, above the origin of its external cutaneous branch—there is loss of both epicritic and protopathic sensation over the radial half of the dorsum of the hand, of the epicritic a little more than of the protopathic. Section of the radial nerve in the upper third of the forearm causes no loss of sensation; but section of the lower third causes a limited loss of epicritic sense over the back of the thumb. (*b*) *Paralysis* of (1) the extensor of the forearm (triceps), hence the forearm can only be extended by its own weight; (2) the long and short supinators, hence the hand is pronated; (3) the radial and ulnar extensors of the wrist, hence wrist-drop; (4) the extensors of the fingers and thumb, which either hang limp and motionless or may be bent up into the palm from the unopposed action of the flexor muscles.

Section of the peroneal nerve (B. N. A. term for the *external popliteal nerve*) causes anesthesia of the dorsum of the foot and a varying portion of the front and outer side of the leg, together with paralysis of the extensor and peroneal groups of muscles; and from the contraction of the unbalanced opposing groups, the paralytic form of talipes equino-varus results.

Section of the pudic nerve causes pain in perineum, penis, scrotum, buttocks, down the thigh; priapism, incontinence of urine; and interference with the action of the levator ani, compressor urethræ, ischicavernosus, bulbocavernosus, and transversus perinei muscles.

Section of the anterior femoral nerve below Poupart's ligament (B. N. A. term for *anterior crural nerve*) causes paralysis of the quadriceps extensor, pectineus and sartorius, and the most marked effect will be secondary flexion of the knee joint from the unopposed action of the hamstrings; anesthesia extends over the front of the thigh and along the inner side of the leg and foot as far as the ball of the great toe. (From Rose and Carless' *Surgery.*)

7. *The sphenoidal fissure transmits:* The motor oculi, patheticus, the three branches of the ophthalmic division of the trigeminus, and the abducens nerves, and some filaments from the cavernous plexus of the sympathetic; the orbital branch of the middle meningeal artery, a recurrent branch from the lacrimal artery, and the ophthalmic vein.

8. *The salivary glands* are the two parotid, two sublingual, and two submaxillary glands.

Stenson's duct (from the parotid) opens in the mouth opposite the second upper molar tooth.

Wharton's duct (from the submaxillary) opens on the floor of the mouth at the side of the frenum of the tongue.

The *ducts of Rivinus* (from the sublingual) open on the floor of the mouth near the frenum of the tongue.

9. In passing from the spleen to the under surface of the middle toe, blood passes through: The splenic vein, portal vein, hepatic vein, inferior vena cava, right side of heart, pulmonary artery, pulmonary veins, left side of heart, aorta, common iliac, external iliac, femoral, popliteal, posterior tibial, external plantar, and third and fourth digital arteries.

10. ANKLE JOINT. *Bones*—Tibia, fibula, astragalus. *Ligaments*—Anterior tibiotarsal, posterior tibiotarsal, external lateral, internal lateral.

PHYSIOLOGY.

1. *Arterial pressure* is produced and maintained by: The force and contraction of the left ventricle; the volume of blood pumped by the heart into the already full arteries; the action of the aortic semilunar valves in preventing regurgitation of the blood into the left ventricle when it goes into diastole; the elastic resiliency of the middle coats of the large arteries; the peripheral resistance exerted by the muscular wall of the arterioles, which are especially controlled by the vasomotor nerves; the increased surface over which the blood flows through the capillaries; and the tension of the extravascular tissues. The *capillary pressure* depends upon the condition of the arterioles. If the arterioles to a part dilate, the capillary pressure rises; if they constrict the capillary pressure falls. If, however, the venous pressure is raised, the capillary pressure must consequently rise too. Gravity very materially influences the capillary pressure.

The *venous pressure* is influenced by: The presence of valves, which prevent a backward flow; and respiratory movements. (From Lyle's *Physiology.*)

2. *The alkalinity of the blood may be decreased* during health by (1) great muscular exertion, and (2) by exposure of the blood to conditions of coagulation. Path-

ologically, the alkalinity of the blood may be decreased by (1) anemia, (2) uremia, (3) rheumatism, (4) high fever, (5) diabetes, (6) cholera. (Hall's *Textbook of Physiology.*)

3. *Osmosis:* "If two different liquids are separated from each other by a porous partition, a current sets in from each liquid to the other. The strength of these currents depends on the facility with which the liquids are imbibed by the partition and the tendency the two fluids have to mix with each other; the fluid which soaks most rapidly into the partition—*i.e.*, that which wets it most readily—passes through it most rapidly. If a bladder be filled with syrup and immersed in water, the water will pass into the bladder more rapidly than the syrup passes out, and may so far raise the pressure in the interior of the bladder as to burst it. The water is said to pass into the bladder by endosmosis, and the syrup to pass out by exosmosis. Dialysis differs from osmosis in this: In dialysis a crystalloid in solution passes into a fluid, which contains a smaller quantity of the crystalloid; osmosis occurs at the same time, but the phenomena are quite distinct. The law of osmosis deals only with the currents of liquid. The blood-vessels of the alimentary canal absorb fluids by osmosis. The plasma has only a very slight tendency to pass out of the vessels, while the liquids contained in the alimentary canal pass into the blood with great readiness. The *laws of osmosis* are: (1) The liquids must be of different densities. (2) They must be capable of mixing with each other. (3) The membrane must be permeable to at least one of the liquids. (4) The current produced is greater the greater the tendency of the liquid to permeate the membrane—the greater current is spoken of as endosmosis, the lesser as exosmosis. All these conditions exist between the blood and the fluids with which the blood-vessels are surrounded, and the fluids outside the vessels pass into them more readily than the blood plasma escapes. Endosmosis usually occurs from a lower to a higher pressure."—(*Aids to Physiology.*)

Examples of osmosis in the human economy: "In the body we have aqueous solutions of various substances separated from one another by membranes. Thus we have the endothelial walls of the capillaries separating the blood from the lymph; we have the epithelial walls of the kidney tubules separating the blood and lymph from the urine; we have similar epithelium in all secreting glands; and we have the wall of the alimentary canal separating the digested food from the blood vessels and lacteals."—(Halliburton's *Physiology.*)

4. The secretions of the alimentary canal are: Saliva, gastric juice, pancreatic juice, bile, and succus entericus. Of these the gastric juice has an acid reaction; the others, alkaline.

The functions of the saliva are: (1) To moisten the mouth, (2) to assist in the solution of the soluble portions of the food, and thus (3) to administer to the sense of taste, (4) to lubricate the bolus of food, and thus (5) to facilitate the acts of mastication and deglutition, and (6) to change starches into dextrin and sugar.

The functions of the gastric juice are: (1) To change proteids into proteoses and peptones, and (2) to curdle the casein of milk.

The functions of the pancreatic juice are: (1) To change proteids into proteoses and peptones, and afterwards decompose them into leucin and tyrosin; (2) to convert starch into maltose; (3) to emulsify and saponify fats; and (4) to cause milk to curdle.

The functions of the bile are: (1) To assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis, and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action.

The functions of the succus entericus are: The secretion of enterokinase, secretin, and erepsin, which assist the pancreatic juice in digestion.

SECRETIONS.	ACTIVE PRINCIPLES.	FUNCTIONS.
Salivary	Ptyalin.	Changes starches into dextrin and sugar.
Gastric	Pepsin.	Changes proteids into proteoses and peptones in an acid medium.
	A curdling ferment.	Curdles the casein of milk.
Pancreatic	Trypsin.	Changes proteids into proteoses and peptones and afterwards decomposes them into leucin and tyrosin; in an alkaline medium.
	Amylopsin.	Converts starches into maltose.
	Steapsin.	Emulsifies and saponifies fats.
	A curdling ferment.	Curdles the casein of milk.
Intestinal	Invertin.	Converts maltose into glucose.

5. Bile is a secretion of the liver; it contains water and solids. The latter are bile salts (sodium taurocholate and sodium glycocholate), mucin, bile pigments (bilirubin and biliverdin), cholesterin, lecithin, neutral fats, and inorganic salts (NaCl, KCl, and phosphates).

The functions of the bile are: (1) To assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis, and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action.

The bile is secreted in the liver; it passes by the hepatic duct and cystic duct to the gall-bladder, where it is stored; it then passes down the cystic duct, through the common bile duct, and into the duodenum.

6. *Foods are classified:*

- I. Inorganic. { Water. / Salts.
- II. Organic. { Non-nitrogenous. { Carbohydrates. / Fats. / Nitrogenous—Proteids.

Examples of each: *Carbohydrate*, sugar and starches; *Fat*, fat of meat, and butter; *Proteid*, flesh of animals, and white of eggs; *Salt*, sodium chloride, and calcium phosphate.

7. The *functions of the skin* are: (1) Protection, (2) excretion, (3) secretion, (4) regulation of body temperature, (5) absorption, (6) general sensation, (7) special sense of touch, and (8) respiration.

Matters excreted by the skin: Water, salts, urea.

Certain drugs (as pilocarpine) increase the amount of perspiration; others (as atropine) diminish it. The ingestion of much water increases the amount of perspiration. The excretion of much urine causes a diminution in the secretion of sweat; in uremia there is more urea than normal in the perspiration.

8. The *functions of the kidney* are: (1) To secrete (or excrete) urine; (2) to regulate the reaction of the urine; (3) the formation of hippuric acid; (4) regulation of the composition of the blood plasma by excretion of abnormal or toxic substances; and (5) the production of an internal secretion. The mechanism of the *secretion of urine by the kidneys* is twofold: (1) By filtration, most, if not all, of the fluid is eliminated, and also inorganic salts; this depends upon blood pressure, and takes place in the glomeruli. (2) By cell activity and selection, in the cells of the convoluted tubules, the urea, and principal solids are eliminated.

"The urine is secreted continuously by the kidneys."

Impairment of the function of the kidneys throws

more work on the skin, which it can only partially perform; some of the work must also be performed by the lungs.

The specific gravity of the urine, in health, may vary from about 1015 to about 1025.

9. *Nerve fibers and nerve cells.* Nerve cells are of different sizes and varying shape; some are ovoid, some irregular in outline. Each cell has a large, distinct, spheroidal nucleus with a single nucleolus and fibrillated protoplasm. Nissl's granules are sometimes found in the protoplasm. From the cells are given off axis cylinder processes or *neuraxes*, and protoplasmic processes or *dendrites*. These are the principal elements in nerve fibers. Every nerve cell has an axis cylinder process, which in the medullated nerve fiber becomes the axis cylinder, and in the non-medullated is the nerve fiber itself. The function of the nerve cell is to receive, or to send out, or to modify, nerve impulses; the function of the nerve fiber is to carry nerve impulses.

NERVE FIBERS.—1. *Medullated Fibers.*—"Medullated nerve fibers usually consist of three parts: (*a*) axis cylinder, (*b*) medullary sheath, (*c*) neurilemma. An *axis cylinder* is a cell process that carries an impulse away from the nerve cell. It is a slender cytoplasmic process and may be very long, as is the case with the motor fibers that come from nerve cells in the anterior horn of the spinal cord and extend, without interruption, to muscles in the distal parts of the limbs. The axis cylinder presents a longitudinal striation, a fibrillar structure, that is supposed to be continuous with the cytoplasmic striation of the cell body. The fibrils are imbedded in a fluid protoplasmic substance, the neuroplasm, and the whole surrounded by a delicate membrane, the exolemma. Implantation cone is an elevation that is sometimes present at the junction of the axis cylinder and cell body. The *medullary sheath* (white sheath of Schwann) is a covering to the axis cylinder. This sheath never extends to the nerve cell, but begins a little distance from it. Nodes of Ranvier are constrictions of this sheath at regular intervals. The smaller the fiber the greater the distance between these nodes. Long fibers are slender, with long distance between the nodes; short fibers are coarse, with short distance between nodes. The *neurilemma* is a thin structureless membrane that surrounds the medullary sheath. An oval nucleus is present in this sheath, midway between the nodes of Ranvier. At each node the neurilemma is constricted and touches the axis cylinder, which in turn may be slightly thickened at this point and may give off a collateral. Medullated nerve fibers with a neurilemma are found in the cranial and spinal nerves. Medullated fibers without a neurilemma are found in the brain and spinal cord. The neurilemma gives great strength to the fibers. Its absence in the brain and cord accounts for the pulpy soft nature of this tissue."

"*Non-medullated nerve fibers* with a neurilemma, but without a medullary sheath, mingle with the medullated fibers. The sympathetic system consists largely of non-medullated fibers. Terminal branched endings of an axis cylinder, called neuropodia, have neither medullary sheath nor neurilemma. The axis cylinder, just as it leaves its nerve cell, is likewise uncovered."—(Hill's *Histology.*)

10. *Reflex actions* are involuntary or unconscious movements due to suitable stimuli. They depend upon the integrity of the *reflex arc*, which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding in some way to the impulse conveyed by the efferent nerve. *Example:* The patellar reflex consists of a contraction of the extensor muscles of the leg and a movement of the foot forward when the ligamentum patellæ is struck; the quadriceps extensor must first be slightly stretched by putting one knee over the other. Its integrity depends upon a healthy condition of the entire reflex arc, consisting of tendon, afferent or sensory nerve, posterior roots, and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself.

Illustrations of morbid reflex action can be seen in tetanus, when a slight touch, or even a breath of air, on the skin may cause convulsions of the whole body; also in the vomiting of pregnancy.

CHEMISTRY.

1. *Phosphorus* exists in four forms. The two most common are: *Yellow phosphorus*, a translucent solid which becomes opaque when exposed to light; it is poisonous, of waxy consistency, and when exposed to air it gives off white fumes and an odor of garlic. It ignites readily, is insoluble in water, but soluble in oils, alcohol, ether, and carbon disulphide. *Red phosphorus* has no odor and no taste, is insoluble, not luminous, and not poisonous.

Three compounds of phosphorus.—Phosphoric acid, H_3PO_4. Hydrogen phosphide, PH_3. Phosphorus pentachloride, PCl_5.

2. Silver nitrate solution and salt solution enter into double decomposition, producing sodium nitrate and silver chloride: $AgNO_3 + NaCl = NaNO_3 - AgCl$.

3. Chlorine may be made by heating together hydrochloric acid and manganese dioxide:

$$MnO_2 + 4HCl = MnCl_2 + 2H_2O + Cl_2.$$

Chlorine has a tendency to unite with other elements sometimes violently, with evolution of light and heat. A candle burns in chlorine with a faint flame and thick smoke. In the presence of water chlorine is an active bleaching and disinfecting agent.

4. *Simple proteins* are naturally occurring proteins which on being treated with enzymes or acids break up only into alpha-amino acids or their derivatives. They differ from the (compound or) conjugate proteins in that the latter break up not only into amino-acids, but also into other non-protein substances.

Compound proteins are compounds of simple proteins with some other non-protein group.

5. *Glucose* is a monosaccharide carbohydrate, with the formula $C_6H_{12}O_6$. It is sometimes employed in solution intravenously, because of its nutritive properties.

6. Three hydrocarbons: Methane, CH_4; ethane, C_2H_6; propane, C_3H_8. Three carbohydrates: Glucose, $C_6H_{12}O_6$; saccharose, $C_{12}H_{22}O_{11}$; starch, $C_6H_{10}O_5$.

7. *Fischer's solution* is composed of sodium carbonate, sodium chloride and water. It has been administered intravenously in order to make the urine alkaline.

8. *Test for free hydrochloric acid in gastric contents.*—Gunzburg's reagent (phloroglucin, 2 grams; vanillin, 1 gram; dissolved in 100 cc. of alcohol) freshly prepared, and a few drops of filtered gastric contents (equal parts of each) are mixed in a porcelain dish, and then evaporated in a water bath; in the presence of free mineral acids a bright scarlet color is produced, beginning at the upper border.

The presence of lactic acid is detected by Uffelmann's reagent, which consists of a solution of ferric chloride and phenol, diluted to an amethyst-blue color, which is changed to yellow by lactic acid. In order to avoid error by the action of other substances which have a like action upon the reagent, 10 cc. of the filtered gastric contents are agitated with ether, and the ethereal extract separated and agitated with the reagent; or it may be evaporated, the residue dissolved in water, and the solution added to the reagent.

9. First of all, test for *albumin*, as follows: The urine must be perfectly clear. If not so, it is to be filtered, and, if this does not render it transparent, it is to be treated with a few drops of magnesia mixture, and again filtered. The reaction is then observed. If it be acid the urine is simply heated to near the boiling point. If the urine be neutral or alkaline it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3.

If albumin is present it should be removed. The urine is then tested for *sugar* as follows: Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test tubes. To one test tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color.

10. *Chemicals used in purifying water for drinking purposes:* Ozone, chlorinated lime, chlorine, potassium permanganate, alum, sulphate of iron and lime, metallic iron, copper sulphate. For details as to their methods of employment, see Rosenau's *Preventive Medicine.*

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MEDICAL WOMEN, YESTERDAY AND TO-DAY.*

BY SARAH J. McNUTT, M.D.,

NEW YORK.

EARLY last year the general public seemed to have suddenly awakened to the fact that the woman doctor was receiving marked attention, and her work was enthusiastically commented upon by press and populace. The clubs, curious to know more in detail, requested information regarding the woman doctor's preparation and experiences.

The very busy life of a woman physician and the ethics of the profession have limited personal reports. After considering the subject and consulting with a number of the leading workers, it was decided that the times required that some concession be made to these requests.

This paper is the outgrowth of my efforts to reply. Your Chairman of Program has asked me to repeat it here.

Sorosis Chairman of Education asked me to tell them if I regretted that I had not a better foundation in medicine. In reply I said I have never for one moment regretted that I was a graduate of the New York Infirmary for Women and Children. Nor do I believe that any other College in the land could have builded for women a better foundation than was there laid for medical work.

It was in 1848 that a plan of studying medicine became a settled resolution with Elizabeth Blackwell. She was the real originator of the idea and movement in America. She was graduated in 1849 and was the first English-speaking woman in the world to take a medical degree.

Her sister, Emily Blackwell, was graduated in medicine three years later, in 1852, and they having realized the needs of a hospital where women and children could receive medical care from women, set about founding the Infirmary or Hospital.

The New York Infirmary for Women and Children was incorporated in 1853 as a center for the *practical* medical education of women. At first it took the form of a hospital and dispensary, and not a college, because there was then no hospital or dispensary open to women students in this country. Many students were from time to time admitted to the infirmary and dispensary for private instruction, and as their number increased it was deemed expedient to establish a woman's medical college in connection with the New York Infirmary and Dispensary.

*Read at a meeting of the Women's New York State Medical Society, Albany, May 20, 1918.

Through the earnest and well-directed efforts of Doctors Elizabeth and Emily Blackwell, a charter was obtained from the State Legislature in 1868 for the establishment of the college, fifteen years after the infirmary and dispensary had been founded.

On Nov. 2, 1868, Dr. Elizabeth Blackwell, in her opening address, said at its close: "The college must be an honest and earnest attempt to give to women the very highest education that modern science will afford." These ideals of Dr. Blackwell in the years that followed were never lost sight of as long as the college lived. It was resolved at the first to make the quality of the instruction and the requirements for graduation equal to the best schools for men in this country. Soon after this college was founded, Dr. Elizabeth Blackwell went to England to live and assisted in founding there the London School of Medicine and the hospital connected with it, developing a great work for medical women; many of its graduates have done most commendable work throughout Great Britain and most wonderful war relief work since 1914 in England, France, and Serbia.

Dr. Marie Zakzrrewska obtained her degree in medicine some years after the New York Infirmary was founded and she was associated for a time with the Drs. Blackwell when she went to Boston, where she founded, in 1862, the second hospital in this country to be staffed by medical women—the New England Hospital for Women and Children in Boston.

These two great centers, Boston and London, were outgrowths of the New York Infirmary.

After Dr. Elizabeth and Dr. Zakzrrewska went to their own fields of medical work, Dr. Emily Blackwell remained alone at the head of the medical work of the New York Infirmary and College for Women. The name of Dr. Emily Blackwell means much to those who have known her personally.

I can never forget the first time that I saw her. When I came to apply for entrance to the college, there came into the reception room a stately woman with white hair, clear complexion, pink cheeks—and, though reserved in manner, yet there was a something about her that made one feel at once that it would be a privilege to be under her teaching and that one must really come up to the standards she set.

I was very fortunate in coming in close relation to her. I lived in the hospital my first student year, and for a year as interne after my graduation. I was her assistant for over twenty years, and also attending physician to the hospital and instructor in the college in her department, diseases of women,

for over twenty years, performing minor and major operations.

While life was simple and an interne's duties varied and laborious, it was fully counterbalanced by the intimate cooperation between internes attending and consulting physicians and trustees.

It fell to an interne to do what is now considered her legitimate work, and also that which is now detailed to hospital druggist and operation-room nurse.

Before the days of isolating wards, equally with other maternity hospitals of the land we sometimes had cases that were then called "childbed fever," and once, with the proverbial Blackwell thoroughness, we decided to fumigate the whole hospital. Patients and workers were transferred to other quarters, windows and doors were sealed, and large quantities of sulphur ignited. Soon the fumes began to extend to the outer air.

It had not been thought sufficiently important to notify the trustees, but it chanced that this special time was selected by Robert Haydock, our beloved president of the hospital board, and Hannah, his wife, whose very presence was always a benediction, to make a friendly evening visit, coming as usual, in their quaint Quaker garb. What was their horror in finding fumes of sulphur escaping and no response to their persistent knocking! Greatly alarmed for the inmates, the neighbors were aroused and the fire company called out.

After it was all over, Dr. Blackwell, who always saw the amusing side, naively suggested that "the next time perhaps it would be well to leave the janitor in the building," but a compromise was made by having him act as watchman on the outside.

No one could fill the place Dr. Blackwell occupied in one's heart. Truly, she was a woman whom it was a privilege to have known and loved. In all the years that I was so closely associated with her, I never knew her to be ill but once. She was out of town at her country place in Orange. I was notified that she was having a very acute gastrointestinal attack, with alarming symptoms. I went at once, and fearing I might need assistance, left word for a younger worker (Dr. Kilham) to follow.

I found Dr. Blackwell alone in her house, unconscious—no pulse at her wrist, heart sounds very weak, with cold extremities and clammy skin. I was busy using restoratives, when the maid returned—she had been at the neighbors reporting Dr. Blackwell's great improvement, because the doctor was so quiet. Dr. Kilham soon arrived and we worked unceasingly during the entire night before we could feel that there was an encouraging response to treatment, and it was well into the morning before she was able to recognize us.

The time was August, the weather specially hot and depressing—she longed for sea air, and as soon as I could do so safely I took her to Nantasket Beach, where we spent our time idling about in most delightful air.

I never shall forget the night on the Sound boat, we could not sleep and sat up in the moonlight and talked, or rather she did, one needs must feel that it was best to listen when she talked—that night is among one of my most precious remembrances.

Dr. Emily Blackwell was a great teacher, and no one could come under her wonderful influence without feeling that a great privilege had been her's. A broad-minded woman, guided by high ideals and lofty purposes, her personality made a strong impress upon the life and work of her students—their lives were fuller from having known her.

The college closed, but it did not die, it never can in the minds of its alumnæ. Its growth was so strong it blossomed and bore fruit, with good seed that has been scattered so far about there must ever be the individual or the group that see the vision, and be ever ready to give themselves to the great service.

This woman's college was the first college to require a three years' course of eight months each year, and among the first to increase the three years to four years.

It was among the first to establish entrance examinations, ten years before such examinations were made compulsory by the State.

When the New York Infirmary issued its first prospectus no college in the United States required so thorough a course or such severe examinations.

The first chair of hygiene was established here, and Dr. Blackwell said "The prevention of disease is quite as important as the cure." She also established the first chair of pathology in this country.

A special board of examiners was selected from among the faculties of the several men's medical schools of the city. When one realizes that this board which examined the candidates, passed by the faculty, and which could refuse them their diplomas, were composed of the leading men in the profession—such men as Stephen Smith, Fordyce Barker, Austin Flint, Alfred Loomis, Gaillard Thomas, William Polk, and Robert F. Weir—the ability of the graduates is unquestioned.

The record of the college was one of steady progress. The well-equipped laboratories allowed the desired extension of the scientific courses, under a corps of thoroughly trained enthusiastic instructors from among our own graduates.

The most distinctive feature of the four years' course was the clinical instruction—it was the keystone of the entire curriculum, toward which everything else was made to converge. The clinical opportunities of a New York medical school for individual instruction in the study of diseases are unequalled by any in the land.

Each senior assisted at twelve maternity cases, under direction of the physician in charge, and made written reports of these cases. This was at the time when men's colleges made no arrangements for their students to see even one maternity case before graduation.

Dr. Blackwell insisted that the student be taught to study the patient as well as the disease, since no two persons having the same disease would show the same symptoms; in each the symptoms would be modified by individual idiosyncrasies.

In our own dispensary at this time—1880—about 8,000 new patients were treated annually; they made from one to many visits—in all there were 40,000 to 50,000 calls yearly.

Not only our own clinics, but the numerous positions held by the faculty of this school in other institutions, were utilized for the benefit of our students. Dr. Blackwell selected the members of

her faculty wisely and well, from the several best male colleges of the city. I give a few names typical of the rest, and indicative of the valuable teaching powers of the school—the two Jacobis—Abraham and Mary Putnam, known and honored on two continents—Abbe, Fox, Dana, Adler, Stimson, Bulkley, Judson, Willy Meyer, Tuttle, Cragin, Chapin, the two Lamberts, Samuel and Alexander. All of these need no introduction or commendation from me.

The alumnæ may well be proud of the fact that their Alma Mater kept up with the times, won the cordial respect of the medical profession and received warm and repeated testimony from the State Board Examiners as to the thorough preparation of the students. It was these superior clinical advantages which brought many students to our senior classes, who had taken their earlier instruction in colleges with less clinical opportunities.

The New York Infirmary College, with its high standards for education, its eminent teachers, could give its student body vastly greater individual opportunities and advantages than could be obtained in a large coeducational institution with many hundred students. Dr. Blackwell believed if women were to study medicine, and expected to be recognized by men physicians, they must be prepared not only as well as men, but even better. However, it had always been Dr. Blackwell's idea that when the best colleges for men opened their doors to women, it was better for women medical students to study at a coeducational medical college, that the world at large would know that they were equally prepared with men.

Cornell Medical College in 1899 received an endowment of $1,500,000, with the proviso that women should be admitted on equal terms with men. The infirmary college was closed, its building transformed into a hospital annex, and its pupils transferred to Cornell. To the general public the broader field seemed a great step in advance for the woman medical student. To the medical woman who knew the wonderful individual teaching and the great amount of practical work to supplement the college lectures, it seemed a tragedy.

I am glad to have been graduated earlier. I had four college years. The first one I lived in the hospital, acting as assistant in the wards, also attended the college lectures, made daily visits in the wards as assistant, recorded patients and their symptoms, carried out directions given for their comfort and treatment. The various wards were, maternity, general medical, general surgery, diseases of children, and diseases of women. Many minor and major operations were performed in which I could assist and do all the dressings necessary during convalescence. I had entire charge of the delivery and made records of 54 maternity cases during my college course, and in addition was present at the delivery of more than double that number, while serving as interne.

Every other morning I worked in the dispensary drug room, making pills and powders and mixtures, even our own tinctures and ointments and suppositories, and filled out the prescriptions given by the dispensary physicians, these prescriptions averaging 100 to 200 daily. The work in the drug room has changed greatly since those days when simpler medicines were used. In place of compressed tablets, bought by the thousand from the wholesale druggist, we had to weigh out and put up bulky packages of "simple bitters," composed of boneset leaves, chamomile flowers, columbo roots and quassia chips. These packages were much prized by our old ladies, who joyfully added the quart of cold water, kept it in the ice box as directed, and cheerfully drank their cupful three times a day, confident that it removed all ills. Loath to part with their beloved remedy until all its virtues were exhausted, they renewed the quart of cold water until there was no longer a bitter taste to the infusion.

When my year of internship was over I was appointed to the out-practice for one year, and visited over 1,500 patients in their homes. Our professors were always ready to help with advice or assistance when needed. I went from sub-cellars to attics, sometimes up seven flights of stairs. I never thought of the stairs, but what they were taking me to, and what I could do when I got there.

Early in the out-practice I realized the great value of the practical work we had had in combination with our college lectures, and how well they had helped to prepare for the emergencies that would arise in active practice.

One of the first calls I received has been ever memorable. I had gone to the dispensary for the addresses for that day's calls. Suddenly a 15-year-old boy rushed in with, "I want a doctor quick—me brother's choking to death—he'll die if you don't hurry." This to me as I'd been pointed out to him as the one he wanted. As he explained, I knew what I was up against, and suddenly in a panic, turning to our anatomy professor, Dr. Wattles Founce, who stood near, with, "Oh, do go! I'll surely cut the carotid artery." She exclaimed indignantly, "If you do, it will be murder, and you will be hung, and you'll deserve it. You know what to do. Get your knife and strip of adhesive plaster, and wind it while you run, don't let him die while you linger in going." She was born in Kansas, but was an ideal New England Priscilla. I knew better than to urge, and did not care to—my panic was gone. The boy ran, I after him, winding the knife. We ran from Eighth Street up Second Avenue to Eleventh Street, east on Eleventh Street three long blocks. If for a moment I lagged he'd call back over his shoulder, "Me brother is a-choking, you know," and on again I'd go. I was at his elbow as we arrived at the house. The door entered directly level with the sidewalk, and the room door was right by the entrance. As the boy threw both open, I saw at once a man on a straw pallet on the floor, sitting up in the corner pressing both arms as high as he could firmly against the wall on each side, to get all air possible into his lungs. His face was black, eyes bulging, and expression agonized. I had not stopped running, and was immediately on my knees at his side, depressed the tongue, saw a great black mass—which was both tonsils greatly distended—filling the passage and obstructing the entrance of air. Passing in the knife, I introduced the point into the black wall and drew it well down on one side. There was an immediate evacuation of contents, with some blood, and he fell forward on his bed, and for an instant

I saw that rope dangling for me, was sure the artery was cut—but only an instant, for my finger was on his pulse and I recognized that the beat was regular and forceful, that his black face was becoming red, as air rushed into his lungs, and his agonized expression was gone—in a few moments he could sit back in the corner while I lanced the other tonsil. The quick change in his appearance was wonderful, and I was glad to have helped to make it so.

During one of these years I received a hurry call from a clinical patient. She feared her child was dying. I found an 18 months old boy gasping for breath with diphtheritic croup. He was lying in bed with his mother, who had been confined a few hours before. The new baby was on the other side of the bed. The locality was in one of the most crowded tenement sections of the city. The door of the living room opened directly upon the street and was even with the sidewalk. Both inside and out it was one of the most unhygienic places I had ever been in—truly not one to select for an operation, but there was no choice, the child could not live more than a few moments if not relieved. Quick tracheotomy made breathing easy. I was giving instructions to physicians, post-graduate students, at this time, at the Morgue upon the operations of children, and the technique of this one was very familiar to me.

On my arrival, and on seeing the existing conditions, I had sent at once for two of the senior students, whom I knew I could rely upon. It was a wonderful opportunity to demonstrate what perfect care could do. These students arrived quickly and were installed. To their untiring vigilance, skillful manipulations, tact, and gentleness in managing the little patient was due its rapid and complete convalescence.

This two-roomed tenement was a comparatively quiet home by day, a well-filled lodging house by night. The lodgers began to arrive by late evening, the door opened noiselessly, by ones or twos they glided in like specters, silently arranged themselves on the floor, seemed to be trying to efface themselves, and the students let them feel that they did. At early dawn they began to glide out as they had come, and soon only the mother and two children were left.

When I arrived early the next morning with two other students to relieve them I found quite normal respiration, and the bright appearance and evident well-being of the patient, made certain his recovery, and their work had made this possible. One Dr. Kilham, after many years of hospital experience here, went "over sea," and for three years has been "somewhere in France," making herself necessary to the people in the devastated sections. The other is my sister, Dr. Julia G. McNutt—most of you know her so well, do I need to add more? While my calls were for medical or surgical attendance, I sometimes encountered on my way to them those that demanded immediate "social service." There was an especially large old dilapidated tenement, recorded as "housing 1,000 souls," that furnished me a large experience, by reason of its very bad sewage and its poor ventilation. It had many inner dark rooms that were only provided by windows and doors opening upon the halls. These halls were lighted by the outer door below, and the closed skylight seven stories above. Sometimes these dark rooms furnished homes for whole families, dependent upon light from kerosene lamps.

Once I was called to a patient on the top floor of this building and I was part way up these stairs, when I saw through an open door a man and woman unconscious on the floor—intoxicated. Strange to say, everything about the room and the individuals was neat, comfortable, and home-like—it seemed a sudden giving up of hope, and an effort to gain oblivion. On the table in the center of the room was a large kerosene lamp burning. The woman had caught the tablecloth as she fell, it was partly wound about her, and was stretched taut. The lamp had been drawn to the very edge of the table. The slightest movement of her body would have instantly tipped it over upon her head and shoulders.

I quickly stepped around and over her, turned out the light, set it back on the mantel out of danger, and continued my way up to the top floor, to my patient, comforted by the thought that I had just prevented a great panic. How many, think you, of those 1,000 souls would have lost their lives in their frantic race down those rickety stairs, struggling with fire and smoke and fear.

When I first entered the medical college I heard a student who had been considering the amount of work that the college required from its students, anxiously ask Dr. Blackwell, "When we have done all this, will patients trust us, and come to us for treatment?" Dr. Blackwell replied, "There are a great many women and children needing good medical and surgical care—if you prepare yourself so well that no one else could do better work, you will soon have so much to do that you will not have time to wonder if some one else does not approve of women physicians." Dr. Blackwell's students found by experience she was right.

For six years I assisted the professor in children's diseases, at the end of that time was asked to take a position on the faculty of the Post-Graduate College, to give clinical lectures in diseases of children three times a week to men and women physicians. One year later, 1883, I founded there the Babies' Wards for Children under 2 years, the first place where such children could be admitted to a hospital without their mothers. I gave bedside instruction and gave instruction in child surgery and autopsies twice a week in the Morgue to these doctors.

There came a time in 1888 when there was the need of withdrawing from some of my hospital and college work. Though greatly interested in my children's work I could not give time to children in my office or see them at their homes—this work had to devolve entirely upon my assistants. My office work was wholly devoted to general and special diseases of women, and the Infirmary work was in that line of practice. Therefore, in 1888 I resigned from the Post-Graduate College and Babies' Ward.

Some of the members of my Auxiliary Board urged that we found a Babies' Hospital. It was thought that I would be able to take the medical care with my sister, Dr. Julia G. McNutt's help, since there would be no college duties that required so much of my time as the work at the Post-Graduate College and Babies' Ward had done.

A charter was obtained from the State Legisla-

ture in 1888 for the establishment of the Babies' Hospital of the City of New York, for children under 2 years. The charter members were: Mrs. Andrew H. Smith, Mrs. Thomas E. Satterthwaite, Mrs. J. Lenox Banks, Dr. Julia G. McNutt, Dr. Sarah J. McNutt. The consulting medical board was selected from among the most eminent specialists of the city. They gave hearty co-operation and support to our work. They were: Dr. Andrew H. Smith, president of the Academy of Medicine, professor of General Medicine at the Post-Graduate College and Hospital; Dr. Thomas E. Satterthwaite, Professor of Heart Diseases, Post-Graduate Hospital and College; Dr. Edward B. Bronson, Professor of Diseases of the Skin, New York Infirmary; Dr. Francis Kinnicutt, Professor of Diseases of Children, Columbia University.

The Babies' Hospital of the City of New York obtained a temporary home, and was opened at 161 East Thirty-sixth Street, June 16, 1888, with 24 beds for patients. At the end of the first six months I made a report of the work, which was read before the Alumnæ Association of the New York Infirmary, February 18, 1889, and was published in the MEDICAL RECORD, March 2, 1889, under the title "The Babies' Hospital—A Summer's Work."

This medical work, however, grew so rapidly, and encroached so much upon our private work, that we felt obliged to withdraw from the Babies' Hospital a year after assisting in founding it. The hospital found a permanent home at Fifty-fifth Street and Lexington Avenue, where it now remains.

Medical Women of To-day.—A definite place in the field of medicine has been won by women. Over 40 coeducational medical colleges in the United States admit women on the same terms as men—Columbia University in 1916, and Harvard, 1917, and Yale has announced that she will admit women this fall, 1918.

The opportunities for women in medicine were never so numerous or so remunerative as at the present time, both here and abroad. No occupation open to women is so signally attractive from every point of view. It offers practically an unlimited field for usefulness and financial success. The influence of the woman physician increases, rather than diminishes, as she grows older, an advantage peculiar to medical practice. The demand for women physicians exceeds the supply. Of what other profession or occupation open to women can that be said? The woman physician is sought, not only as a private practitioner, but also as a salaried officer in institutions, medical and otherwise, as an expert in sanitation, care of the feebleminded, and treatment of the insane.

New needs for the women physicians are springing up every day, and not enough women are entering the profession to profit by the constantly increasing opportunities.

War Relief.—Of the more than 6,000 women physicians in the United States, over 2,200 have registered to be ready "at call" for war relief—over 30 per cent. of all the medical women graduates of the United States.

A goodly number have already braved the submarine peril and landed "somewhere in France," giving up home and practice, willing to face hardship and peril, without the help of military glory, to bring comfort and succor to the stricken people of that devastated land.

Truly they are worthy followers of our great pioneer and teacher, Dr. Emily Blackwell.

265 LEXINGTON AVENUE.

PROTEIN TREATMENT OF ARTHRITIS.

BY S. P. BEEBE, PH.D., M.D.,

NEW YORK.

MANY physicians have made the casual observation that a case of chronic arthritis is at times benefited by severe constitutional disturbances that accompany an acute infection, such as typhoid fever for example, and without a satisfactory basis for the deduction other than the observed beneficial effects that have been known to follow such procedures, a variety of therapeutic agents have been given to these chronic sufferers, such as bacterial vaccines of various sorts, including Shaefer's vaccine. A variety of different types of ductless gland preparations have been administered in the form of tablets by mouth as well as extracts given hypodermically. Meanwhile studies on the pathology of these conditions have led us to look for the source of infection in some other part of the body than the joint itself, the toxins from which give origin to the joint reactions. The teeth, tonsils, nasal sinuses, gall-bladder, and appendix very frequently indeed are subject to chronic infections, the toxins from which may give rise to the joint condition. Abnormal conditions within the digestive tract giving rise to absorption of toxic products, and putrefaction therein may likewise prove to be the point of origin of the joint inflammation. It seems unnecessary to state that any plan of treatment designed to relieve the joint condition must take into account these chronic infections, and insofar as it is possible to do so adequate relief must be accorded by medical or surgical means from these disturbances to the general health.

Within the last two years attention* has again been called to the beneficial effects in joint conditions that often follow the administration of the bacterial vaccines of a non-specific type. The general disturbance which follows their administration is accompanied not infrequently by relief in the inflammatory condition in the joint itself. Such a plan of treatment has been in use, as a matter of fact, for many years and it seems probable that the vaccines that may have been recovered from infected teeth or tonsils act quite as much as non-specific agents as they act in a specific manner by combating the infection supposed to give rise to the toxic inflammation in the joint. However, as a matter of practical therapeutics, the attention of physicians has been called very sharply to the method by the work of Jobling, Miller, Thomas, and associates, who have for the most part used intravenous injections of typhoid vaccine as a therapeutic agent. A vast majority of bacterial vaccines, given intravenously, produce a reaction which in severity depends upon the dosage and personal idiosyncrasy of the patient but is accompanied by chill,

*Nearly all the literature on the recent phases of this subject is summarized in Miller's article on the Nonspecific Character of Vaccine Therapy.—*Journal A. M. A.*, Sept. 8, 1917.

fever, leucocytosis, depressed blood pressure, and an occasional collapse. This is the kind of reaction that has been depended upon for many years by some physicians to afford relief from a variety of conditions after the administration of Shaefer vaccines, known by the name of phylacogen, and by Coley's toxins.

Other forms of foreign protein stimulate reaction quite as well as the bacterial toxins, but in most cases a larger amount of the foreign protein must be administered, as bacterial vaccines are quite toxic to a subject by this method of administration. Non-bacterial proteins do indeed vary somewhat in their toxicity, and some may be administered with very little or no reaction, and yet be followed by clinical relief in the joint conditions. The non-specific character of vaccine therapy, and the recognition of the fact that other proteins than bacterial proteins may be suitable for therapeutic uses were the basis for the publication by Jobling, and were the subject of his lecture before the Harvey Society, and while it is possible to measure temperature, blood pressure, make blood counts, and in this way arrive at some conclusion as to the disturbances produced when foreign proteins are administered, Jobling frankly recognizes that all these measurable factors do not adequately explain the therapeutic benefit observed to follow their administration, "but here as in so many other biological problems which have to do with that most complex of tissues, the blood, it seems probable that no single factor can be identified as responsible for all the changes which occur, but that a whole train of events is inaugurated, when the equilibrium of some of the delicate serum balances is disturbed, all of which tend toward a condition favorable for recovery from infection."

The writer has watched the growing sentiment toward protein therapy with unusual interest because during the last three and a half years he has given much time and effort in this direction, and has treated quite a variety of conditions with injections of foreign protein with a resulting therapeutic benefit that has not been observed to follow other lines of treatment. Quite a variety of different proteins have been used in this line of work, prepared by somewhat different methods, practically all having their origin in plants or seeds, but in the MEDICAL RECORD for July 21, 1917, he described a method for preparing proteins from alfalfa and millet seeds which for purpose of non-specific protein therapy have none of the disadvantages which earlier preparations showed and which are simple of administration from every standpoint. A considerable number of patients suffering from rheumatoid arthritis have been treated by the injection of these proteins and the relief experienced by the patients and the constitutional benefits which followed the administration of protein were so decided that in his opinion these seed proteins present all the therapeutic advantages found in the non-specific bacterial vaccines without the admitted disadvantages which the latter show.

Bacterial proteins for the most part are highly toxic when given intravenously in the human subject, and it is a question indeed whether the profound reaction which they occasion is altogether of benefit to an individual already below par from long continued depressing illness such as rheumatoid arthritis often proves itself to be. Miller recognizes these dangers but states that he has treated 200 cases without any grave consequences except one case, an alcoholic, where delirium tremens developed and death supervened 52 hours after the injection. The severe chill, with nausea and headache, high fever, herpes, with a marked fall in blood pressure following the chill, is not an experience to which a chronic invalid should be repeatedly exposed and unless it can be shown, as Miller believes, that the severe reaction is essential to relief, there is no reasonable justification for producing it. Scully, who has been working with Miller, describes in detail the type of reaction observed and notes that the average dose in some instances, especially in those cases in which the patients were bedridden for some time, proved to be excessive and in these cases there was occasioned a severe rigor lasting for one to two hours, accompanied by marked cyanosis, rapid, weak pulse, and following the chill the patient was very weak and showed signs of collapse. He observes "Intravenous injection of vaccine are contraindicated in those cases in which the vasomotor system is weakened and when the nervous system is unstable. In these cases collapse may occur, with the possibility of death resulting. In serious organic heart lesions the injection is seriously contraindicated as the heart becomes dilated and overworked so that cardiac failure may result." While Scully's paper is devoted to the reaction which occurs after the intravenous injection of foreign protein, it should be noted that the foreign protein in all these cases was typhoid vaccine administered intravenously.

Unless it can be demonstrated that these severe reactions are a necessary part of the process by which relief is afforded, there is every reason to avoid producing it. Miller frankly believes that the reaction is essential. In closing the discussion on his paper he states that he has used pollen protein on some of his cases but had some difficulty in getting the right dosage to bring about a chill but when the chill was obtained he got the same results as in the other proteins although he admits that certain German investigators have reported benefit from the intramuscular injection of milk which produced a very mild reaction.

Any foreign protein introduced parenterally stimulates a response on the part of the organism but this response need not be accompanied in all cases by chill and fever, unless the dose introduced is of considerable magnitude. Proteins are not equally toxic by this method of administration. The common method for measuring protein content is the nitrogen determination and if equal quantities of nitrogen are used, certain proteins, such as those found in bacteria, are more toxic to the human organism and will produce severe reactionary responses of a toxic character which are not at all produced when equal quantities of nitrogen expressed in certain seed proteins are given in the same manner. The therapeutic application of typhoid vaccine to this purpose seems hardly better suited than the use of Coley's fluid or phylacogen. The repeated administration of the bacterial proteins with the accompanying chill or fever is not a proceeding which can be repeated with impunity

many times in any patient, and while following the chill and fever there has been noted relief from pain, this admittedly has been of a somewhat temporary character in many instances. The patient must be in a hospital with facilities to afford the necessary care during the reactionary period. Moreover, it has not been shown that the general constitutional condition of the patient is much benefited by the severe disturbances to which he is subjected if bacterial proteins are given in sufficient dose.

The therapeutic agents employed by the writer, as has been stated previously, are the proteins prepared from millet and alfalfa seeds by the process fully described in the article referred to, but the method is essentially one of partial hydrolysis, resulting in the formation of proteins readily sterilized by head without coagulation. The proteins which have been used are in a 2 per cent. solution. They have been given subcutaneously. It is quite possible to produce a reaction of the general character shown by the bacterial proteins if too large a dose is given as a first injection. In the writer's experience it has not been necessary to produce such reactions to get relief. Patients vary somewhat in their susceptibility to these proteins as they do to all proteins. A beginning dose of 10 to 12 minims practically never produces a reaction of the type described. It may be and often is followed by quite as much relief from pain as is the case when the more toxic proteins are administered.

Miller has for the most part been dealing with conditions of acute arthritis which in its pathology is somewhat different from the chronic conditions which may follow the acute infections and which for the most part have been found more difficult to control.

The writer's experience has been almost entirely with chronic arthritis. In the cases, however, there have been three patients with acute arthritis whose joint pain was not controlled promptly by salicylates. In two of these cases the protein injection was accompanied by a mild increase of temperature but without chill and with complete relief from pain. The injections in these two cases were continued for a period of two weeks. There was, however, no return of the pain and the patients made a prompt recovery. In the third case a larger dose, 15 minims, was given for the first injection and in this patient there was a distinct chill with fever following. No further injections were given and none was necessary. As stated, the majority of the patients had chronic arthitis. In some instances it had continued over a period of years. They had been treated by a variety of means including the administration of bacterial vaccines prepared from teeth, tonsils, etc. They were suffering from the depressed physical condition which goes with a long period of toxemia. Many indeed were cripples and bedridden. The injections have been continued over a period of months and the results which have been obtained have been so gratifying as to make it seem probable that this therapeutic method is one of considerable importance in this group of patients. It must be obvious that only in exceptional cases would a patient submit to the administration of vaccine injections of sufficient magnitude to produce chill and fever every second day over a period of some months, and it is in every way probable that such treatment of a chronic arthritic patient would seriously injure rather than improve him. On the other hand these seed proteins have been injected three times weekly in gradually increasing doses over a period covering 4 to 10 months, with the result that the general health has been much improved, painful joints entirely relieved, and the patient restored from a condition of invalidism to one of useful activity. The seed proteins stimulate the blood-forming organs and the patients who have been treated have shown marked improvement in blood conditions. They cause no disturbance to the patient. It is not necessary to be in a hospital or under the constant observation of a nurse, nor do the injections in any way inconvenience the patient or prevent him from activity which he could readily indulge in if no treatment were given.

The writer's experience with acute arthritis is not sufficiently extensive as yet to permit a decision as to what percentage of cases can respond as favorably as the three quoted. In the chronic cases of arthritis approximately 60 per cent. have responded so favorably as to be practically entirely relieved. Chronic arthritis is a more difficult problem to solve than acute arthritis, and a 60 per cent. relief is no insignificant result, particularly when it is obtained by a process that does not inconvenience the patient nor cause any discomfort.

417 Park Avenue.

HAYFEVER POLLEN EXTRACTS AND THEIR STANDARDIZATION.

By WILLIAM SCHEPPEGRELL, A.M., M.D.,

NEW ORLEANS.

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As the scientific application of pollen therapy is effective in the treating of hayfever,' we have made a careful investigation of the various pollen extracts on the market, with a view of facilitating their application in the treatment and diagnosis of hayfever. As a result of this, we have made certain rules for the standardization of the pollen extracts, which we believe will be advantageous to both the practitioner and the pharmaceutical houses.

The strength of the pollen extracts should be stated in units to the cubic centimeter, the standard unit in pollen therapy being 0.001 mg. of pollen protein. The most convenient strength is 100 units to the c.c., this being the most practical for both the diagnostic tests and the treatment. For the former, we inject into (not under) the skin 0.05 c.c. of this strength, containing 5 units, which is sufficient to produce a well-defined reaction in sensitive subjects, and without danger of developing anaphylactic disturbances.

The usual doses of pollen extracts range from 5 to 50 units, which is represented by 0.05 to 0.50 c.c. of this extract. The pollen extract of 100 units to the c.c. therefore simplifies the application of pollen therapy and diagnosis.

Diluents have been recommended when less than 1.00 c.c. is injected, but we have not found this

necessary or advisable, and, as it unnecessarily complicates the technique, it should be omitted.

The pollen used for preparing a special extract should belong to a single variety or class. Combinations, except as far as they belong to the same class of pollens, should not be used. Our investigations have shown that there are certain pollens in which the biological reactions (hayfever) are similar and which can therefore be combined in one preparation.[2]

In the grasses, for instance, there are about 5000 varieties, and if it were necessary to prepare a special extract for each, this form of pollen therapy would evidently be hopeless. Fortunately, however, the biological reactions for these, while differing somewhat in degree, are otherwise identical.

It is therefore permissible to use any convenient variety of grass pollen, or a combination of several, for the grass pollens. This group is preferably called (1) "Gramineæ," as it includes rye, wheat and other varieties which are not popularly recognized as belonging to the grass family.

In the same manner we have segregated three other groups for their biological reactions, viz.,

2. "*Ambrosiaceæ*." These are the principal causes of autumnal hayfever east of Kansas, and include the common, giant, and other ragweeds (*Ambrosias*), the "false ragweeds" (*Gaertnerias*), the marsh-elders (*Ivas*), and the cockle burrs (*Xanthium*).

3. "*Artemisia*." This group is an important cause of hayfever in the Rocky Mountain and Pacific States.[3] It contains numerous varieties, the most common being the following: Mugwort (*Artemisia heterophylla*), wormwoods sage (*A. frigida*), sagebrush (*A. tridentata*), absinth wormwood (*A. absinthium*), dark-leaved mugwort (*A. ludoviciana*), biennial wormwood (*A. biennis*), California old man (*A. californica*), Indian hair tonic (*A. dracunculoides*), and bud-brush (*A. spinescens*).

4. "*Chenopodiaceæ*." In this group we include the amaranths, chenopods, Russian thistle (Salsola), and docks (Rumex), which, while not botanically as closely allied as the other groups, give a similar biological (hayfever) reaction.

These four groups are responsible for most of the hayfever in the United States. There are some forms of hayfever, such as are due to the cedars, black walnut, and other trees and plants, which are not included in these groups. Most of these cases, however, have a limited distribution, and their pollen extracts, when required, should be prepared especially.

The terms "spring pollen" and "autumn pollen" extracts should be omitted from the manufactured preparations. The autumn hayfever, for instance, in the East, is due principally to the ragweeds (Ambrosias), but in the Pacific and Rocky Mountain States to the wormwoods (Artemisias).

We have a "spring" hayfever in the Gulf States also, which is due to the oaks and cottonwoods, and one in Texas due to the cedars.[4] The extracts should, therefore, be named simply from the contained pollen.

Combined extracts of so-called "spring" and "fall" pollens are not advisable. While our experience of the past two years has shown that susceptibility to both forms is much larger than is generally supposed (42 per cent of cases in Series C), the degree of susceptibility to both varies greatly. Exposure to the grass pollen is usual in the spring, and to the ragweeds (Eastern and Southern States) in the fall, so that both extracts are not indicated at the same time. The principal reason for such a combination being used is to avoid the necessity of making a diagnostic test, which, however, is an essential factor in the success of this method.

The date of manufacture of pollen extracts should be stated. In spite of the utmost care in their preparation, the activity of some of the pollen extracts diminishes materially after the first season. This is observed not only in the diagnostic tests but also in the effects of the treatment.

The use of these rules not only simplifies the application of pollen therapy, but also enables the results to be analyzed with a view of perfecting this method. The manufacturers generally have shown a disposition to cooperate in this standardization of pollen extracts, which will simplify the treatment of hayfever and hayfever asthma.

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AUDUBON BUILDING.

A CONSIDERATION OF SOME OF THE PROBLEMS OF HEREDITARY SYPHILIS.*

BY WALTER S. REYNOLDS, M.D.

NEW YORK

QUESTIONS relating to the transmissibility of syphilis by inheritance are of the utmost importance, involving as they do the life, health, and happiness of countless individuals. The physician who is more actively engaged in the treatment of syphilis and has the opportunity of seeing day after day a large number of these unfortunates is perhaps more impressed with the truth of this statement than physicians engaged in other lines of medical work. But in whatever branch of medicine the physician may be interested he is undoubtedly frequently confronted with hereditary syphilis as having a possible influence or being a direct cause of the trouble for which he may be consulted. In our asylums and public institutions many of the inmates bear testimony to the havoc it has wrought in the lives of these pitiable individuals.

While some progress has undoubtedly been made in our knowledge regarding hereditary syphilis, there are still many problems which remain to be solved in this very complex question. Based on clinical evidence alone, as they were, some of our former theories relating to the question have not been found to hold good and it has been found neces-

* Read at the meeting of The West End Medical Society, New York, April 27, 1918.

sary to revise some of our conceptions when we have come to apply more recent methods of investigation to the solution of these problems. The Wassermann test of the blood has shed new light upon many of the obscurities with which the subject was surrounded, and, it must be confessed, in some instances has added new factors to complicate it. While the Wassermann test has its limitations and is not infallible, it undoubtedly affords at the present time one of our most valuable means of determining whether the individual has at some time been infected with syphilis. It is coming to be believed, I think, that further than this we can make no positive statements regarding the value of the Wassermann test. It will probably be some time and require much more extended observation to make definite statements as to its value as an aid in prognosis or as a guide to treatment.

Since the Wassermann test has come into general use as a diagnostic aid in syphilis, greater interest has been taken in the family history of the syphilitic individual. Great assistance along these lines has been given by the social workers who in the past few years have been attached to many of our hospitals and dispensaries. With their aid we have been able to come into closer touch with the families of those who apply for treatment and to investigate many cases in a way that would otherwise be almost impossible.

By a brief review of some case histories we may perhaps be best able to bring out some of the problems which confront us in considering hereditary syphilis.

Case I.—Mrs. D., aged 19 years, came to the New York Hospital in July, 1917, giving the following history: She had been well previous to her marriage in 1914. In 1916 her husband was a patient in Bellevue Hospital. She says he had "boils on the privates," and received one injection of 606. Her first child was born in 1915 and is alive and healthy now. One week after her husband was discharged from Bellevue, Mrs. D. entered the same hospital and remained there for two weeks with "an eruption on the privates." No salvarsan was given, as it was said she was "too weak." A specimen of blood was taken but she is unable to say what the report was. She comes to the hospital with her second child, a girl, five weeks old. The baby is fairly well nourished, being breast fed, but is suffering from snuffles and a marked onychia of both hands and feet.

This woman was undoubtedly infected subsequent to the birth of her first child and had probably been syphilitic for about a year before the second child was born. The mother had no manifest symptoms of syphilis except a general adenitis and a four plus Wassermann. The mother was treated with salvarsan and mercury, and the baby with mercury by inunction. After several months they discontinued coming for treatment and the nurse reported on visiting their home that she was probably prevented from attending by the husband, who resented having her call. The people were dreadfully poor and, of course, ignorant, and the question involved in the case is not one of treatment but the fate of the first child, who is probably sooner or later bound to be infected if allowed to remain in the home, and whether such individuals should be allowed to continue to bring into the world a line of syphilitic progeny.

Case II.—Mr. O., 34 years old, referred to me in May, 1917. In April, 1917, two ulcerated patches developed on the soft palate, one of which had resulted in a perforation. He had been treated for a short time by applications of silver nitrate and a specimen of the blood had shown a four plus Wassermann. Under the use of salvarsan, mercury, and iodides the perforation closed and no further symptoms developed. The man denied ever having had any primary or secondary symptoms and was greatly astonished when told the trouble was due to syphilis. In 1902, a pimple appeared on the forehead over the left eye and was opened several times and treated in various ways but never entirely healed. In 1904, 1906, and 1907 it was excised, and in 1908 was treated by *x*-ray for several weeks. In 1910 it broke down again and a more extensive operation was undertaken for its removal. At this time three specimens were examined and all pronounced by competent pathologists as epithelioma. For three weeks after the operation he was treated by *x*-ray. Healing took place and since that time there has been no recurrence of the trouble. A large scar shows where the lesion was situated, otherwise there is no evidence of abnormality. Mr. O had been married two years and his wife being two months advanced in her first pregnancy and both being most desirous of having a child, he wished to know what the probability was of the child being infected. An examination of his wife's blood on two different occasions showed it to be negative, and clinically she gave no signs of infection. I did not wish to assume the responsibility of making too positive statements and tried to place the matter before him in all its aspects, leaving the decision to him. After getting the advice of several other physicians, they decided to have the pregnancy terminated.

Mr. O.'s Wassermann, in spite of the vigorous treatment with salvarsan, mercury by inunction and by intramuscular injections, and iodide of potassium, still remained four plus until mixed treatment was substituted, when, in a short time, the Wassermann was reported doubtful, and subsequently became negative on continuing the use of this treatment. After the administration of one dose of 0.4 salvarsan, the Wassermann again became positive. The lesion in the mouth, nine months after treatment was begun, remains closed, a depressed scar being the only evidence remaining.

Several features of this case might well be considered in more detail were it not for the fact that this paper has to do more particularly with questions relating to hereditary transmission of syphilis. There are two points, however, to which I should like to call attention.

In our enthusiasm for newer remedies we are not infrequently apt to neglect the older ones which by long usage have shown their value, and I believe this is so to a large extent with iodide of potassium. A striking example of the benefit to be obtained by the use of iodides in such cases was the rapid improvement which took place as soon as its use was begun. The other point to which I wish to call attention was the change in the Wassermann produced by the use of mixed treatment.

In this case the patient was undoubtedly suffering from a tertiary lesion. His denial of all knowledge of primary or secondary manifestations may be questioned by some, but I have no hesitation in accepting his statement. It is not at all infrequent that we find a positive Wassermann with no history of either primary or secondary symptoms. While some of these people possibly are anxious to deceive the physician, in many instances their statements cannot be doubted. As the nature of the lesion was manifest in Mr. O.'s case and there was no evidence whatsoever to show that his wife had been infected, I did not feel that there was any likelihood of the child being syphilitic, yet I did not deem it right to urge too strongly against terminating the pregnancy while believing that all cases of hereditary

syphilis are transmitted through the infection of the mother. I am also of the conviction that in true tertiary syphilis the possibility of infection is not great. The former statement, while contrary to older teachings, is, I believe, warranted by recent investigation, while the views regarding tertiary syphilis also held by many older writers receive additional confirmation.

Case III.—M. B., 26 years old, was brought to the New York Hospital in the ambulance in a comatose condition, Oct. 1, 1917. She remained in the wards for five weeks, during which time she had convulsive seizures at frequent intervals. These would begin as twitchings of the left side of the mouth, extending to the left arm. Under treatment with arsenobenzol, both intravenously and intraspinously, she gradually recovered consciousness and the convulsive seizures stopped. On Nov. 14, 1917, she entered the out patient department as a patient, giving the following history: In January, 1917, on account of severe headaches, she had consulted a physician. He secured a specimen of blood which on examination showed a four plus Wassermann. She received weekly injections of mercury until Oct. 1, when, while on the street, she suddenly became unconscious and was removed to the hospital as stated. The young woman was accompanied by her mother, who gave the additional information in regard to her daughter's infection: Fifteen years previously, the mother had taken as a boarder a child of five months and had kept him until he was seven years old. She stated that he was at the present time in an institution and she had reason to believe that he was the source of infection. To confirm her statement, I visited the institution and was informed that the child was there as she had stated. He was suffering from keratitis, being nearly blind when he entered as well as having lost his hearing. The blood had been examined several times and on each examination had given a four plus Wassermann. Specimens of blood from the young woman taken while in the ward had given a four plus. A specimen of the mother's blood taken on her visit to the clinic gave a negative Wassermann.

The history of these three cases will serve to show some of the problems of hereditary syphilis which we may be at any time asked to answer. In Case I, either the termination of pregnancy or a syphilitic child could be the only possible answer to a woman so recently infected. That the infection may continue to exert its influence for a long period of time will be shown later, and, on the other hand, it seems evident that a four plus Wassermann does not of necessity indicate that the child may be syphilitic. How then are we to decide the question, for a Wassermann certainly does not help us in solving the problem?

As has been said, a surprisingly large number of men and women presenting undoubted manifestations of late syphilis deny having had any primary or secondary symptoms. Leaving out of consideration those who willfully seek to hide their infection, there are no doubt a large number who are perfectly truthful in their statements. The initial lesion may be seemingly insignificant, and the patient gives it little thought. In women, genital lesions are not infrequently so situated as to escape observation. It is a well known clinical fact that a secondary rash has been unnoticed until attention is called to it by the physician, and even without treatment in some cases it may quickly fade. It has been proposed that all persons before marriage should be serologically examined and obtain certificates of freedom from contagious disease. Can we say that at the present time the Wassermann test is an indication of their infectiousness?

In Case II, there being no evidence that Mrs. O. had been infected, the question arises, is it possible for a man suffering from the disease to infect the ovum, the woman remaining free from all signs of the disease? Finger and Landsteiner were successful in infecting monkeys with the spermatic fluid, but it does not necessarily follow that the spermatozoa are capable of carrying into the ovum the infectious organism, a necessity, of course, if we are to acknowledge that this mode of contagion is possible.

In Case III, while we cannot be absolutely sure how the young woman was infected, it seems reasonable to assume that it occurred in the way described. The danger of infection from the hereditary syphilitic infant is well recognized. Unfortunately, the symptoms are sometimes slow to manifest themselves, and such a child as a boarder, especially where there are a number of other children, is a grave danger.

That the children may apparently escape infection where the mother is serologically syphilitic is shown by the following case:

Case IV.—Mrs. Q., a widow, 35 years of age, denies all manifestations of syphilis. She was married ten years ago, and has three children, six, four and two years old. Her husband is said to have suffered from cerebrospinal syphilis. He died in December, 1915, and in January of the following year the blood of Mrs. Q. and of her children was examined. The mother's was positive, while all the children's was negative. Mrs. Q. has been under treatment since that time, and in spite of the fact that she has had several courses of mercury and salvarsan she still has a four plus Wassermann.

In this case we are unable to fix the time when the woman was infected. If it was some time previous to her marriage, the apparent escape of the children from infection would not seem so wonderful. If, however, she was infected by her husband, who was said to have had cerebrospinal syphilis, it hardly seems credible that they could have escaped. It is true that we have here again to consider the value of a negative Wassermann, but I do not believe, in view of the fact that the children have no clinical manifestations, that we should stigmatize them as syphilitic. Did the woman ever have syphilis? If we can place any reliance in our Wassermann test, we must unquestionably answer, yes. It is but fair to state that some observers are beginning to doubt the reliability of this means of diagnosing syphilis. Another explanation, perhaps worthy of some consideration, is that the woman had an abortive syphilis. The persistence and its influence on heredity is so well shown by a case reported by the late Dr. R. W. Taylor in the *N. Y. Medical Journal*, Oct. 19, 1907, that I shall offer a brief summary. It is as follows:

In 1869 a man came under Dr. Taylor's care with primary and secondary manifestations of syphilis. He lived to be fifty-two, and died of aortitis and nephritis. In 1866 he married and his wife subsequently gave birth to eleven children. She became pregnant twice before becoming infected in the third month of her third pregnancy. She was careless of treatment and the second child (the first pregnancy resulted in a traumatic miscarriage) in the fourth month had a roseola, mucous patches, and later other manifestations of syphilis. This child died of croup when four years old. The first child became infected when four years old. The following two pregnancies resulted in still births and evidently syphilitic. Another child, a girl,

apparently healthy when born, died at the age of two and a half years old of gastroenteritis. The mother had taken treatment sparingly and intermittently during this time and suffered from occasional manifestations. Another child, a boy, was born two years later and presented no signs of syphilis until his thirtieth year, when he developed signs of gummatous osteomyelitis. He had not been infected with acquired syphilis at any time. This man married and the wife and one child, five years old, seemed perfectly healthy. Subsequently the woman gave birth to four boys and one girl, the mother neglecting treatment except when she thought herself pregnant. The three boys showed no signs of syphilis, but the girl, who was the youngest, developed osteoperiostitic lesions when sixteen years old.

In concluding his article, among other things, Dr. Taylor drew attention to the following: The seeming benignancy of syphilis in the father and its malignancy and inveteracy in the mother. The evident effect of treatment of the mother upon gestation. The development in one case at the age of thirty of classical hereditary lesions without antecedent manifestations after years of apparent health. And by way of final comment he says: "In the light of the histories herewith unfolded, a serious question presents itself, namely: What will be the fate of the survivors who seem to be in robust health and have never shown a blemish, and what will be the ultimate condition of their progeny? Time and scientific observations alone will answer these queries." Some of the problems involved in a consideration of hereditary syphilis I have tried to bring out in the cases here recorded. The frequency with which it is encountered and its seriousness render it a worthy field for much study and investigation which will help to give us a clearer understanding of some of these obscurities. To prevent the ravages of the disease entirely we must be in possession of all the facts regarding it. Fortunately, much may be accomplished in the way of prevention by thorough and intensive treatment of our syphilitic patients.

In closing, I would ask your consideration of the following: It is well recognized that the hereditary syphilitic child is a grave menace to those with whom it may come in contact. Does it in the course of time cease to be a danger; if so, when, and how are we to determine when it does?

What are our obligations where there are other children in the family who have not been infected? Are we to allow the continued propagation of syphilitic children?

Shall we allow a woman, clinically and serologically free from disease, whose husband is syphilitic, to bear children?

Recognizing that hereditary syphilis may remain latent for many years, is it not our duty to assure ourselves, where there is the least suspicion of syphilis, that the child is serologically as well as clinically free from disease?

It being shown in many instances that a woman with a positive Wassermann may bear children clinically and serologically free from syphilis, what must be our attitude in regard to the Wassermann test so far as marriage and childbearing are concerned?

I wish to acknowledge my obligation to Dr. Fielding Taylor for placing at my disposal clinical material in the Department of Syphilology of the New York Hospital for some of the cases reported here.

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THE RELATION OF THE PROTEINS IN FOOD TO THE CAUSE OF DISEASE.

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SINCE the time of Virchow the attention of physicians has been devoted to the study of the local pathology of disease. But the local pathology is not the cause of disease, though it explains the symptoms; the study of etiology is even more important than the study of pathology, for only by the study of the cause of disease can we have any hope of disease prevention.

In this paper the main object in emphasizing this new factor in the cause of disease is the firm conviction that when this cause of disease is fully recognized, not alone will much unnecessary suffering be alleviated but a great step forward will be taken in the prevention of disease. I do not wish to minimize infection as a cause of disease but merely to show that there is another important cause of disease.

I hesitate to present this paper without quoting the wealth of literature which bears upon the subject or presenting some of the hundreds of cases which illustrate its various contentions. It is a subject upon which volumes could be written and I merely wish in this outline to present the idea as briefly and concisely as possible. When the idea is grasped any physician will recall scores of illustrative cases in his own practice and he surely will be rewarded, if he adopts the principles outlined in the treatment of his cases.

1. Though the origin of infectious disease is well understood the fact that the fundamental cause is the toxic protein constituent of bacteria is not appreciated. This toxic element can be extracted and used to sensitize and kill animals and it will produce symptoms of poisoning when injected into the human body.

2. There is no difference in the toxicity of the protein elements of pathogenic and non-pathogenic bacteria when they are extracted. This shows that pathogenicity does not depend upon the presence of a poisonous toxin at all but upon some other cause in which the resistance of the host plays a part.

3. The fact that all animal and vegetable proteins contain poisonous elements has been abundantly proved. Toxins can be extracted from any of the protein of food stuffs whether animal or vegetable. These toxins are potent to sensitize and kill animals and are poisonous if injected into the human body.

4. That certain proteins are foods does not prove that they do not contain poisonous elements. Protein foods do not normally poison human beings because the mechanism of metabolism, if uninjured, is able chemically to break down the complex protein substances into simpler bodies and build them up again into the complex cellular elements of the tissues in such a way that the poisonous elements are either not liberated, or are so neutralized as not to be able to produce reactions beyond the normal.

5. The protein of each different animal and plant is specific for that animal or plant and differs from that of every other animal or plant in the chemical arrangement of its molecules.

Upon this same chemical arrangement of protein molecules in the tissue cells, depends the ability of the tissue cells to metabolize foreign protein. The arrangement of molecules may be assumed to vary somewhat in the individual, more in the family, and most in the species.

6. For some reason, probably by long continued excess of protein intake, especially animal protein, beyond the amount necessary to maintain a nitrogenous balance and yet keep the body in good physical condition, the human body has overtaxed and injured its apparatus of metabolism, so that it cannot metabolize the protein without undue reaction from the poisonous elements contained in it.

7. I call the symptoms which are produced when undue reactions are caused by the protein of food "protein poison manifestations." These manifestations may take place in any tissue or organ in the body, and the symptoms produced do not depend upon the variety of protein, but upon the tissue in which the manifestation takes place. When manifestations take place in several tissues of the body at the same time we call the protein manifestations "syndromes."

8. There are a large number of diseases and symptoms which evidently are not due to infection. The origin of these diseases has been considered unknown or uncertain and various theories have been advanced to account for their causation. I believe a large majority of these affections are due to the poison element in the protein of food stuffs.

9. While I believe the protein poison manifestations are caused mainly by the protein ingested in the food, or in other words the exogenous protein, it must be admitted that symptoms may also arise from faulty endogenous metabolism, that is, the metabolism of the protein of the tissue cells which must be broken down into simple compounds and eliminated. Symptoms may also arise from the absorption of protein toxins of bacteria in the intestinal canal. I believe, however, that symptoms usually attributed to autointoxication really arise from the imperfect metabolism of the ingested protein.

10. The diseases which I consider protein poison manifestations include those which were classified by the old French school as caused by a lithemic diathesis. They noted the close relationship of these diseases and also the inherited tendency. With the discovery of infection, however, the term diathesis fell into disrepute and no other cause for disease than infection was entertained. Protein is also the cause of the exudative diathesis of the modern German school, and likewise of acidosis.

11. Heredity is a most important factor in protein poison manifestations, and the inability to metabolize properly is much more noticeable in some families than in others. This may be explained if it is admitted that the chemical characteristics, for instance the arrangement of the protein molecules in the tissue cells, upon which the metabolism of protein depends, are inherited, just as physical characteristics are. The disease itself is not inherited but the chemical characteristics and consequent inability to digest protein, are inherited.

12. While it is true that a certain amount of protein is necessary to replace tissue waste, it must be remembered that all protein is potential poison and unless the resistance or immunity to a particular protein is present, harm will result from its ingestion. As far as foreign proteins are concerned, the ability to metabolize them properly, and immunity are the same. As far as idiocyncrasies to certain proteins are concerned, it may be assumed for all practical purposes that those who have idiocyncrasies to certain proteins are in a measure susceptible to all proteins, or in other words, those who have idiocyncrasies are protein poison subjects.

13. Although some people have idiocyncrasies to certain vegetable proteins, and especially to the protein of fruits, it may be taken as a general law that the human race has developed considerable immunity to vegetable protein. The immunity to animal protein is much less general. In some families the lessened resistance is very marked and instead of developing from generation to generation an acquired immunity, they transmit a lowered resistance. This fact is easily proved by studying the family histories of protein poison subjects.

14. Protein poison should not be confounded with the nucleins. Protein poison is soluble and easily extracted, especially by heat. This fact is of great practical importance, though often overlooked, for meat juices, soups, and gravies contain the protein poison of the meat. In my experience I have found soups and meat extracts just as deleterious to a protein poison subject as the meat itself. The protein poison of fruits is also found in fruit-juices and jellies, as those who have idiocyncrasies to proteins contained in strawberries or oranges well know.

15. Protein poison may produce manifestations in any tissue or organ of the body and may simulate any symptoms that are produced by infection; indeed, many symptoms attributed to infection are really protein poison manifestations. It may cause inflammation, pain, fever, and edema. The symptoms vary according to the tissue involved. There may be manifestations in the skin, in the mucous membrane of the digestive or respiratory tract, in the nervous system, or in any organ of the body, including the ductless glands and organs of special sense.

16. Just as in infection, the protein poison manifestations may be acute or chronic. The acute manifestations are often accompanied by acidosis. There may not always be acetone in the urine, but titration of the urine will always show a high degree of acidity. Polyuria is often present. The blood is apt to show eosinophilia especially in affections of the skin and bronchial mucous membrane. The type of fever may simulate that of typhoid or tuberculosis. Acute protein manifestations accompanied by rash and fever are very apt to be mistaken for exanthemata. Some cases of acidosis simulate meningitis.

17. In chronic manifestations, as a result of the continued action of protein poison, organic changes in the tissues are taking place, and there is degeneration of tissue with the resulting scar formation. Although a person may become immune to the acute manifestations, or never be subject to them, still there is danger that damage is being done to a blood vessel, the kidney, or the liver, producing arteriosclerosis, nephritis, or cirrhosis, or that de-

generation and sclerosis are taking place in some other tissues of the body.

18. There is a marked tendency in protein poison subjects to abnormal acidity. If the urine of these patients is titrated it will be found that instead of being about 30, which is normal, it will be anywhere from 50 to 100. Also the saliva will often be found to be acid instead of alkaline, which it normally should be. These patients are frequent subjects of hyperchlorhydria acidosis and often are subject to lithiasis.

19. One of the characteristics, especially of the acute protein poison manifestations, is the multiplicity of the manifestations. One patient may have many different manifestations, such as migraine, hyperacidity, nasal turgescence, and be subject to attacks of purpura. Another patient may have periodic diarrhea, bronchial asthma, and suffer from various myalgias. Another may have eczema, chronic bronchitis, and gout. Another may be subject to periodic sore throats, have frequent headaches, and be subject to vertigo and ringing in the ears.

20. Variability is also a characteristic of protein poison manifestations. Instead of several manifestations taking place at the same time, as in syndromes, a patient will suffer for years with intestinal manifestations; these will cease and a respiratory manifestation such as bronchial asthma, takes its place. It is not infrequent to see urticaria alternate with bronchial asthma. A patient may suffer for years with migraine and this will cease with the beginning of a colitis or a bronchial asthma.

21. Periodicity of attacks is another characteristic of protein poison manifestations. Attacks often appear in cycles with intervals of well being. This is especially noted in children who have periodic sore throats or attacks of bronchitis, or have periodic digestive disturbances with vomiting or diarrhea. In children these attacks are often accompanied by skin manifestations such as dermatographia. The periodicity of migraine, gout, bronchial asthma, and purpura hemorrhagica, is well known.

22. The ductless glands play an important role in metabolism and it is not strange that they should suffer from protein poison. In their endeavor to meet the demands of excessive protein intake, one or more of the ductless glands is overtaxed, and the body in turn may suffer from the over-secretion of the ductless gland. Exophthalmic goiter is one example of the over-secretion of the thyroid gland, and high blood pressure with its consequent arteriosclerosis is an example of the over-taxing of the suprarenal glands.

23. The primary cause of disease is often overshadowed by the secondary cause. Infection is not the primary cause of sinus trouble, which is so often found in protein poison subjects. The primary cause is the turgescence of the nasal mucous membrane which impairs the normal drainage from the sinuses. Acute attacks of nasal turgescence with coryza-like symptoms can easily be produced in a susceptible subject by his eating too much animal protein.

24. There is also a direct relation between protein poisoning and infection. By the continued ingestion of protein, especially animal protein, in persons whose metabolism is deficient, the alkali reserve of the blood and tissue fluids is lowered. This tends to a lowered resistance to infection. Protein poison subjects are subject to acne, pimples, and boils, showing a lowered resistance to infection in the skin. These patients also are frequent sufferers from tonsillitis, cankers, and pyorrhea. If the family and personal histories of patients having ulcers of the digestive tract be studied, they will be found to be protein poison subjects.

25. One of the most interesting manifestations of inherited protein poison manifestations is the tendency to hemorrhage. The children of such subjects are liable to frequent nosebleed. The women are liable to menorrhagia and excessive hemorrhage at the menopause. Purpura is an inherited protein poison manifestation. I have traced it in families for as many as five generations. There is no strict dividing line between simple purpura, purpura with bleeding from the mucous membranes, and the complete syndrome of purpuric spots, hemorrhage, intestinal colic, hyperacidity, and malaise, often accompanied by mental depression.

26. In protein poison families there is a strong tendency to new growth. Fibroids are very common among women. The tendency to hemorrhage which often accompanies the fibroid, is more often another protein poison manifestation, and not necessarily caused by the fibroid. The occurrence of cancer almost wholly in families who have other protein manifestations is very suggestive. Though heredity plays an important role in the etiology of cancer, cancer itself is not inherited; what is inherited is the inability properly to digest protein. Thus the child of a parent with cancer does not inherit cancer, or the tendency to cancer, but cancer is certainly one of the diseases which the child is very liable to acquire.

27. The etiology of idiopathic epilepsy and insanity is far from being solved, yet the inherited tendency in these diseases, and the marked improvement in some of the milder neuroses, as well as in some cases of epilepsy, by restricting the protein intake, especially the animal protein, strongly suggests that the fundamental cause is protein poison. The family histories of these patients are also strongly suggestive.

28. Diabetes is frequently found in protein poison families and is often found in association with protein poison manifestations such as gout, eczema, migraine, hyperacidity, etc. This is a seeming paradox, but the inability to metabolize carbohydrates is not the cause of diabetes but the effect. Diabetes is very rare in Japan and among vegetable eating people. It is found principally among meat eating people and is notoriously a disease of high living. I believe the cause of diabetes will be found to be in the damaging effect of protein on the pancreas and the ductless glands.

29. In making a diagnosis of protein poisoning the personal and family history is of the utmost importance. The occurrence of protein manifestations such as gout, migraine, purpura, eczema, lithiasis, bronchial asthma, goiter, mucous colitis, sinus trouble, etc., etc., in the patient or his family should be noted. Often a patient will be found to be of a gouty family and have a history of many protein manifestations.

There are certain stigmata to be looked for, such as trophic changes in the nails shown by the longitudinal striated lines, early greyness or loss of hair, Herbeden's nodes, etc. The occurrence of many warts and moles, naevi, and telangectases is suggestive.

30. The differential diagnosis usually lies between protein poison and infection. The possibility of focal infection should never be overlooked, yet as protein poisoning will simulate all the symptoms of focal infection, it is well to take that into consideration before extensive or repeated operations. I have seen so many cases where symptoms have persisted after repeated operations (including the extraction of all the teeth) to locate focal infection, but finally disappear under restricted protein diet, that unless the infection is evident and operation clearly indicated I would give the patient the benefit of the more conservative treatment.

31. The prognosis depends upon the age of the patient and the duration of the symptoms. The best results are accomplished when treatment is commenced before any organic change has taken place in the tissues. The best results are achieved in children and young adults, though even in elderly patients the improvement is often marked. In children the prevention of protein poison manifestations is much more important than the treatment, for the acute symptoms are usually self-limited and of short duration, yet much harm can be done by improper diet if the cause of the symptoms is not understood.

32. In considering treatment it is well to remember that the researches of Chittenden and others prove conclusively that the human body can be in the best of health and strength and keep a nitrogenous balance on about one-half the protein intake that was formerly thought the minimum. The human race, especially in modern times, is habitually consuming two and three times the amount of protein necessary to repair tissue waste. Many experiments have shown that animal protein is entirely unnecessary and that the body can subsist and maintain its health and strength upon a diet in which all the protein is from the vegetable kingdom only.

33. In treating protein poison manifestations it is, in my opinion, best not to lose time by attempting to locate particular proteins, for I believe that those who are susceptible to particular proteins are also susceptible, in a measure, to all animal protein. It is best then to restrict or withdraw, according to the necessities of the case, all animal protein at once. It may be necessary to withdraw all fruit at first. The withdrawal of fruit is indicated as a result of the clinical experience that many of the exact manifestations of protein poisoning are also produced by fruits.

It is interesting to note that protein poison subjects often have idiosyncrasies to drugs as well as foodstuffs. In restricting the diet as to meat, eggs, and cheese, it must be remembered that the protein poison is soluble and easily extracted and that meat soups and gravies, and also fruit juices and jellies, contain the poison. As tea, coffee, and cocoa contain protein poisons and will produce manifestations, they also must be restricted. The amount of cow's milk taken must be limited. The fact that rabbits will die in twenty days if fed on cow's milk, although they are at the same time given their normal vegetable food, should convince the most skeptical that cow's milk contains a poison. Children must either have or acquire an immunity to cow's milk or it will produce manifestations. I believe that most of the digestive troubles of infants arise from the protein of cow's milk. It is certainly remarkable how the tendency to convulsions and digestive disturbances in children disappear when the cow's milk is restricted and gruels substituted. Although the diet is the principal factor in treatment, eliminative treatment and a certain amount of alkali are indicated. The index of acidity of the urine should not be allowed to remain above the normal. There is certainly considerable value in antianaphylaxis, that is in giving a small amount of protein an hour before meals in order to prevent the manifestations. I have used it, especially in eczema of bottle-fed babies, with very gratifying results. The work done on vaccines for particular proteins is very interesting, but I do not believe it is necessary to use particular proteins. Different foreign proteins often have like effects when used remedially as vaccines. This fact is probably the secret of the remedial effect of phylacogens and non-specific vaccines.

34. In children the results from restriction of diet are very prompt, as they also are in young adults. With increasing age the results are less prompt. For a week or two the patient may even feel much worse, because withdrawing the protein is like withdrawing a stimulant. This is very noticeable with coffee, and the same discomfort may be manifest in withdrawing animal protein. But the good results will be manifest in time except in those cases in which organic change has already taken place, and even in those cases improvement may appear in time. It is a law in nature that disturbance of function precedes organic change and that the timely removal of the cause of functional disturbance will prevent the organic change. The best results therefore in applying the principles of this paper should be in the prophylaxis of organic disease.

35. Protein poisoning manifestations are of especial importance to the pediatrist because the principles can be applied before much damage has resulted. The dermatologist finds abundant opportunity to apply the principles in the many manifestations of the skin. It will interest the oculist, for protein poisoning is very probably the cause of many obscure lesions of the eye. Protein poisoning is of the greatest interest to the obstetrician, for it is undoubtedly the cause of the toxemias of pregnancy. The alienist should study epilepsy and insanity with a view to protein as a cause.

The relation of protein to infection opens a wide field of investigation. For instance, poliomyelitis attacks certain children and for no apparent reason others escape. If it could be shown that the children of those subject to protein poison manifestations are more susceptible to this infection, some clue would be had to the cause and prevention of this dread disease.

In the study of any disease of obscure origin the possibility of protein as a cause should be considered. For example, it is strongly suggestive that

the Hindu and Indian troops, who do not eat meat, never have trench nephritis, but it is very common among the French and English troops, who are heavy meat eaters. The exposure to wet and cold lowers the resistance to the protein poison and limits the efficacy of the skin, with a resulting nephritis as a protein poison manifestation.

Pernicious anemia and other diseases of the blood will undoubtedly find a solution in this cause. It is impossible in this short synopsis to cite the animal experiments, or literature, or wealth of clinical cases upon which the apparently dogmatic statements in this paper are based. The very simplicity of the theory makes it seem unbelievable, but if the principles upon which it is founded are put to trial the results are so evident that the fact that the protein of food causes disease must be accepted.

The realization that the protein of food is a cause of disease as well as the cause of symptoms throws new light upon the whole study of medicine. At first it seems paradoxical that the cause of disease should be founded upon the law of self-preservation and that each animal and plant contains a substance that is poisonous to other animals and plants until they develop an immunity, or ability, to digest it without harm to themselves. The poison is always in the protein, the ability to metabolize is the variable quality, and the absence of this ability results in disease. The cause of disease is therefore found in the very food upon which the body depends for its sustenance. In this paper I have endeavored to give a brief synopsis of a subject upon which volumes could be written. I have endeavored to present the idea only. It conflicts with nothing that has so far been written in medicine and explains much that has not been understood. By the application of its principles much suffering will be relieved, but the greatest good will be accomplished in the prevention of disease.

Base Hospital No. 22, Am. Ex. Force.

A CASE OF CIRCUMFLEX NERVE PARALYSIS FOLLOWING A CARBUNCLE.

By LUCIUS FELIX HERZ, PH.B., M.D.,

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W. G. M. was first seen by the writer on December 4, 1917, and then was suffering from several small furuncles of the back of the neck. The skin around these was irritated from a home-made poultice of soap and sugar. Previous history was inconsequential, except for rather marked alcoholic history. The man was of short, thick-set build, and weighed 225 pounds.

Patient feared any operative procedure, so treatment consisted of small incisions followed by Bier's suction cup. Much pus was thus evacuated and a pronounced hyperemia of the surrounding skin produced. The original furuncles quickly healed under this line of treatment, but new ones seemed to develop constantly in entirely different locations, and it seemed that as fast as one healed another was ready to replace it. Finally a large furuncle formed in the center and rapidly invaded the cellular tissues of that location, speedily attaining the character of a carbuncle. Palliative measures, such as curetting the center, applying tincture of iodine, using hyperemia, etc., were of no avail, and radical operation was advised. It took two days before the patient would give his consent, although I impressed upon him that it would soon be a matter of life or death, and further delay would absolutely prove fatal. Chills and a temperature of 101.6° now existed, the tenderness and swelling involved the entire neck, and the patient stated that "it had gone up so high that he could not put his derby hat on"; he meanwhile felt so ill that he gladly consented to operation.

Operation was performed by the writer on December 21, at Flower Hospital. General anesthesia was used. Gas induction was attempted, but caused an epileptiform convulsion followed by cessation of respiration. The patient was soon revived and straight ether given. The operation consisted of a simple crucial incision and undermining the flaps with Mayo scissors. Considerable pus, under pressure, was evacuated. Iodoform packing was inserted and wet dressings of chlorazene used.

The after treatment consisted of a twice daily dressing, irrigating with half strength peroxide, and renewing dressing as previously described. The temperature dropped to 99°, and soon became 98.6°. The patient was discharged from the hospital on the sixth day.

The following day the patient's temperature rose to 103.2° by mouth, and he complained of excruciating pain in the rectum, extreme dysuria, tenesmus, and increased frequency. The urine was loaded with pus. Rectal examination revealed an extremely large and tender prostate. Secretion from the same was also loaded with pus. Patient admitted having had gonorrhea five years before with a complicating prostatitis, but was discharged as cured by a recognized genito-urinary specialist. A mixture containing potassium citrate and tincture of hyocyamus was given every four hours. A large amount of water was ordered by mouth. Rectal suppositories of opium and belladonna were also given. Patient recovered from this complication in a week, treatment being as outlined, combined with local treatment by bladder irrigations of potassium permanganate, and gentle prostatic massage.

On January 2 the patient complained of rheumatic pains in the right shoulder. Wet dressings were stopped and balsam of Peru drains used in dressing the carbuncle. Aspirin gr. xv, given every three hours did not relieve the rheumatism. On January 15 both shoulders were involved, the left seeming to be more superficial than the right. Aspirin, although pushed to the limit, having caused no relief, the possibility of a gonorrheal arthritis was considered, and the writer was about to try antigonococcus vaccines, but the patient had a foolish prejudice against vaccines, so I was unable to use this line of treatment. Atophan in 7½ grain doses was next given four times daily. This caused slight relief.

On January 15 the wound was entirely free from pus, the granulations were a healthy red, and the treatment from now on consisted of daily dressings of scarlet red ointment.

On February 1 the carbuncle wound was entirely healed. The rheumatic pains continued in both shoulders as before. Atophan continued.

On March 1 the patient was seen again. The pains had entirely left him, but he now had a complete paralysis of the right circumflex nerve, with atrophy to a slight degree of the right deltoid muscle as evidenced by a drooping of the shoulder. The power of abduction was entirely absent in the right arm. He retained full use of the other muscles of the arm. He received electrical treatment for this at the Neurological Department of the Post-Graduate Hospital, and had this supplemented by exercise on pulleys, and by massage at home. Rapid improvement followed the treatment, and the patient when last seen, on April 30, could readily abduct his arm to a right angle, and had very nearly recovered its full use. At least now he is able to perform all necessary duties.

The only explanation that I have to offer of this strange paralysis is that it was caused by a toxic neuritis excited by the pus in the blood-stream. Evidently there was not sufficient pus in the blood to cause a general septicemia, or phagocytosis was well established to guard against this. The pus that had been wont to form furuncles and finally the carbuncle, sought any place of lodgment having a lowered resistance. First it lodged in the prostate that a previous gonorrheal prostatitis had weakened.

After this subsided, it traveled to both shoulders, and produced a simultaneous rheumatism and neuritis of the circumflex nerve. The neuritis explains the pain that antirheumatic measures failed to stop.

The neuritis then caused a degeneration of the circumflex nerve, and this produced an atrophy of the muscle supplied by it—the deltoid. Injuries of the shoulder, such as fracture of the neck of the humerus or dislocation of the humerus, frequently produce a degeneration of this nerve. Pyemic processes rarely do so, and that is my reason for reporting this case.

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Medicolegal Notes.

Liability of Charitable Hospitals.—In an action against a charitable hospital for the death of a pay patient which it was alleged was caused by the negligence of the hospital and its servants in allowing her to fall from a window, the Kentucky Court of Appeals discusses exhaustively and reviews the authorities upon the subject of liability of charitable hospitals to their patients. The following is an abstract of the court's opinion:

"An examination of the authorities has convinced us that a purely charitable institution, such as defendant's hospital is described in the pleadings to be, is not amenable to its patients, although paid ones, for any damages which they may have sustained growing out of alleged negligence, although such negligence might consist in the violation by the hospital of some duty imposed either by an express or implied contract. The cases dealing with the subject seem to treat the cause of action as sounding in tort, although the liability, if any, was created by the negligent failure on the part of the hospital to observe some contractual duty, which is analogous to the rule applied to common carriers in suits by their passengers who sustain contractual relations the one with the other, although the suit is generally treated as one sounding in tort. Bearing this in mind, we find the rule whereby such institutions are absolved from liability thus stated in 13 R. C. L., p. 945: 'Immunity in all cases of tort has been claimed for them on the following grounds: (1) Public policy; (2) that the assets or funds of the institution are impressed with a trust for charitable purposes and may not be diverted to other use; (3) that in so far as concerns patients voluntarily entering, whether as pay or as charity patients, they impliedly waive all claim for injuries and assume the risk thereof.' The editor then proceeds to discuss each ground of nonliability, and in the notes to the text are cases from almost every state in the Union, as well as from the federal courts, relieving the institution from liability, even in the case of pay patients who thus sustain contractual relations to the hospital. But the courts are not unanimous concerning the particular ground upon which they base their opinions holding the hospital not liable. Only two courts, so far as we are advised, reject all three of the grounds and hold the hospital liable to its pay patients for an alleged negligent failure to comply with the contractual terms under which the patient was received; they being Alabama, in the case of Tucker v. Mobile Infirmary Association, 191 Ala. 572, 68 So. 4, L. R. A. 1915 D, 1167, and the Ontario Supreme Court in the case of La Vere v. Smith Falls Public Hospital, 26 Dominion Law Reports, 346.

"At one time the Supreme Court of the State of Rhode Island joined the small band of courts who repudiated all grounds of nonliability of such institutions, as is shown by the case of Glavin v. Rhode Island Hospital, 12 R. I. 411, 34 Am. Rep. 675. But the succeeding Legislature of that State, at its 1882 session, promptly renounced that doctrine and enacted a statute excusing the institution from such liability, but preserving the right against the particular servant guilty of negligence.

"The first ground found in the excerpt from R. C. L., supra—that of public policy—upon which a number of courts base their opinions holding the defendant in this character of case not liable, is upon the theory that such institutions are inspired and supported by benevolences and devote their assets and all their energies to the relief of the destitute, the sick, and the needy, and that the common welfare requires that they should be encouraged in every way and be exempt from liability from this character of action; that if it should be otherwise held, it would operate to discharge the charitably inclined from donating or founding such institutions and might utterly destroy them, thus indirectly casting the burden of doing so upon the State. * * *

"The trust fund doctrine proceeds upon the idea that the trust created by the founders of the institution as augmented by receipts from pay patients constitutes a charitable trust fund, and that, if it should be diverted to the payment of judgments which might be obtained in damage suits against the institution, the purposes of the charity, as well as its donors, would be frustrated, and the charity itself most likely eventually destroyed, and that such a result was never contemplated by its founders or those who in any manner donated to the institution. * * *

"The theory of the 'implied waiver' doctrine is that one who accepts the benefits, accommodations, and services of such an institution enters into a relation with it whereby he agrees to exempt it from liability for the negligence of any of its servants in administering the charity, and that the patient thereby assumes the risk growing out of any negligent act of any of those connected with administering the affairs of the institution. * * *

"Text-books and other treatises holding a purely charitable institution of the nature of the defendant here immune from liability for this character of suit are: 2 Cooley on Torts, pp. 1011-1013; Jaggard on Torts, vol. 1, pp. 184-187. These works base the nonliability upon the same ground that State institutions engaged in a like service are excused, in that the private but purely charitable institutions are performing a necessary duty which, if not done by them, would in all probability have to be performed through some arm of the State.

"While not called upon to take a position relative to the merits or demerits of all of the three respective theories above referred to as grounds for excusing the institution from liability in this character of case (althought the first and second ones have been adopted by this court), we are not averse to saying that each of them to our minds is founded upon sound logic and convincing reasoning, and while caustic criticism of each of them will be found in some of the opinions, although the same opinion adopts one or other of them, such criticisms appear to lose sight of the nature and purpose of the defendant and treat it in applying the principles of the law as though it were strictly a private institution. * * *

"Some of the cases referred to relieve the defendant of liability on the ground that the doctrine of respondeat superior does not apply to purely charitable institutions, but we have not dealt with this feature of the case, since the conclusion which we have reached renders it unnecessary. Neither have we overlooked the fact that some of the cases relieving the institution of liability impose upon it the duty of exercising care in the selection of their servants, for which, if they should negligently fail to do, they would be liable. But we have found it unnecessary to consider that proposition, because there is no allegation presenting that issue. Nor do we pass upon the question of the liability of such institutions for conduct purely tortious, affecting members of the public who are strangers to them. We would also not be understood as holding that such institutions would not be liable on their contracts made for the purpose of protecting, looking after, and taking care of their private property, or in supplying themselves with those necessities required for their continued maintenance, since upon such contracts they are liable, as are other individuals and corporations."

Judgment for the defendant was affirmed.—Cook v. John N. Norton Memorial Infirmary (Ky.), 202 S. W. 871.

Military Medicine.

WAR WOUNDS OF THE TONGUE.

Injuries to the tongue in warfare may follow upon contused wounds of the face with fracture of the lower jaw, but more commonly the lesions are due to the missile itself, or to bits of bone or broken teeth. Rifle bullets, but especially bits of shell, produce shattering of bone, resulting in furrows, perforation, or loss of tissue of the tongue, and all such injuries, which in reality represent contused wounds, frequently result in irregular cicatrices. But even when extensively involved, the tongue usually recovers its functions well, both motor and sensory. The complications of lingual injuries may, for convenience, be divided into (1) *primary* complications, which include vasculonervous lesions and foreign bodies (bits of all kinds, missiles or teeth), (2) *secondary* complications, which are always septic in nature, and (3) *late* complications, represented by defective cicatrices.

As to vasculonervous injuries, it may be said that although the nerve trunks are frequently divided, it is rather curious to note that following suture of a more or less extensive division both mobility and sensibility appear to be almost intact. Among arterial wounds the most serious are those of the base of the tongue. When the wound is large hemorrhage is manifest, but when the wound is narrow, or if occluded by blood clot, a diffuse aneurysm may develop, resulting in tumefaction of the organ, and the swelling may be so great that serious dyspnea and dysphagia ensue; but the situation is made still more grave by the septic processes which are prone to arise in the traumatic focus.

Suture should be done in every case of deep wound, even if contused, or if the tongue is almost completely divided. Should the wound be several days old, the edges are to be freshened and secondary suture performed. The sutures should be interrupted, and catgut is to be used in preference to other material. The suture is usually sufficient for the control of small hemorrhages. In the case of larger vessels, ligature of the divided ends in the wound should be essayed, although this technique offers considerable difficulty in wounds at the base of the tongue. In order to facilitate the operation the tongue should be drawn well out of the buccal cavity, and, if necessary, the organ can be rendered more free by cutting around it with scissors. In these circumstances, general anesthesia is essential. When extensive damage has occurred, which makes it practically impossible to search for the injured vessels, the lingual artery may be tied in the neck, or, still better, the external carotid, when any doubt exists as to the vessel involved.

Wounds from firearms result in the lodgment of bullets, bits of bone, teeth, fragments of clothing, etc., in the lingual mass. All these bodies are projected into the organ, and may remain embedded in its tissues, and it is far from always being an easy matter to detect them. Radiography gives us the necessary data in the case of metallic bodies, but on account of the mobility of the tongue their exact localization is almost impossible to obtain. As to teeth and bits of bone embedded in the tongue, the *x*-ray is powerless to give exact diagnostic indications, so that the surgeon must rely upon the pain and tumefaction, with all its functional consequences, as a guide to diagnosis. However, it is to be remembered that a foreign body may become encysted and be tolerated by the tissues for years. In other instances an acute inflammatory process arises, resulting in fistula, while the suppuration results in the secondary elimination of the foreign body.

The septic complications encountered in wounds of the tongue are deep seated; in other words, the process is a phlegmonous glossitis. This condition of affairs is set up by an infectious process, the result of the presence of a foreign body. Treatment consists in deep incisions, and if gangrene is present the incisions should be made with the thermocautery. The after treatment consists in frequent buccal irrigation with a solution of chloral.

The late complications are represented by adhesions following the cicatrization of the traumatic focus, and are not uncommonly accompanied by serious destruction of the lower jaw. Adhesions situated on the floor of the mouth appear to be the most frequent. They hinder phonation, mastication, and deglutition. The treatment is rather simple in most cases. When the adhesion is limited in extent all that is required is to excise it and then prevent its recurrence. But when the adhesions are extensive, and especially when total ankyloglossus has taken place, the operative results are disappointing, because the adhesions almost always recur. Perhaps the best way of preventing this unfortunate event, when it is possible, is to excise all cicatricial tissue and then suture in healthy tissue.

Protection of the Sight of the Combatants.—Putelli (*Giornale di medicina militaire*, February 28) covers this subject from a special angle—the consequence of an enfilading fire upon the orbitotemporal region, which is unprotected by the helmet. The first thought to occur in this connection refers to the possibility of extending the helmet to protect the above mentioned area, including the ear and nose and even the jaws. Implication of the orbit in wounds of the face is extremely common and bullets in the orbit often penetrate into the nasal structures—so that there is a special type of orbitonasal wound. Injury from enfilading fire differs radically from wounds received full in the face, for only too frequently in the latter the projectiles prove lethal by penetrating into the brain.

In wounds from enfilading fire one eye only, as a rule, is menaced, although the projectile often enough makes its exit on the opposite side of the face. Of eighteen orbital cases given by the author in only four was the sight of both eyes lost. On the other hand, it is not uncommon for wounds in the temporo-orbital region to spare the eye, and the author cites a number of such cases in which the course of the projectile either did not involve the orbits or in case of such involvement—as in exit wounds—spared the eyeball and optic nerve.

The author, who is an otorhinologist, has no direct knowledge of the consequences of wounds involving loss of vision, save in accidents in which

the nose and ear likewise suffer. The prophylaxis of wounds from enfilading fire, whatever the nature of the projectile, is sufficiently obvious. The helmet should have a flap which is not unlike the ear laps of a winter cap in its area save that a strip runs forward in the region of the frontal sinuses. The nature of many of the wounds is such that the metallic flap would have prevented or minimized them. Helmet protection is of course limited at best, but the chief aim here is protection of vision rather than from traumatism. Infantry bullets at long range, ricochet bullets, small fragments of explosive shells, are the classes of projectile in which protection is chiefly secured. In enfilading wounds, however, another element, viz., the tangential impact of a bullet must be had in mind. These protective metallic flaps should be able to deflect many a tangential projectile.

Although the author gives photographs of men wearing the new extension helmets it does not appear that they have actually withstood the test of battle. Before their adoption certain weighty matters had to be settled. Do these flaps interfere with the visual field in any way? Do they in any way prejudice the use of the gas mask? The questions are at once answerable in the negative. Moreover, as the author states, the flaps are "polyvalent," for in addition to the eye, they afford protection for the ear and nose.

Prevention of T. N. T. Poisoning.—An immediate result of the absorption of T. N. T. into the system, whether through the skin or otherwise, is a chemical change in the hemoglobin of the red blood corpuscles which shows itself in a pallor or duskiness of the skin with blueness of the lips. This cyanosis does not by itself produce fatal results and if fresh entry of the poison is prevented the body rapidly recovers. But if the effects are permitted to accumulate two incurable and rapidly fatal diseases may occur, namely, "toxic jaundice" as a result of the destruction of liver substance, or more rarely "aplastic anemia," due to the blood forming organs failing in their function so that a progressive loss of blood takes place. These diseases, however, do not always result from even severe cyanosis; while, on the other hand, there seems to be evidence that they have developed without that danger signal first appearing. Different persons have vastly different susceptibilities, very many are quite immune. Thus one of the main causes of the decreased incidence of the disease in 1917 as compared with 1916 is that workers whose powers of resistance are small have taken up other work. The investigation which was carried out by Dr. B. Moore, also showed that the main source of absorption was through the skin and not through the respiratory organs. Not only is T. N. T., which is breathed in as dust in the air, much less harmful than that rubbed in the hands and forearms, but also the amount absorbed per shift is small and easily ejected from the system. Elaborate methods of ventilation are not so necessary as skin protection. The hands and face can be covered effectually by casein and varnish, while the legs and feet must be protected by suitable boots.—*British Science Progress*, April, 1918.

Government to Mobilize All Doctors.—It is reported that a plan is under consideration whereby the Government may assume control of the entire medical profession in the United States in order to obtain sufficient doctors for the army and so to distribute those remaining that their services may be rendered in those places in which they are most needed. Instead of enrolling in the Voluntary Medical Service Corps only those physicians not suitable for military service, either because of age, physical infirmity, dependency, or institutional or public need, the plan will probably be to throw open the membership to all doctors and to bind them with a pledge "during the present emergency to accept service, military or civilian, wherever, whenever, and to whatever duty they may be called by the central governing board. The practical operation of this plan, officials believe, would cause little relocation of doctors, since physicians who are needed in certain communities would not be commissioned in the army. Conferences were held in Washington, on July 18, and in a number of other cities to discuss the operation of the voluntary enrollment plan. A plan is being considered by the Surgeon Generals of the Army, Navy, and Public Health Service for commissioning all teachers in the medical schools and assigning them to their present duties for the purpose of preventing further disruption of medical teaching staffs and at the same time recognizing the public service of those men.

Deliberate Bombing of Hospitals Continues.—A report from the American Army on the Marne, under date of July 15, states that Germans deliberately attempted to shell several of the American hospitals behind the lines near the Marne front on that date. The shells in this instance, however, did no damage. An attack made the following night on the American Red Cross Hospital at Jouy did not terminate so fortunately. Two enlisted men were killed and among the personnel nine persons were wounded. Several doctors were performing operations at the time, and notwithstanding the explosions continued with their work. At least three bombs were dropped on the hospital. Additional doctors were telephoned for and the work of the hospital continued without interruption. This same night was a busy one for the Red Cross Hospitals being evacuated in the region of Châlons. The hospital at Jouy recently had among its wounded sixty German prisoners. They, of course, received exactly the same treatment as the other patients.

Guarding Camps Against Flies and Mosquitos.—Special attention is being given to cleaning up spots near camps where mosquitos and flies breed. There is attached to each camp a division surgeon who has as an assistant a sanitary inspector who, in turn, has the assistance of a sanitary engineer and from 100 to 200 enlisted men employed in work designed to protect the health of soldiers. They have in some places put in elaborate ditching systems and where this has been impossible slow moving streams and still bodies of water are kept covered with oil. At all points within the camp where there is a possibility of mosquitos or flies breeding daily spraying with oil is done. Arrangements have been completed with the Public

Health Service for carrying out this plan for a radius of one mile around all camps. Arrangements have been made to protect all food from flies; all buildings in which food is prepared or stored are screened, and an average of 6,000 fly traps are placed in each camp. More than 22,700,000 square feet of screening has been placed in all camps.

Clinic for Disabled Soldiers, Sailors, and Civilians.—A clinic affiliated with Cornell University Medical College was opened, on July 15, at 5 Livingston Place, where soldiers, sailors, and civilians will be given functional re-education. The clinic will also provide an opportunity for instruction to medical officers and students in the methods which have been developed along this line which constitutes practically a new branch of medical science. Beds for thirty patients are provided in the hospital. A part of the equipment will consist of electrical apparatus for the diagnosis and treatment of nerve, muscle, and joint affections, which has been standardized for the Canadian and United States military hospitals. Dr. W. Gilman Thompson is director of the clinic. Treatment will be free for those unable to pay. The buildings for this clinic have been leased from the New York Infirmary for Women which has been temporarily discontinued.

Red Cross Gifts.—The American Red Cross has arranged to despatch to Russia a special ship with a cargo of supplies to be distributed under the jurisdiction of the Red Cross Commissioners now in that country. The cargo consists largely of food, clothing, and medicine for the civil population and returning refugees and prisoners.—The Scottish Women's Hospitals has been the recipient of another gift of $150,000 in recognition of its very efficient work at the front in France during the past two months.—In order to be prepared to care for the French and American wounded in the drive begun on July 18, the American Red Cross on that date sent seven tons of surgical dressings and five tons of special diet foods to the principal evacuation hospitals of the American Army. The Red Cross Medical officers' storehouses and pharmacy will operate night and day during the drive of the French and Americans. Three hundred and fifty beds with American surgeons and nurses have been added to the American Red Cross Hospital at St. Pol for use during the present offensive. The tent hospital outside of Paris has added 300 beds.

Women Anesthetists for Army Service.—It is said that many wounded soldiers prefer the care of women attendants and that for this reason the army is appointing women anesthetists. Fifteen have already been appointed, receiving the pay and privileges of First Lieutenants without, however, the actual rank. Only graduate women physicians are eligible.

American Dentists "Doing Their Bit."—The preparedness League of American Dentists, comprising more than 15,000 dentists who have pledged themselves to give at least one hour of their time daily, including materials, to men selected for the Army, Navy, and Marine Corps, reports that 500,000 free operations have already been performed. The League is supplementing the work of the army in making recruits dentally fit, and in this way puts many men into the service whose acceptance would otherwise be delayed. There are 48,664 dentists in the United States and the League is trying to obtain a 100 per cent. membership at $1 a year. The League is divided into six military departments headed by a director for each department. Each of these directorates is in turn subdivided and managed by a director for each State.

Women's Ambulance Units.—The National League for Women's Service is making a drive to obtain fifty ambulances to be driven by its motor corps in transporting wounded men returning from the front to base hospitals in New York. The Surgeon-General has requested the women to be ready to begin work by the middle of August. The Yale Club has donated the first ambulance. Sixty women have formed the Queens Company of the Red Cross motor service and will drive ambulances to and from the base hospitals in Queens. The first ambulance was installed on July 19 and assigned to Far Rockaway. An ambulance for Long Island City, costing $550, has been donated by Mrs. George Hanavan. The women ambulance drivers must hold a chauffeur's license and have had fifteen hours first aid training.

Claim Cure for Gas Gangrene.—A special cablegram to the *Chicago Tribune* announces that Professor Vincent recently read a paper before the Paris Academy of Sciences in which he described a serum which he has prepared which has been effective even in severe cases of gas gangrene.

Hut Hospitals Reach England.—The first shipment of 150 hut hospitals, which the American Red Cross has built in the United States for use in eighty small camps throughout Great Britain, have arrived in that country. They will be immediately set up as camp dispensaries, isolation hospitals, and convalescent wards at aviation camps in England. The huts could not be constructed in England on account of the shortage of lumber without crippling important war work, so they have been shipped in knock-down form.

American Zionist Unit Welcomed.—The American Zionist Medical Unit which is on its way to Palestine stopped in London recently where a large meeting in its honor was held in the London Opera House on July 15. Lord Rothschild presided.

Low Venereal Disease Rate.—The War Department reports that the spread of venereal disease has been greatly reduced among the American Expeditionary Forces by the methods employed by the Army Medical Corps. The lowest record for the Army was in 1916, 91.23 per thousand. The latest report shows the present rate to be 47.8. Among the troops in the United States the rate has been reduced approximately to 21 per thousand yearly.

The Carlisle Indian School to Be a War Hospital.—The well-known Indian school at Carlisle, Pa., originally an army barracks and loaned to the Interior Department for educational purposes, is to be taken over again by the War Department for use as a hospital. It will be converted into a rehabilitation hospital where war cripples can be taught various trades and occupations and be fitted with suitable prosthetic apparatus.

MEDICAL RECORD.

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POSTOPERATIVE GASTROINTESTINAL HEMORRHAGE.

WHEN, after an abdominal operation, blood is vomited or voided per rectum, or the signs of an internal hemorrhage are manifest, it is essential to distinguish between gastrorrhagia and enterorrhagia, as well as to recognize the pathogenesis of the accident. The fact that there is hematemesis or melena, especially when it is in moderate amount, does not of necessity imply that the blood comes from the stomach or intestine, because a posterior epistaxis may perfectly well simulate a gastrointestinal hemorrhage and a similar mistake may occur in the case of hemoptysis when the blood is swallowed. In some cases, on the other hand, the blood is not eliminated, although there exists a gastric or intestinal hemorrhage of such intensity that death results.

The etiology of these hemorrhages, although at first glance it might appear simple, is in reality complex, and becomes still more so when it is necessary to decide if the loss of blood is the result of long standing lesions of the vascular system, of the liver, of the kidneys, or of the blood itself. No diagnostic means should be overlooked, either general or local, and in enterorrhagias, where the blood is eliminated in an almost pure state rectal examination should always be resorted to because the hemorrhagiparous lesion may be discovered within the gut. In spite of everything, in the genesis of certain postoperative gastrointestinal hemorrhages, it will often be difficult to determine the exact part played in the process by some long-standing conditions, most usually hepatic, and that due to some new factor of a toxic, infectious, or mechanical nature. However, in most cases a careful examination of the patient will offer sufficient data to make it evident at least that the hemorrhages do or do not depend upon either local or general processes of long standing.

When the loss of blood is not due to some former process, an endeavor must be made to interpret the pathogenesis of the postoperative complication. If the hemorrhage follows a surgical interference other than in the abdomen, the pathogenesis will be readily recognized because only a general infective process, intoxication, the anesthetic used, or postoperative gastric dilatation can be in play. The clinical picture of the latter process will easily reveal the nature of the case, while immediate postnarcotic vomiting, the absence of inflammatory reaction in the wound, and negative results obtained from blood-culture, will all point to poisoning by the anesthetic. In gastrorrhagia or enterorrhagia following operations in the abdominal cavity, if evidences of infection or intoxication are present, these will be so distinct that the diagnosis is made at once. Nevertheless, even then one should ascertain whether traumatic gastrointestinal lesions or lesions of the omentum may not be the etiological factor of the hemorrhage, because one is rather apt to attribute too much to septicemia or toxemia.

By carefully recalling all the details of the operation and reviewing all the symptoms offered by the patient, the exact diagnosis will usually be reached. The characters of the hemorrhage are important in themselves in this respect and the time of the first appearance of the loss of blood is, in particular, of the greatest diagnostic value. No matter what may have been the abdominal or gastrointestinal operation, this particular point retains its importance because the later the loss of blood arises, the less is the possibility that it results from a direct traumatism to the digestive tract or to an incomplete hemostasis. Poisoning by the anesthetic usually sets up early gastrointestinal hemorrhage and the same may be said of acute postoperative gastric dilatation.

The prognosis is subordinated to the quantity of blood lost, as well as to the gravity of the symptomatic ensemble, but in a general way it may be said that it is to be the more reserved in cases where the operation was not upon the digestive tract. Late occurring hemorrhage is a more serious condition than one arising shortly after the surgical intervention.

AN ALLEGED EPIDEMIC OF BOTULISM.

AMONG the diseases or conditions to which attention has been directed recently in England is that which, for lack of a more definite appellation, or because its obscure points have not as yet been sufficiently elucidated to admit of a name altogether in keeping with its etiology or symptoms, the term "botulism" has been affixed.

According to the London correspondent of this journal, June 15, 1918, the name botulism is a misnomer, in that the latest accounts of outbreaks in England do not seem to confirm the supposition that it is an intoxication caused by the products of the *Bacillus botulinus*. While the etiology of the epidemic in certain parts of England and in Paris appears to be wrapped in much obscurity, its clinical features resemble some types of infantile paralysis so closely that many observers in Great Britain

regard it as clinically identical with that disease. Indeed, Dr. F. G. Crookshank, who has had under his care at a general hospital in suburban London several cases of the ill-defined malady, has given it as his opinion that it is poliomyelitis. In Paris the epidemic has occurred chiefly among children, a circumstance which would seem to bear out Crookshank's views. On the other hand, some London medical men have not only found the symptoms of cases which came under their care identical with those of botulism, but these symptoms supervened upon the ingestion of sausage or canned food. Consequently, a good deal of confusion exists. However, it does seem a somewhat suggestive coincidence that the disease should have become prevalent at a time when the consumption of canned food is almost universal.

In view of the fact that there is not a little want of exact knowledge with regard to botulism generally, it will be interesting to refer to a very complete article on the subject read by Capt. E. C. Dickson, C. A. M. C., at the annual meeting of the Canadian Public Health Association, held in Hamilton, May 27 and 28, 1918, and published in the *Canadian Public Health Journal* for June, 1918. Among other interesting facts in connection with botulism noted by Dickson is that accurate knowledge that the intoxication may be caused by the ingestion of foods of vegetable origin dates only from December, 1913, when there was an outbreak of the botulism type at Stanford University in which twelve persons were poisoned by eating a salad prepared from home-canned string beans. Experiments then undertaken conclusively established the fact that the toxin of *B. botulinus* may be found in mediums prepared from peas, beans, corn, asparagus, artichokes, peaches, pears, apricots, and prunes.

As for the symptomatology of botulism, it differs from the usual types of food poisoning in that the intoxication essentially involves the central nervous system. Moreover, the condition is not an infection, but a true intoxication, the poisoning being produced by a bacterial toxin which is formed in the food before it is eaten, and which is ingested with the infected food. The toxin is never formed within the body, and differs from the toxin of diphtheria in that it is not digested in the gastrointestinal tract, but is absorbed, unchanged, into the blood stream. The symptoms are those of profound disturbance of the central nervous system, commencing with a sensation of languor and fatigue. A striking feature of the botulism intoxication is that there is no disturbance of mentality, and that sensation remains intact. The temperature is usually subnormal, the pulse soon becomes rapid, and the combination of a temperature of between 96° and 97° F. with a pulse rate of over 130 is very characteristic.

According to Dickson, the mortality in European cases, occurring during a period of over one hundred years, is about 40 per cent., but in the United States, probably because only the severe cases are recorded, the mortality has been between 65 and 70 per cent. In the English epidemic there have not been sufficient cases recorded to provide any very accurate statistics, but from accounts to hand it does not seem nearly so deadly as true botulism, described by Dickson. That observer also states that in this country the intoxication has been almost wholly due to the ingestion of home-canned foods, because in the United States commercially canned vegetables are sterilized with steam under pressure at a temperature of from 240° to 250° C. Furthermore, the freedom from contamination of commercially canned fruits which are canned at lower temperatures, is probably dependent upon the fact that only carefully selected, hand-picked fruit and vegetables are canned.

If such is the case, the English epidemic can hardly be due to imported canned vegetables, and unless home canning is carried on to a considerable extent in England, suspicion may be largely removed from canned articles of diet as prominent factors in the causation of the disease there. Therefore, the contention of Crookshank that the many cases observed in London and vicinity within the past few weeks belong to the category of poliomyelitis will be strengthened. The British Medical Research Committee is at the present time prosecuting a scientific investigation for the Local Government Board of the outbreak, so it will probably not be long before some of the obscure points will be cleared up.

TONSIL OPERATIONS.

It is a healthful sign of progress that tonsil operations are no longer lightly undertaken, and that there is a keen understanding of the dangers that go with these operations. Tonsil operations are now justly given the same weight as major operations. According to some observers about one-third of the cases of suppuration of the lungs are directly traceable to tonsil operations; and this complication is by no means the only eventuality to be dreaded. But it is not to be wondered at that suppuration is common after removal of the tonsil when it is remembered that this operation must be undertaken in an open septic field with no possibility for maintaining aseptic conditions. The operation of enucleation of the tonsil has helped to reduce the area of infection over the area produced by mere cutting through the tonsil as is done in tonsillotomy. Besides, but at best the operation is a bloody one. The hemorrhage is too frequently left to itself, and only when it is marked and dangerous is there any attempt made to control it. There can be no provision made for catching the blood that flows from the field of operation, and it is allowed to run whither it will. In adults with hard fibrous tonsils the blood vessels stay agape and the hemorrhage is very likely to be more severe than in children. When general anesthesia is employed there is very little ability to expel blood that enters the respiratory passages, and the blood with its load of or-

ganisms is very apt to find lodgment in the bronchi to set up suppurative processes. Moreover, the gaping blood vessels of the peritonsillar tissues encourage primary embolism of the veins. The emboli find their way directly through the right heart to the branches of the pulmonary arteries and their distributions. The same result may be achieved by phlebitis in the peritonsillar vessels and secondary embolism following the same lines as in primary embolism. Improved methods of anesthesia and more refined technique of operation reduce much of the danger, but not nearly all, by any means. Although general anesthesia adds to the dangers of tonsil operations, nothing but general anesthesia can be used in children or in adults of nervous disposition. Much of the aspiration effects following upon the hemorrhage would be obviated by the use of local anesthesia, but for the fact that because it is impossible to gauge accurately the amount of the anesthetic absorbed, local anesthesia is very treacherous in its action, and fatal outcomes are not uncommon with it.

On the whole the question of operating at all, the kind of operation, and the form of anesthesia must be decided according to the individual variations, and no rule can be laid down to cover all cases. But in all cases the tonsil operations deserve a great deal more caution in their execution than is still accorded them. The danger is so real, and the outcome so uncertain that it has been recommended, at least for adults, that the tonsil be destroyed with the high frequency spark, at several sittings. In such cases there are little reaction, little inconvenience, and little danger. None of the dangers in tonsil operations should, however, prevent their execution where necessary. All surgical operations have an element of danger, but the danger will be reduced by a proper conception of the gravity of the operation, and will stimulate improvements therein.

BLOOD TRANSFUSION IN FRANCE.

According to Professor Guyot, writing in the *Journal de médecine de Bordeaux* for May, transfusion of blood is now the order of the day. It has risen from its ashes, so to speak, and has been called on during the present war to render important services. In a recent circular, the high command of the medical body has called attention to the subject in making special provision for blood donors. The author is specially interested in the technique of his colleague, Professor Jeanbrau of Montpelier.

Modern transfusion was introduced from America by Carrel, and in 1914 nineteen transfusions were performed by Guilhot and Dehelly. Professor Tuffier was a sponsor for the new procedure. The total number of transfusions reported in France in 1914 was forty. It was not until 1917 that Professors Hedon and Jeanbrau gave to France a special technique of its own. The Carrel-Tuffier technique was modified from that of Crile. The original apparatus of the latter was brought from America by Guilhot and Dehelly, and the fact that the blood went directly from arm to arm gave it an acknowledged superiority over all of the ancient methods, in which defibrinated blood was used. But the objections to the direct method of transfusion were numerous, and its field became much restricted in consequence. Passing by the venovenous direct methods, we come to the Kimpton apparatus, in which the blood was made to pass into a glass vessel before entering the recipient; this step made it possible to prevent coagulation and to measure the volume of injected blood.

The apparatus of Jeanbrau is, in brief, this apparatus of Kimpton's, with slight modifications. The technique, however, is individualized. The first step consists in aspirating into the ampoule 25 c. c. of sterile solution of sodium citrate. The median basilic vein of the donor is then punctured under cocaine, and the cannula introduced; when under the influence of aspiration produced by a bellows apparatus, the blood enters the ampoule under pressure. The vein of the recipient is now opened—the cephalic is preferred—the ampoule is connected, and the blood is allowed to enter the recipient very slowly, by the operation of a bulb.

The objections urged against this mode of transfusion appear to be theoretical only. At least, no case of air embolism or contamination with disease is mentioned in this paper. Naturally, systematic precautions have been taken. A death from anaphylaxis is mentioned, but the particulars are not given; apparently the donor had just received antitetanic serum. Such a donor is, of course, prohibited by the routine precautions.

SURGEON PROBATIONERS IN THE BRITISH NAVY.

The arrangements that are found necessary in order to keep supplied the medical services in the British army and navy make rather an interesting study in social economics. In the earlier days of the war the military authorities allowed the senior students to remain at their classes while they called up the students who were at a less advanced stage of their studies, if they were physically fit. At that time, doubtless, it was the belief of the military experts that only the senior students would be at all likely to be available as qualified medical men before the war was brought to a close. Unexpected events have shown that too sanguine a view had been taken of the situation, and during last year it became evident that a rearrangement was urgently required. The senior students had now qualified, and were swept into the army as medical officers, but clearly the supply of young qualified men could not continue, as their juniors were already in the service as combatants; yet there was every indication that hostilities were likely to be prolonged. Under these circumstances the authorities have released all junior medical students so that they may resume their studies and help to keep up the supply of medical men so urgently needed.

In the navy, on the other hand, medical students

have been doing exceedingly useful work in the smaller vessels attached to the fleet. The surgeon probationers, as they are called, attend to casualties occurring on their vessel until these can be transferred to a hospital ship or to a hospital on shore. They thus economize the services of the regular surgeon, and do a great deal to relieve the strain on the medical service. That the services of these surgeon probationers have been recognized and valued by the navy is evidenced by the references to their work in dispatches. Like their comrades in the army, the surgeon probationers are now being released to resume their studies, and in order that their places may be filled the naval authorities have invited application for these posts from students in their third year who have already passed the second professional examination or hope to do so soon.

Dental Stigmata of Syphilis.

Syphilographers, such as Fournier, Gaucher, Sabouraud, and Hutchinson, have erected an extensive superstructure of dental dystrophies of hereditary syphilitic origin which include total and partial microdontism, anomalies of position, monstrosities, alterations of shape, alterations of mastication zone, spaced incisors, Carabelli's tubercle, etc. Roy, in a recent number of a dental journal (abstracted in *La Presse Médicale*, May 16), is antagonistic to the whole of this teaching. Not a single stigma, not even Hutchinson's teeth, he holds, is pathognomonic of hereditary syphilis. Any disease of the early period of childhood can provoke dystrophies of the teeth. Caries of the deciduous teeth is a powerful factor in retarding development and causing errors of implantation, because this affection influences the development of the jaws. Mouth breathing, however produced, likewise exerts a retarding influence on the development of the dental arches, and is thus a cause of malposition. Erosion of the free border of the incisors, causing the so-called notched teeth of Hutchinson, means simply, in Roy's opinion, that the infant suffered from some serious pathological state in the first three months of life. It could be syphilis, but it could also be measles or bronchopneumonia. The notched incisors do not develop in the heredosyphilitic child unless there has been a period of grave infection corresponding to the first three months of existence. These dystrophies show absolutely no peculiarities in the syphilitic infant.

Fatal Lethargy of Encephalic Type.

In 1890, cases were reported in upper Italy, Hungary, and Dalmatia of a fatal type of lethargy. Owing to the lack of exact information, no true idea of the malady was obtained, and it became a mere legend. Last year a similar affection appeared in Vienna, and, more recently, cases have been reported in Paris, London, Sheffield, and Manchester. In Vienna, where the affection prevailed very widely, it suggested a form of poliencephalitis, which was not related to infantile paralysis. One author claimed to have inoculated a monkey successfully with the disease products and to have isolated a pathogenic coccus. In Paris, some 71 cases are known to have occurred, 15 of which were seen by Netter, who brought up the subject in the Academy of Medicine last May (*La Presse Médicale*, May 9). The mortality was 50 per cent. or more. The victims were seized in the midst of health with fever, headache, and prostration, and soon became somnolent, and in fatal cases comatose. Very characteristic were the ocular symptoms, which were usually bilateral. These included ptosis, strabismus, nystagmus, and pupillary alterations. The muscles innervated by the facial sometimes participated. The symptoms of meningitis were absent, or only faintly suggested. In fatal cases death at times supervened rapidly, while in the cases of recovery the affection sometimes persisted for months with protracted convalescence. Fatigue and ocular disturbances were often persistent. Lumbar puncture was practically negative. The autopsy finds in the nervous centers were but little in evidence to the naked eye. To the microscope the nerve cells of the cortex were but slightly modified, alterations being largely limited to the region of the motor muscles of the nerves supplying the eye in the bulb, protuberance, and gray matter of the wall of the ventricle. One cannot see in the symptoms any evidence of food intoxication, and the phenomena of botulism show notable differences, such as the prominence of mydriasis and dryness of the mouth. Encephalitis is the exception in botulism. There is every reason to see in this lethargic malady an independent affection which can be propagated by carriers.

News of the Week.

Cholera Spreading in Russia.—An epidemic of cholera, centering in Petrograd, where 500 persons are reported to be dying daily, is spreading over European Russia and threatens to cross the border into Germany. It is said that there are thousands of persons suffering from cholera at Saratov and many more in Finland. Advices from Stockholm announce that the Swedish capitol is in the throes of a cholera scare. A quarantine has been established against vessels coming from Petrograd. The disease has also broken out in Moscow, where 224 cases were reported on Sunday.

Tuberculosis More Deadly Than Bullets.—In connection with the campaign against tuberculosis which is being launched by the National Tuberculosis Association, Dr. Livingston Farrand, Director of the American Commission for the prevention of tuberculosis in France, states that statistics covering the four years since the start of the European war have disclosed that the mortality from tuberculosis among the civilian population of the countries engaged in hostilities is at least as great as the total number of soldiers killed in battle. Among the men called to the colors under the first draft 50,000 were found to be tuberculous. Dr. Farrand points out that such a finding as this warrants an appeal for the support of an energetic renewal of the fight against tuberculosis.

Asks Senate for National Drug Commission.—A measure has been introduced into the Senate, known as the Frelinghuysen Drug Resolution, which authorizes the President of the United States to appoint a commission of citizens of the United States, not exceeding three in number, to

make inquiry into the subject of narcotic and habit-forming drugs. This resolution carries with it an appropriation of $50,000 for the prosecution of this work. It was introduced into Congress after a study of facts brought out during a recent survey of several States made by Dr. Charles A. Rosewater of Newark, which went to show that the use of narcotic and habit-forming drugs in the form of opium, morphine, heroine, and cocaine, is largely on the increase.

Labor League Includes Health Measures in Political Platform.—The Labor League of New York City, in preparing a program defining its stand in the coming fall campaign, states that it favors the establishment of state-administered health insurance and the creation of a Bureau of Sickness Prevention and Health Promotion within the State Labor Departments. It calls for the erection and maintenance of a tuberculosis sanatorium in each county, with county management and State supervision. It also advocates old age pensions for citizens who at sixty years of age are without incomes and have been residents of the State for twenty-five years.

Child Health Organization.—Some time ago a group of specialists in diseases of children met in the New York Academy of Medicine and organized a Committee on the War Problems of Childhood. A few weeks' study showed that the wartime problem as related to children was so broad that a larger organization was desirable. The matter was referred to Secretary Lane of the Department of the Interior who urged the formation of a National Committee. However, as it seemed undesirable to add an entirely new organization to the many already in existence, it was decided to affiliate with the National Child Labor Committee, hence the Child Health Organization has come into existence. Its proposed lines of activity are to teach health habits to children and to secure adequate health examinations for all children in the public schools of the country; to consider the urgent problem of malnutrition among school children; to safeguard the health of children in industry; to awaken the public to the necessity of conserving the health of the school child as a basis of national security and stability; to promote or cooperate with other bodies in securing legislation for the attainment of these objects. Dr. L. Emmett Holt is chairman of the executive committee. Other physicians on the executive committee are Dr. Samuel McC. Hamill, Dr. Godfrey R. Pisek, Dr. Victor G. Heiser, Dr. Bernard Sachs, and Dr. Thomas Wood.

Automobile Accidents Increase.—The National Highways Protective Association finds that in June, 1918, the accidents for New York State, including New York City, were 99, as against 72 for the same period of 1917. In New York City, in 1918, motor cars killed 57 persons; wagons, 11; trolley cars, 6. During the same period of the previous year there were killed by motor cars, 33; wagons, 7; trolley cars, 9. In New Jersey motor cars killed 83 in the first six months of this year, as compared with 100 during a similar period of 1917. Massachusetts and Connecticut also show a corresponding decrease. The New York Health Department, in commenting on these figures, emphasizes the need for more radical legislation in the operation of motor vehicles or more stringent enforcement of our present laws.

Public Health Service Urges Care in Reporting Communicable Diseases.—The United States Public Health Service has sent a letter to all local health officers stating that it is important for the health of the troops in camps that every community, no matter how small, report the presence of all communicable diseases, especially if present in epidemic proportions. It is pointed out that selected and enlisted men in traveling may be exposed to such diseases and carry them to camp. Local health authorities are reminded of the grave responsibility that rests upon them of obtaining reports of all notifiable diseases from the doctors in their jurisdictions. The attention of all physicians is called to the importance of reporting communicable disease immediately and that all instances in which enlisted or selected men have been exposed to such diseases be reported immediately. The plan of action suggested is as follows: (1) The physician should make an immediate report to the local health authorities, who should notify (by telephone or telegraph if necessary) the senior medical officer of the camp or post to which the selected man or soldier may become a menace. A duplicate notification should be made by the local authorities to the State health authorities. (2) If there be no local health authority having jurisdiction, the physician should notify (by telephone or telegraph if necessary) the State health officer, who should notify (by telephone or telegraph if necessary) the senior medical officer of the camp or post to which the selected man or soldier is about to go. (3) The notification should be explicit, giving name of selected man or soldier and other identification data, together with his address and the nature of the disease. (4) The notification of the senior medical officer of the camp or post by the local or State health authorities should be in addition to the present procedure in such cases.

New York Babies Underfed.—The Mayor's Committee of Women on National Defense, after a careful investigation with reference to children between the ages of two and six years of age, finds that 21 per cent. are underfed. The Committee will cooperate with the Bureau of Child Hygiene of the Health Department to distribute free milk at the fifty-nine stations already established for infants to children of pre-school age.

Dr. Abraham Jacobi, who fought for freedom in the uprising in Germany in 1848, has accepted the place of honorary president of the Friends of German Democracy, an organization mostly of Americans of German descent who favor the destruction of Hohenzollern rule in Germany.

Dr. William S. Thayer, formerly of Baltimore, who was made a Colonel of the American Expeditionary Forces in France, on June 18, has been elected a foreign member of the Paris Academy of Medicine.

Gifts and Bequests.—Among the bequests made under the will of the late John W. Sterling is one of $7,500 to the Presbyterian Hospital of New York City and one of $10,000 to the Bridgeport Hospital, Bridgeport, Conn.

Epidemic in Porto Rico.—Ten thousand persons in San Juan have been ill of a three-day fever during the past two weeks. In some places business houses have been forced to close because of illness among employees.

Health Department Wants Bureau of Oral Hygiene.—A resolution has been presented to the Board of Aldermen of New York City which proposes to amend the Sanitary Code so as to provide for a Bureau of Dental Hygiene in the Division of Child Hygiene. Dr. S. Josephine Baker in urging the adoption of this measure states that of all the pupils in the schools of the city 67 per cent. have been found on inspection by the department inspectors to have defective teeth.

Drive for Bowling Green Neighborhood Association.—The Bowling Green Neighborhood Association which has tried to better conditions in that part of Manhattan south of Vesey and Ann streets has begun a drive for $30,000. This organization established the first health center in the United States and has reduced its death rate for babies in that district from 321 to 175 per thousand, and it also conducts social welfare work along various other lines.

Obituary Notes.—Major Morris Jacob Karpas, M.R.C., U. S. A., died in France last week, at the age of 38 years. Previous to his entrance into the army Dr. Karpas was a practising physician in New York City, being a graduate of the Long Island Hospital Medical School in 1904. He was chief of clinic at the Neurological Institute and adjunct neurologist at the Montefiore Home, and was a member of the N. Y. Academy of Medicine, of the New York State and County Societies, of the American Medical Association, and of several psychiatric and neurological societies.

Captain Paul Clements, formerly of Nashville, Tenn., died in Chinese waters, on June 29. He was a graduate of Vanderbilt University Medical Department, Nashville, Tenn., in 1895. In the beginning of the Spanish American War he enlisted in the First Tennessee. He was sent to the Philippines and remained there in charge of the Culion leper colony until the present war.

Dr. Gottfried Merckel of New York, a graduate of Long Island College Hospital Medical College, in 1907, died as the result of injuries received in an accident on July 16. He was 43 years of age.

Dr. C. Lanier Carter, a graduate of the University College of Medicine, Richmond, Va., in 1903, died at his home in Danville, Va., on July 10, aged 41 years.

Dr. Alfred Drury, of New Brunswick, N. J., a graduate of the New York Homeopathic Medical College and Hospital, in 1900, died at Ocean Grove, on July 10, aged 46 years.

Dr. John L. N. Hunt, a retired physician, died at the residence of his son, in Flushing, L. I., on July 18, aged 80 years.

Dr. William Karniol, a graduate of the University and Bellevue Hospital Medical College, in 1902, died at his home in this city on July 15.

Dr. Frederick R. Marvin of Albany, N. Y., died on July 22, after a long illness. He was born in Troy in 1847, and was a graduate of the College of Physicians and Surgeons, New York City, later entering the Congregational ministry.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

EXPENSIVE DRUGS FOR PANEL PATIENTS—A SPECIAL DENTAL TRIBUNAL—MEDICAL EXAMINATION AND THE GRADING OF RECRUITS—DEATH OF PROFESSOR H. G. PLIMMER—TUBERCULOSIS AND ANTITYPHOID VACCINATION—CASUALTIES IN BOMBING RAIDS ON HOSPITALS.

London, June 27, 1918.

How often the premonitions of those who at the time of the passage of the National Insurance Act were critical concerning the fair working of the panel scheme have come true in the event! While to the country and to the medical profession the practical outcome of the Act has been good, many difficulties attendant upon the working of the panel scheme have been realized, and they are those which were anticipated. Panel practice was only in the infancy of its working when the war broke out, but already it had been found that a certain number of practitioners were admitting to their lists more patients than they could fairly expect to treat in an adequate manner, with the result that in their panel practices they were reproducing many of the ills formerly associated with the out-patient departments of general and special hospitals. This was hardly to keep the promise by which the passing of the Act was secured, viz., that every insured person should receive the best of medical attention from the doctor of his choice. Further, in connection with many practices doubt soon arose whether the medical material supplied in response to the prescriptions of panel practitioners was of first-class quality or whether the more expensive drugs would not be denied to many panel patients who, before the passage of the Act had received through the charitable offices of hospitals the best pharmaceutical products. Under the National Insurance Act (Medical Benefit Regulations) the supply of drugs is in ordinary circumstances expected to come from pharmaceutical chemists who in return for capitation fees dispense the prescription of the panel practitioners. But pharmaceutical chemists are limited in number nor can they live by the practice of pharmacy. Therefore, and of necessity, they reside in localities where the population creates a demand for other things than drugs. Hence in many rural communities the nearest pharmaceutical chemist is far distant from many of the patients, and in these circumstances the National Insurance Act permitted the practitioner attending an insured person to arrange for the supply of drugs when the nearest druggist lived at an inconvenient distance. The practitioner had to be willing to undertake the extra work and responsibility, as no compulsion could be put upon him in regard to his professional duties, but when such an arrangement was made the practitioner could be paid by capitation fees calculated with respect to the number of persons toward whom he had assumed liability. But such an arrangement would have no restriction as to the nature or cost of the drugs actually supplied, and it might mean that where the practitioner was generous he would lose money, and where he was over careful in his own interests the patient would lose his chance of

the best pharmaceutical remedies. That this difficulty might arise was foreseen long ago. Recently a medical man having found an insured patient suffering from tetanus obtained antitetanic serum for him at considerable cost and applied to the National Insurance Commissioners for reimbursement. He had contracted to supply drugs to those of his insured patients who lived more than a mile from the druggist, as did the patient in question, and to do so on a capitation basis; but it was contended for him by the London and Counties Medical Protection Society that antitetanic serum was not a drug within the terms of his contract. Certainly antitetanic serum, being adjudged the best remedy in the circumstances, was due to the insured patient, who had been promised in Parliament that he would receive under the Act the best available treatment; but while the National Insurance Commissioners were bound in such circumstances to supply the remedy, it was not fair, contended the Protection Society, that the pecuniary onus should be placed upon the practitioner, because he had assumed a liability for the supply of drugs of ordinary character. The representations of the Protection Society proved unavailing, and there seems no doubt that under the Act the medical man was bound to pay for the antitetanic serum, and could not be reimbursed by the Commissioners. But, as publicity has been given to the case, in future we may expect practitioners who are willing to accept the general responsibility of supplying their insured patients with drugs (a pharmaceutic chemist not being accessible) to guard themselves against extraordinary liabilities for medical material.

It has now been definitely settled that a registered dentist shall not be called for military service except for dental work as a commissioned officer. The position of registered dentists becomes similar to that of medical practitioners, and to deal with the best distribution of the dental practitioners of the country between civil and military employment a Special Dental Tribunal has been appointed, with Dr. G. Seaton Buchanan, C. B., Chief Assistant Medical Officer to the Local Government Board as chairman. To this Board all applications for exemption from military service *as dentists* will now be made.

As I have indicated in previous letters the medical examinations and grading of recruits, under the latest extension of the conscription age, proceeded at first quite smoothly. The substitution of what are practically civilian boards—though recently retired medical officers in the Army and Navy may find their places upon them—for Medical Boards composed largely of Service men, led to a more fair and efficient categorizing of the material than the recruits in the earlier stages of the war had received. The work of the boards, when carried on by those in daily experience of the disabilities of male civilian manhood in every class between the ages in question, was more rapid and more to the point, while the fact that those men who were not required for military service might be relegated to civilian duties under the Ministry of National Service, removed in the case of persons of doubtful physique the disagreeable feeling that, with them, it was everything or nothing. There was, and is, however, a very large population to be considered. Mistakes were inevitable, critics numerous, and, as always happens, the errors soon began to receive a publicity which had never been granted to the early success of the new scheme. Wherever a man had been wrongly graded he was sure of warm sympathy, and no obstacle was put in the way of the ventilation of his case either by letters to the newspapers or by questions in Parliament, so that by the middle of June a fairly steady stream of detraction began to flow in the direction of those responsible for the grading of recruits. Sir Auckland Geddes, the Minister for National Service, made many reasonable, and some not quite intelligible, replies to hostile interrogatories in the House of Commons; and, while he has thus removed the impression, that might have been derived from the complaints, that the whole recruiting system was a failure—and one attended, moreover, with a train of private tragedies—he did not convince the House of Commons, or the public that at certain of the Boards the examinations had not been made with undue haste, while he had to admit that in one case an official circular letter of instructions, which was withdrawn almost as soon as it was issued, contained possibilities for great mischief. What lies behind the whole thing is the belief, not quite ungrounded, that the grading of the Recruiting Boards, designed to keep certain men away from subjection to physical strains which they could hardly be expected to meet, may later be disregarded by the military authorities; and it is difficult to see how this contingency can be avoided. As a matter of fact, the only thing any Medical Boards can fairly do is to settle what a man's physique is, judging, also, by physical signs whether he is reasonably fit for his age. It may not be possible for a doctor to place a man absolutely in a pigeon hole, but his possibilities can be gauged. Now it is stated that over and over again there have been posted to battalions, having had their categories altered by the military medical officers, men who had been considered by the Medical Boards as unfit for such work. This is a far more serious suggestion than the suggestion that certain successful appeals from the conclusions of the Medical Boards prove the work of those Boards to be ignorant or perfunctory. The medical view of the situation, which is admittedly one of difficulty, is that the work under the Ministry of National Service is being well carried on. The public distinctly desire that the medical grading should be done by the medical men of the country and not by the military authorities. This has been granted. The medical men of the country have clearly nothing to gain by the responsibility which is now theirs, for the work on the Recruiting Boards is hard and poorly paid. It is admitted that the majority of the complaints have been met with ready explanation; but concerning those which have been well founded, the serious question arises whether an avoidable evil exists, or whether we are only dealing with that margin of error which is inevitable in big human undertakings; for, after all, the question of a man's fitness is a matter of opinion. When, however, the Medical Boards have come to an opinion, it is not for military authorities to revise that opinion.

Professor Henry George Plimmer, one of the most learned English pathologists, has died this week in the house of his friend, Mr. Robert Mond. Plim-

mer, who was formerly bacteriologist and lecturer on pathology at St. Mary's Hospital, London, became in the first place well known for his microscopical work in connection with new growths, and he was at one time credited by many with having solved the question of the causation of cancer by the discovery of certain low organisms, called "Plimmer's bodies," in association with malignant tumors. Plimmer himself repudiated a claim which he later found could not be supported; his work, however, was not wasted, as he closed a fruitless patter of investigation that would have proved inviting to other researchers: Plimmer's next post was that of pathologist to the Royal Zoological Society, and while thus occupied he was elected F. R. S., as well as President of the Microscopical Society. Lastly he was appointed Professor of Comparative Pathology in the Imperial College of Science, and at the time of his death was working there regularly with his old friend, the Rector of the college, Sir Alfred Keogh, who returned to his civilian post on retirement from the position of Director General of the Army Medical Service.

The enemies of scientific medicine have certainly not been voiceless in Great Britain since the war broke out. They have had in journalistic slang "a good press." Their numbers, never very large, have not increased, but they are over represented in Parliament and make a sensational appearance in the lay newspapers. These are the people who have deeply resented the protection, practically complete, of the British Army from typhoid fever by inoculation, and recently one of them attempted in Parliament to have it admitted that the incidence of tuberculosis bore relation to antityphoid inoculation and vaccination! This wise senator asked the Minister of State for War whether his medical advisors would inquire into this relation, evidently believing that it was a point that had escaped attention. To his mortification, however, the Assistant Secretary was able to answer that a special investigation had been made into this matter, when particular attention was directed to the possible influence of inoculation and vaccination upon tuberculosis. The result of the investigation, said the Assistant Secretary, showed the inoculations and vaccinations at present carried out to have no effect whatever of the nature suggested. All medical men will be pleased that the War Office should have got this opportunity, unwittingly offered them, of championing the cause of scientific medicine, but experience tells us that nothing is ever gained as far as the particular cranks are concerned by telling them the truth. The same people ask the same questions weekly, almost daily. They are punctually, and, as a rule, courteously, assured that the inuendoes against scientific medicine concealed in the questions have no foundation whatever; but, fanatically believing that there is a conspiracy against them, they repeat their interrogatories "in the cause of humanity." For these people the cause of humanity means the sacrifice of any amount of life rather than the countenance of any modern scientific medical treatment, and, owing to their persistence, they get support they do not deserve.

At the end of May and the beginning of June a large hospital area in France was bombed on no less than seven occasions, a fact which to some extent accounts for the sad increase in the fatal casualties among the officers of the various medical services. The total casualties in these seven air raids, which include the casualties in the hospitals, have been given as follows:

	Killed	Wounded
Officers	11	18
Other ranks	218	534
Sisters	5	11
Q. M. A. A. Corps	8	7
Civilians	6	23
	248	593
		248
Total		841

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

REFUGEES SUCCORED BY THE RED CROSS—COOPERATIVE STORES FOR THE SOLDIERS—ADOPTING THE FRENCH WAR ORPHANS.

PARIS, June 11, 1918.

THE American Red Cross took care of thousands of refugees hurriedly evacuated from the war-swept Somme region. Hastened from their homes, some of them at only a few hours' notice, they were able to bring with them little more than bare necessities. Burdened with the care of little children and many of them with babies in arms, they were fed and lodged until trains could be provided to remove them from the city. Then it was in American Red Cross "camions" that they were taken either to other stations, or, in the case of the more fortunate ones, to homes of relatives in Paris. Every train brought in its contingents of refugees—homeless old men and women and wondering children—and by the hundreds, they were led, for they seemed to have so little of their own wills left, to the canteen in the basement of the station, where hot food and drinks were waiting for them. The utmost efforts had made it possible to be ready to care for these thousands as they trooped from the trains, whatever the hour of day or night. Those who arrived on the late trains were provided with beds in the main room of the canteen, where they were first served with hot suppers.

The first contingent to reach Paris numbered 300 persons, who had been prisoners in German hands for three years, until the enemy was forced out of the region last spring. They had been ordered out of their homes at seven o'clock last Sunday night and had been allowed until midnight to gather their belongings into slender packages and reach the train which was to bring them to Paris. It was in this evacuation that the American Red Cross began its work by collecting these unfortunate people and carrying them and their pathetically small bundles to railway stations. The bundles were eloquent of the haste with which they had made their journey, to what destination their owners had no idea beyond that they were first going to Paris.

How to enable American soldiers to buy such things as may be required or thought necessary, from time to time, has been discussed by many persons solicitous for the welfare of the troops; if it were to be accomplished by private or public coopera-

tive companies, the project would be too vast. But the military authorities or the Government could accomplish this, and, in fact, it has been done in France since the beginning of the war. In France the military authorities selected experts who were known to be the right people to conduct such a great enterprise, and these men were taken from the mobilized business men. Without doubt the success of the French cooperative societies served as a model for the army cooperative administration. All the immediate necessities of life are attended to by the Intendance of the army; but there are many things supplementary to these essentials, such as luxuries or comforts not contemplated by the ordinary army administration. Here the military cooperative system has accomplished good results. The ordinary existing cooperative societies in France cannot, of course, go to the front. The cooperative organization is quite complete in the French army. For each army there is a store for purchasing foods, which store is supplied in large quantities by big contractors. Generally, business men who are in the army are selected for buying in wholesale quantities. Every division has its cooperative store, which is to be found at the front and at other places as occasion requires.

In cooperation with the soldiers' paper, the *Stars and Stripes*, the American Red Cross has agreed to carry out that paper's scheme for the adoption of French war orphans and the children of families rendered destitute by the war. The scheme provides for a unit of soldiers to undertake the care of a child, contributing Fcs. 500 yearly toward its support. All money contributed will go to pay for the education of the child, the Red Cross paying the expenses of administering the funds paid by the soldiers. Photographs and the history of each child adopted will be furnished to its foster parents, and monthly reports will be made by the American Red Cross of the ward's condition and surroundings. It is hoped to use part of the funds in sending the older children to agricultural and trade schools.

146 Avenue des Champs Elysées.

Progress of Medical Science.

Boston Medical and Surgical Journal.

July 11, 1918

1. Extremes in Infant Feeding, the Present Tendencies. Fritz B Talbot.
2. The Mentally Defective Criminal. Amos T. Baker.
3. Treatment of Colds. D. C. Dennett.

3. Treatment of Colds.—D. C. Dennett makes a plea for the early, careful treatment of colds, which are the first stages of pneumonia, pulmonary tuberculosis, many cases of so-called rheumatic fever, and other serious diseases. That is, the germs of these diseases first exist on the upper mucous membranes, and, therefore, the best prophylactic is sterilization of membranes, plus rest and hygienic environment. A cold is a localized disease at first and in the first twenty-four hours may be treated as successfully as a specific urethritis in the same stage. In view of the importance of prompt treatment, orders in military camps should require colds to be reported when the first symptoms appear. Proper local treatment is essential, especially of the triangular area the apex of which is on the posterior pharyngeal wall opposite the tip of the uvula, the base up, with the two upper angles marked by the openings of the Eustachian tubes, called by the writer the "triangle of fire." A cold may remain localized for a week, without subjective symptoms, as in the case of the "carrier." Treatment should first be carried out in the eye—a 50 per cent. solut.on of silver vitellin should be applied to the everted lids, a tube of White's ointment being kept for use in case of smarting of the eye. Patient should also be given a 25 per cent. solution for use in the eyes and nose. The author adds: Do not poke a cold with medicated cotton on a stick; do not spray a cold; do not give aspirin except for pain, and do not give quinine and whiskey, but treat a cold seriously because it is a serious disease. Give sulphate of atropine and aconite in the first stage of "head colds," steam and oil inhalations and warm air for "loss of voice colds," and Dover's powder early for "cold on the chest." The present paper is based on the treatment of over two thousand cases with 25 per cent. to 50 per cent. solutions of silver and argyrol applied locally, combined with internal medication to suit the case. If used at the right time, local treatment is the most effective.

New York Medical Journal.

July 13, 1918.

1. Some Relations of Diet to Disease. Lafayette B. Mendel.
2. Pituitrin and Adrenalin Injections in Hay Fever. Ernest Zueblin.
3. Analytic View of the Psychic Factor in Shock. George M. Parker.
4. Adenopathic Hyperchlorhydrias. D. M. Kaplan and J. G. William Greeff.
5. A Post Mortem on Twilight Sleep. Harry Aranow.
6. A Survey of Ear Conditions in Young Children. E. Willis Kobler.
7. Scarlet Fever and Epilepsy. Harman Friedel.

6. A Survey of Ear Conditions in Young Children.—E. Willis Kobler has examined the ears of 500 school children in New York City and his observations have led him to the conclusion that discharge from the ears of young school children is more prevalent than is usually supposed. He points out that this is of vast importance as bearing on acuteness of hearing in later school life. The number of cases of impaired hearing in later school life, however, is relatively small, which may be explained by the fact that in many cases corrective treatment has been instituted and tonsils and adenoids removed. Many cases of defective hearing do exist nevertheless, and may be accounted for by the neglect and refusal of parents to remedy defects, deformity of the nasal septum which cannot be corrected in early age, abnormal collection and deposit of cerumen coupled with uncleanliness, catarrhal conditions of the nasopharynx with incomplete and insufficient instruction in nasal and oral hygiene, and the lack of adequate instruction in aural hygiene. Home remedies and adjuncts for earache are also frequently harmful. The author believes therefore that a special extended survey and examination of the ears of school children should be made with reference to the conditions mentioned.

The Journal of the American Medical Association.

July 13, 1918.

1. Surgery of the Gall Bladder and the Biliary Ducts. E. S Judd.
2. Indurative or Rheumatic Headache. Hugh T. Patrick.
3. Interpretation of Negative Laboratory Findings in Syphilis, with Special Reference to Treatment. Albert E. Sterne.
4. Visceral Symptomatology in Nervous Diseases: Grave Dangers of Misinterpretation and of Unnecessary Surgical Intervention. Francis X. Dercum.
5. Nasmyth's Membrane Epithelial Debris and the Granular Layer of Tomes. Eugene S. Talbot.
6. Observations on Throat Smears in Measles, Rubella (German Measles), and Scarlet Fever. Ruth Tunnicliff.
7. Rupture of the Uterus Through the Cesarean Section Scar. Emil Novak.
8. Apparatus for Artificial Pneumothorax. Charles M. Montgomery.
9. A "Schreiber" Adapter for Intravenous Injections. J. H. Stokes.
10. A New Inhaler for Nitrous Oxid Anesthesia. Albert H Miller
11. Method for Staining the Diphtheria Bacillus. Foster A. Beck.
12. Trench Fever. A Report of Clinical Observations and Research as to the Etiology, Pathology, Prophylaxis and Treatment of Trench Fever Among Troops. Major W. Byam, Captain J. H. Carroll, Lieut. J. H Churchill, Captain Lyn Diamond, Lieut. L. Lloyd, Captain V. N. Soramure, and Lieut R. M Wilson.

1. Surgery of the Gall Bladder and Biliary Ducts.—E. Starr Judd. (See MEDICAL RECORD, June 29, 1918, p. 1143.)

2. Indurative or Rheumatic Headache.—Hugh T. Patrick points out that rheumatic or indurative headache, though not common, is far from rare. A knowledge of its symptoms is worth while as it may be mistaken for serious intracranial disease or for an unimportant functional headache, and because if not correctly treated it may continue for months and years, while proper treatment practically always cures it. It may be acute, but is usually subacute or chronic, is most frequently met with in patients over 40 years of age, and more often in women than men, in the proportion of four to three. The pain may be intense or merely nagging, and is steady with remissions and exacerbations. In the acute cases the pain never ceases but fluctuates; in subacute cases complete intermissions are few and short, remissions are longer but rarely for more than a few days. On the whole the pain is apt to be worse in the afternoons and evenings. Nausea and vomiting are not present. The pain is usually occipital or suboccipital and may radiate to the vertex, the frontal or the temporal areas: it is never frontal or vertical alone, and rarely temporal. It is more often bilateral than unilateral, and though the patient speaks of it as headache, it is almost confined to the back of the neck with radiations upward, and for this reason the writer has labeled the cases "arthritic headache." Tenderness to deep pressure is present, especially in the lower occiput and lower neck. Other evidences of so-called rheumatism are also present, such as pain on movement of the neck and, sometimes, in the spinal joint, shoulder, hip, and even the smaller joints. The headache is worse after exposure and is aggravated by physical exertion and frequently by mental application. Patrick believes the condition to be due to infection usually from some focus in the head—the throat, teeth, ear, sinus, or suppurative rhinitis, though a study of the literature throws little light on this. He attaches no importance to the theory, put forth by the masseurs and widely accepted, that the cause of the condition is to be found in nodes or strands, and points out that these nodes are found in normal people and frequently absent in persons suffering from rheumatic headache. It is to be noted that in acute cases fever and leucocytosis are always present; in chronic cases they are frequently absent, though repeated examinations, especially during exacerbations of pain, as a rule will show a temperature of 99° to 100° F. and a white count of from 8,600 to 9,000 or 10,000. The rational treatment is to find the focus of infection and remove it. Subacute cases should be treated by rest, heat, and massage. In chronic cases repeated and prolonged applications of heat followed by persistent massage for an hour or more are indicated. The massage must be firm and deep and must be repeated about three times a week for many weeks. The thermocautery may sometimes be used with benefit.

The Lancet.

June 22, 1918.

1. The Goulstonian Lectures on Modern Views on Diabetes and on the Significance of Acidosis in Disease. Lecture I. E. P. Poulton.
2. The Treatment of Severe Relapsing Cases of Malaria Major E. B. Gunson, Captain F. W. Winning, and Lieutenants G. A. Johnstone, J. B. Porter, and G. B. Scott.
3. On the Clinical Aspects of Tuberculous Mesenteric Glands Surgeon Herbert W. Carson.
4. The Sanatorium Treatment of Pulmonary Tuberculosis The Disappearance of T. B. from the Sputum. Noel Dean Bardswell.
5. A Case of Malta Fever Arising in England. Major W. Byam.
6. A Successful Case of Hernia Into the Meso-Sigmoid Fossa Major Gordon Taylor.

1. The Goulstonian Lectures on Modern Views on Diabetes and on the Significance of Acidosis in Disease: Lecture I.—E. P. Poulton reviews the history of the treatment of diabetes by fasting, showing that this is not new. He points out that Allen was the first to define the principle that the diabetic must be permanently underfed, thus indicating the way in which the return of sugar could be prevented. Treatment by fasting has been carried out by Poulton in cooperation with Dr. J. H. Ryffel at Guy's Hospital. It is impossible, of course, to follow the history of all hospital cases, but figures are given to show that the mortality in hospital was only 7.7 per cent. in cases treated by this method since 1916, as compared with a mortality of 23 per cent. in the preceding ten years, and 17 per cent. in Pavy's cases, 1883-1888. Of 49 cases, 36, or 73.5 per cent., were sugar free at some time, and 30 were sugar free for long periods at a time. Seven cases in the septic wards all became sugar free for varying periods. It was found that the treatment by fasting and the subsequent addition of food in small quantities was by far the most successful way of treating diabetes; and there was, moreover, evidence that the life of the patient was prolonged. The advantages of this treatment are that the patient is rapidly made sugar free; it is quickly seen whether the treatment will be successful or not; no medicines or diabetic foods are required; the patient can be taught to test his own urine, and definite rules can be laid down by which he can regulate his own diet. This treatment is not a cure for diabetes. The tolerance for carbohydrate in a severe case does not increase with the treatment; in fact, it may diminish in spite of it, if the disease spontaneously progresses. As for the cause of the success of the treatment, Poulton adopts the view that the tissues of the body, to a large extent, have lost the power of utilizing sugar, and that the hyperglycemia is a secondary result. The explanation of the disappearance of the glycosuria is that the carbohydrate store is largely used up at the beginning of the starvation period, and so there is less drain on the body proteins. Poulton next considers the effect of fasting upon acidosis. It is generally accepted that aceto-acetic and β-oxybutyric acid arise from fat. The explanation of why these are formed to any large extent only when carbohydrate is not available in the organism and the means whereby they are formed have led to much discussion. In regard to Hurtley's view that aceto-acetic acid is formed under normal conditions, but that it is almost entirely katabolized, Poulton points out that the normal person metabolizes both fat and protein in large quantity and that there need not be very much increase in this metabolism after carbohydrate is withdrawn from the diet. Also there must be some qualitative difference in the protein and fat metabolism when ketosis occurs. He further suggests that there is a call for carbohydrate on the part of the organism and this comes from fat, with the simultaneous formation of acid bodies, when no carbohydrate is available. It may be objected that the formation of sugar from fat in diabetes is a much debated point, American workers being absolutely against it, believing sugar to be derived from protein or carbohydrate. The main argument, however, against the view of the conversion of fat into carbohydrate is provided by the D to N ratio. Finally, Pembrey's experiments on hibernating animals are conclusive as to the power of the animal body to make this conversion. Geyelin and Du Bois have shown that as a result of fasting in diabetes there is a rise in the respiratory quotient, accompanied by (1) lessening of acidosis; (2) diminution in the respiratory exchange; (3) lessened sugar and nitrogen output; (4) lowering of the D/N ratio. These facts can be explained only by the assumption that fat is converted into sugar. The lecturer also points out that patients given the treatment under consideration seem to reach a point of equilibrium on a diet, the caloric value of which is lower than that usually regarded as essential for a man taking active exercise. This question has been investigated by Joffe, Ryffel and Poulton, who conclude that patients with diabetes can live on a diet of low caloric value and yet keep their weight constant, because their resting metabolism is permanently reduced, and that it is this lowered metabolism that is the secret of the success obtained by the fasting treatment.

British Medical Journal.

June 22, 1918.

1. An Address on the Significance of Cardiac Murmurs. Claude Wilson.
2. Transfusion with Preserved Red Blood Cells. Captain Oswald H. Robertson.
3. Blood Transfusion in a Field Ambulance. Captain Norman M. Guiou.
4. Amebic Abscess of the Liver. Captain R. J. McNeill Love.

5. Acute Intestinal Obstruction by Tapeworms (T. saginata): Mechanical Blocking of the Ileocecal Valve Necessitating Laparotomy. J. B. Christopherson and Mustafa Izzedin
6. Intestinal Obstruction Due to Diaphragmatic Hernia. Captain L. S. Dickie.

1. An Address on the Significance of Cardiac Murmurs.—Claude Wilson reviews the nature and significance of cardiac murmurs. He lays particular emphasis upon the necessity of considering each case as a whole, estimating the presence or absence of definite signs of cardiac embarrassment, and giving due consideration to the heart's response to effort and more especially its capacity to meet the ordinary—and extraordinary—strains of life. Thus he says: "On no solitary sign shall any heart be condemned." He points out that many of the functional and physiological murmurs so commonly found, especially in the young, are negligible when found in conjunction with a good cardiac response to effort, citing a number of cases which go to prove this. Systolic murmurs resulting from endocarditis are more serious because they are apt to be permanent, to become associated with other murmurs which are not systolic, to be accompanied by vegetations, and because both in pericarditis and endocarditis the myocardium is very likely to be invaded, and the heart muscle damaged, perhaps permanently. Organic disease may be assumed as the rule when cardiac signs and symptoms develop in the course of rheumatic fever, and caution is then, of course, necessary during convalescence. Later on diastolic murmurs may develop or the missed beats of partial heart block may be noted. Should recovery of myocardial tone take place, carefully graduated exercise should be permitted. The condition of the heart muscle is the all-important factor in such cases. It is, moreover, necessary to ascertain whether auricular fibrillation is present, in which case, he points out, the pulse presents an absolute irregularity, no two consecutive beats being the same in time or volume. Many cases of cardiac enfeeblement occur in which a systolic murmur is the only audible sign, but there is always evidence of weakened muscle and often of auricular fibrillation. The outlook in these cases is always menacing and it is probably this association that has invested the mitral systolic murmur with its halo of sinister augury. The signs and symptoms have been attributed to "back pressure" but in reality are due to impairment of the cardiac mechanism consequent on disease of the muscular wall and failure of the auricles to contract; if there is any back pressure at all, it is a minor factor, and proceeds, apart from extreme narrowing of the mitral orifice, equally and simultaneously from both sides of the heart. Although no convincing explanation has yet been offered as to why systolic murmurs are often negligible, Wilson suggests that a consideration of the lesions that give rise to them, and of the effects which are likely to result on the cardiac mechanism and on the heart's nutrition, affords an explanation. On the right side a tricuspid systolic murmur is known to be often physiological and that the regurgitation is generally inconsiderable is shown by the small size of the ventricular wave in the jugular tracing. It is probable that a similar state of things is common also at the mitral valve, while even a more considerable backwave is not serious in an otherwise healthy heart. In the cycle of events the left auricle contracts, and throws its blood into the ventricle, and then immediately dilates and begins to fill again from the large veins, which are not only full of blood ready to pour into it, but must also be actively aspirated by the intrathoracic pressure being lower than the atmospheric. When the ventricle contracts the blood is driven in the direction of least resistance—into the open aorta—and any that regurgitates through the mitral valve is met by the contents of the auricle. Very little will get through for even if the mitral dilatation is considerable the counteracting forces are far from negligible. Moreover, the period during which regurgitation is possible is limited to the duration of the ventricular systole. This is perhaps the main point, for the reserve power of the heart is enormous and depends essentially on an unrestricted blood supply to the myocardium. In stenosis which is due to adhesion of the margins of the cusps, slight narrowing may give rise to a loud murmur; if there is much stenosis there is also incompetence, and we may be pretty sure that if there is no diastolic murmur the narrowing does not amount to much. In the case of disastolic murmurs, the lesions which give rise to them (mitral stenosis and aortic incompetence) produce effects which hamper the mechanical action of the heart and probably result in interference with the circulation in the coronaries. The latter factor is a most important one, for it leads to cardiac inefficiency and eventually to fatty or other degenerative changes. In aortic regurgitation, the process is not limited to the short period of the ventricular systole, but begins as soon as the systole terminates and continues throughout the ventricular diastole, during the whole of which period the backflow from the aorta into the ventricle is aided by the aspirating effect of the dilating ventricle. It is obvious also that there will be interference with the circulation in the coronaries and that degenerative changes in the cardiac muscle will almost certainly result. In short, Wilson states that the new teaching is that systolic murmurs existing alone and without other disqualifying signs and symptoms should be ignored, a truth whose general recognition will free a considerable section of the community from a needlessly restricted life. Diastolic murmurs, on the other hand, have always had a serious significance.

Berliner klinische Wochenschrift.

May 13, 1918

The Treament of Amputation Stumps.—A. Horwitz has charge of a service where all amputated cases are sent for the object of having a prothesis adopted. He divides his cases into two groups: (*A*) unhealed stumps, (*B*) healed stumps, but still not in a condition for an artificial limb. The first group (*A*) offers three kinds of conditions which should be treated each apart, namely: (1) *Granulation of the wound.* Treatment with ointments (zinc, silver nitrate, etc.) or by hyperemia (heliotherapy, hot air). The employment of skin extension, thus giving the integuments a chance to become invaginated on the granulating surface. The operation finds its indications only if the granulating surface is absolutely clean and consists in mobilizing the skin. (2) *Fistulous stumps* should be operated. Remove the ligatures or sutures which keep up the suppuration or look for a sequestrum. (3) Stumps with protrusion of the bone ends due to an inefficient excision at the time of the primary operation or to retraction of the integuments, should be treated by extension on the integuments which may result in covering in of the raw surfaces, but usually this attempt is quite insufficient. Secondary amputation must be done or a plastic operation, with a cutaneo-adipous flap taken from the trunk or other area, but never from the limb involved. (*B*) Soft cicatrics directly covering the bone ends are to be excised, the skin then to be brought over the bone and the latter to be resected again later on if necessary. Painful stumps are to be dealt with by mobilization of the integuments in order to free neuromata and thus put an end to their irritation. Contractures are relieved by massage (*sic*) and passive motion. At the knee tenotomy of the flexors and later supracondylar osteotomy of the femur should straighten the limb to complete extension. Edematous stumps, muscular retraction, etc., are not in condition for a prothesis and therefore should be massaged, bandaged tightly and hardened by alcohol dressings.

Münchener medizinische Wochenschrift.

April 30, 1918

A Modification of the Conradi-Kayser Technique for the Culture in Bile: A Contribution to the Question of Growth of Typhoid Bacilli Taken from the Blood.—Seeliger has endeavored to detect the faults of the present technique of culture of typhoid blood in fresh ox-bile combined with peptonized glycerin. The changes that he has made have allowed the writer to obtain positive results in a greater number of instances, and, particularly, for a longer time during the duration of the disease. The following is, briefly, Seeliger's technique. Several c.c. of the patient's

blood are mixed in 5 c.c. of bile. Shake. At the laboratory, quite a large amount of bile is added to this mixture, and then it is placed in an oven for forty-eight hours. After this lapse of time ten cultures are taken from the surface of the liquid, and ten others from its midst, and then inoculated onto proper culture media. The plates are then placed in the oven until the day following. At the time the twenty cultures are taken, add 3 c.c. broth to the tube of bile, shake and place in oven for twenty-four hours. Should the first cultures remain sterile, inoculate a plate with the bile to which the broth has been added. Reinoculations to the extent of three or four are to be made if plates Nos 1 and 2 remain negative. The table given by the writer shows that plate No. 2 gives positive cultures when plate No. 1 remains sterile. At other times a positive result is only obtained on plate No. 4. This sensitizing technique has permitted one to detect the typhoid bacillus in blood taken from patients in the fourteenth week from the beginning of the disease, a fact which disproves the idea that the organism can only be found in the blood during the first few weeks.

Death Following Blood Transfusion.—H. Kuczynoki reports an interesting case of the death of a man one hour after transfusion of 120 c.c. of blood. At autopsy an occlusion of the small pulmonary vessels due to the detritus of hemolysis, was discovered. The writer, although not denying the utility of blood transfusion, insists upon the necessity of blood examination of both the donor and receptor from the standpoint of their respective hemolytic reactions and that this examination should precede every transfusion.

Deutsche medizinische Wochenschrift.

May 2, 1918.

Generalized Xanthomatosis and Diabetes.—O. Lubarsch offers the following considerations on the genesis of localized or generalized xanthoma, and on its relationship to metabolism and the circulation, based on a personal case history. He concludes that there is a sanguineous inundation of products of disintegration of the lipoids as well as their accumulation in the lymphatic tracts. Local deposits or general infiltration are determined by circulatory stasis and should the stasis subside, the xanthomata may disappear by passage of their lipoids into the general circulation.

Treatment of Typhoid Carriers with Mercurial Cystin.—W. Geiger, having taken up Stuber's experiments (*Münchener medizinische Wochenschrift*, Feb. 19, 1918; MEDICAL RECORD, May 18, 1918) concludes that this treatment is worthless. Stuber's results can be explained by the selection of subjects in a more favorable condition for a rapid cure and also from the fact that this experimenter dealt preferably with paratyphoidal germ carriers. Geiger, on the contrary, was unable to obtain any result in carriers of true typhoid, when this condition had existed for several years. (Even the Huns disagree among themselves.)

A Case of "Transvestitism," with Highly Ovariolytic Blood Serum.—H. Lelewer has observed a male subject offering unquestionably the somatic characters of his sex. In spite of this fact his mental feminism was revealed by certain peculiarities in his sexual life, although there was no true homosexuality. Besides, this man had a decided desire to wear female attire (transvestitism). The patient's blood serum, examined by Abderhalden, showed a large percentage of substances destroying ovarian tissue. Lelewer looks upon this case as a proof of modern ideas concerning hermaphroditism. This phenomenon is due to the persistence, in the sexual gland, of endocrine elements of the opposite sex to that of the bearer of these elements. This peculiarity is quite compatible with an external secretion absolutely unisexual in nature, as is made evident by the case history recorded by the writer.

Wiener medizinische Wochenschrift.

May 18, 1918.

Operative Shortening of the Styloid Apophysis in Disturbances of Deglutition.—L. Rethi has had occasion to attribute pharyngeal pain in two patients to an excessive length of the styloid apophysis. These cases were characterized by the uselessness of medical treatment (cocaine, iodine, argenti nitrate) and by a hardness at the level of the tonsil. The incision of this organ, followed by excision of 1 centimeter of the styloid apophysis, resulted in a complete disappearance of the pain. Rethi next passes in review the rare cases in which this operation has been resorted to; sometimes only causing fracture of the apopyhsis without excision. This, being accomplished with the finger, may give the same results as the open operation performed by the writer.

The Objective Test for Ascertaining the Reality of Deafness or Diminution of Hearing.—M. Falta employs Bárány's apparatus for the introduction of a rapid and momentaneous sound which can be set up by merely pressing on an electric button. The subject under examination reacts against this unexpected noise by movements of the eyelids and a tremor involving the entire body, when the case is one of simulation. The writer affirms that a deaf person or one that does not hear the spoken voice at a distance of 10 centimeters will never offer any of these reflex manifestations.

Project of a New Program of Medical Study.—R. Stigler states (as medical teachers outside of France and Germany know only too well) that anatomy is, generally speaking, taught in too great detail, much to the detriment of both general and synthetic instruction of the human body. Histology should be taught in its relations to the functions of the organs studied. On the other hand, physiology, which is the fundamental branch of medical study, is too much neglected. A special term should be given up to it, as is done at Harvard (at the University of Geneva it is three terms), as it is in this branch that the personal work of the students should be encouraged by lectures, discussions, etc. Besides, Stigler would wish to see a clinical service connected with all institutes of physiology, in order to present to the students the functional disturbances in man in conjunction with provoked experimental disturbances in the animal.

Journal d'Urologie.

March, 1918.

Management of Inflammatory or Traumatic Strictures of the Urethra in Soldiers.—Pasteau makes two types of cases. First, the complication is more important than the stricture. Unless these subjects can be made to care for themselves they should be invalided to the rear. Second, the stricture is the important thing. If it is of gonorrheal origin dilatation will usually render the subject equal to military service. This resource, as well as internal urethrotomy, will have to be rendered at a special genitourinary station in the army or in the interior. If the stricture is traumatic dilatation will be of no avail save in the mild case and the subject should be treated by urethroplasty at some one of the civil centers for genitourinary work. No patient with uncomplicated stricture should be discharged outright from the army. The complications, as a rule, will not prevent the soldier from all forms of military activity, for if incapacitated from full military duty he can be utilized in the auxiliary service. Only in very severe complications such as fracture of the pelvis, complicating a wound of the urethra, will it be necessary to retire the victim outright.

Management of Traumatisms of the Kidney in the Dressing Sections at the Front.—Noguès lays down the following rules: Immediate intervention is called for in trauma of the kidney and ureter only in presence of a serious hematoma, a profuse or prolonged hematuria or a projectile lodged within the kidney. Escape of urine from the wound does not straightway necessitate a nephrectomy. The latter operation, in the interest of the best economy, should not be performed save in case of absolute necessity. In case of doubt as to the existence of a uretorenal lesion the hospital card should mention all of the phenomena which might eventually aid in making the diagnosis.

Urethral Calculus.—Maringer relates the case of a urethral stone which formed behind a congenital stricture seated at the juncture of the spongy and membranous portions. The patient was sixty-five years

old, of feminine or infantile appearance. There was marked hypoplasia of the genitals, including absence of a prostate. Patient seems to have been unaware that anything was wrong until retention suddenly set in. There was no cystic reaction. The stone was originally of calcium oxalate with a urophosphatic secondary deposit. The stricture was dilated until the stone could be expelled by the patient.

Le Progrès Médical.

March 30, 1918.

Acquired Morbid Fear.—Voivenel states that the present war is a grand laboratory for the study of the emotions and emotionalism—of the intellectual and emotional alterations of the wounded. It has been shown that a symbiosis of neuropathic and circulatory phenomena is very common, some of the latter being actually due to implication of endocrine glands (thyroid, adrenal). In commotional conditions there is an emotional factor and the so-called mental confusion of warfare may perhaps prove to be a special psychosis. A subject of the greatest importance in this connection is predisposition. That a notable one exists is of course recognized by all and the sole question for agitation is the possible absence of predisposition. Under the latter term something more than heredity may be comprehended, for acquired states may serve as predisponents. Hence we may find in one subject two kinds of predisposition, to wit, neuropathic inheritance and some acquired state, such as syphilis or alcoholism, or a severe wound or commotion. In not a few cases several powerful predisposing factors exist side by side. A distinction is also possible between immediate and remote factors. In passing to the subject of morbid fears the author makes four causes, of which one is essentially predisposition, the others being commotion, somatic defects, and emotion in the stricter sense of the term. Bases of each are given. The first occurred in a debile of undoubted courage, who failed to appear when his battalion was ordered to form ranks. The testimony of his corporal made it evident that the soldier was in a state of stupor due to fatigue and emotional stress incidental to the campaign. His past record as a soldier was excellent. He was acquitted of breach of discipline and later retired as unsuitable for fighting. A second soldier suffered from post traumatic mental confusion and, despite a fear of being wounded, had remained at his post until during a bombardment a shell fell near him, upon which he fled from irresistible impulse. He also was acquitted. Under the head of somatic defect would come cases of Graves' disease and hereditary cholemia, which are cited by the author. Both subjects were officers who had been of conspicuous bravery. One had recently been through influenza, while the other had been gassed. Both, who had been seized with a panicky fear, were acquitted and ordered to rest up and recuperate. Under the head of pure emotional cause several cases of irresistible fear are given. An artillery man who had shown fear at seeing his comrades killed in battle and who did not improve in this respect, was ordered by his colonel to sleep in the artillery park—not as a punishment, but for his own good. Two months later he became an aviator and died on the field of honor. Another soldier with only a slight element of predisposition developed as a culmination of a series of small emotions an anxiety neurosis as a result of which he had to be retired from the ranks for a long period.

La Presse Médicale.

April 8, 1918.

Ablation of Rectal Cancer by the Coccygeo-Perineal Route.—Demarest by combining these two routes of attack in the interest of saving the sphincter, has during the past 3 years operated on 21 patients out of 40 who presented themselves with cancer of the rectal ampulla. The technique is not original, for the author states that it was published by Cuneo in 1908. He makes his first report of his experience with the intervention. Rectal cancer is relatively slow of evolution and often no lymphnode metastases develop. If then we establish an iliac anus we often confer upon the patient 3 years of not too burdensome survival. But this fact, so far from contraindicating surgery, is actually an incentive to try to cure the case, or would be were it not for rather high operative mortality and frequent bad functional results. Everything must depend on the diagnosis of operability, and here belong the cases of the inferior portion of the ampulla and anal canal. Cancers above or level with the tip of the exploring finger are always serious from the operative viewpoint. The author's personal experience shows that relatively benign cases occur as high up as the middle of the ampulla. Of the author's 21 cases, 15 were of this quasi-benign type. In this series there was one postoperative death from pulmonary congestion. In cancer above this level the results are far from encouraging, although better in women than in men. He would no longer operate for these high growths in the latter. In four such cases he failed to accomplish any good and two patients died of the operation. Of the others, one succumbed of secondary operative mortality, while in the other it was necessary to make an iliac anus. Of four similar cases in women but one ended unfavorably, while another was left with a fistula. In addition to five deaths he has had two recurrences, one of which supervened very soon after intervention. There are therefore 15 patients living and free from recurrence (slight discrepancies in the author's figures are probably due to citation of certain cases before the 3-year period). In regard to functional results, 11 subjects are free from anal deformity and the integrity of the sphincter is demonstrated by its contraction upon the exploring finger. However, there is incontinence for gas, and fluid feces are not completely retained. These patients when somewhat constipated have excellent control. However, the tendency in these cases is toward increased tonus of the sphincter which is sometimes regained at an early period.

Norsk Magazin for Laegevidenskaben

March, 1918.

Mercury Idiosyncrasy.—Gjessing refers to the relative infrequency of idiosyncrasy to mercury. Several important reference works ignore the subject. The following case is narrated. A woman aged 35 consulted the writer for a left-sided affection of the lacrymal passages. A probe was passed into the inferior canaliculus and some adrenalin sublimate solution instilled, most of it escaping by the nose. In the evening patient presented marked edema of both eyelids and face, extending to the throat. There were no evidences of an inflammatory reaction. Atropine was given internally and boric acid solution locally applied. On the following forenoon the edema had reached the clavicle below and had crossed to the opposite eyelids. Although both eyes were swollen shut there was no chemosis. The patient continued the use of $\frac{1}{4}$ mgm. of atropine t.i.d. and at the expiration of eight days the swelling had all subsided. In investigating the case in detail it was found that the patient was about 6 weeks pregnant. She had never shown any food idiosyncrasies. When cocaine had been used as a dental anesthetic no trouble had resulted. The only unusual discovery was a tendency to form suggillations at the site of minimal traumatisms, but there was no suggestion of true hemophilia. She had gone through three pregnancies without morbidity, but during the last had presented headache and albuminuria without influence on the course of gestation. We know that most subjects can tolerate mercury locally, although some react with erythema, etc. In mercurial idiosyncrasy a minute dose is sufficient to provoke it. In several recorded cases minute quantities of white precipitate and other mercurial ointments when applied for blepharitis have caused extreme swelling of the lids with chemosis of the bulb. Yet we know that calomel, sublimate solutions, and various ointments are used in routine in eye clinics throughout the world and that idiosyncrasy to such drugs may never have been encountered by some clinicians. Under mercurial idiosyncrasy we must not include cases of chemical reaction in the eye when calomel is applied locally to subjects who are taking iodides internally.

Book Reviews.

Les Plaies de Guerre et Leurs Complications Immédiates. Leçons Faites à l'Hotel-Dieu. Par Henri Hartmann, Professor de Clinique Chirurgicale. Prix, 8 Francs. Paris: Masson & Cie., 1918.

These lectures, which were delivered during the winter of 1916-1917, were intended as a résumé of what has been learned during the present war in respect to the treatment of wounds. The number of lectures is eighteen and the complications discussed include hemorrhage, tetanus, gas gangrene and traumatic shock. The forms of wound discussed involve respectively the soft parts, bones, and joints, while special attention is directed to wounds of the cranium, face, orbits, thorax, abdomen, and the larger articulations. There are lectures on apparatus, amputations, and frozen feet. The volume is illustrated with fifty-eight text figures. The 200 pages are solid descriptive text and there is no padding with case histories. The effort may be said to represent the activities of the Paris Surgical Society in the treatment of war wounds.

Ambulance de "L'Océan" La Panne Travaux Publiés sous la Direction de Dr. A. Depage. Dr. A. P. Dustin et Dr. G. Debaisieux. Tome I. Fasc. II. Prix, 14 Francs. Paris: Masson & Cie., 1917.

The first fasciculus of this work was noted in the review columns of the Record. The present volume of 381 pages and freely illustrated comprises a number of important studies, in which are considered treatment of wounds, bone grafts, post-traumatic lesions of nerves, influence of traumatisms on the choroid plexus, latent sclerosis, histopathology of muscle, flora of war wounds, physiopathologic properties of exudates, antiproteolytic properties of serum, content of blood serum in alkaline reserves, posthemorrhagic anemias, etc. This publication is intended as a serial with two fasciculi annually, but without any fixed dates of issue. Few military hospitals are exhibiting such a utilization of their opportunities and one wonders "how they do it." The mechanical work is also excellent.

Blessures de la Moelle et de la Queue de Cheval. Par G. Roussy et J. Lhermitte. Collection Horizon. Prix, 4 Francs. Paris: Masson & Cie., 1918.

This volume was written to fill a gap in war neurology. That such a gap exists is due to a number of causes. Opportunities for intensive study and for following up cases to end results have been few and the average military surgeon does not see a very large total of these injuries. The latter are divided into complete and incomplete division of the cord, commotion of the cord and lesions of the cauda equina. There is a full chapter on complications—meningomyelitis, eschars, urinary infection, thoracic and abdominal complications, edema and arthropathics. Among the typical operations described are laminectomy, meningo-myelorrhaphy and meningorrhaphy. The volume is illustrated with eight plates.

Handbook of Operative Surgery. By William Ireland de C. Wheeler (Mod)., B.A., M.D. (Dub. Univ.), F.R.C.S.I., Lieut.-Col. R.A.M.C. Surgeon to Mercer's Hospital; Member of Council, Royal College of Surgeons, Ireland; Surgeon to the Military Orthopedic Center, Blackrock, and Hon. Surgeon to the Forces in Ireland. With an Introduction by Surgeon-General Sir Alfred Keogh, G.C.B. Third Edition. Octavo of 364 Pages, with 226 Illustrations. Price, $3.50. New York: William Wood and Company. 1918.

This work is intended for junior practitioners of surgery and is essentially an elementary work. In view of the fact that just now British graduates from medical schools immediately enter war service, the author planned to give the greatest space to subjects of the greatest immediate importance under such conditions. Thus we find at least one-third of the book devoted to ligations and amputations. Operations of urgence, such as tracheotomy, are clearly and concisely described, and there are short descriptions of most of the major as well as minor operative procedures. In a book of such elementary character it seems strange that so much space is given to tendon and nerve surgery, for certainly the fledgling surgeon will not be entrusted with operating in such cases, while the more experienced surgeon will require more exhaustive discussion of the subject for it to be of much value to him. The chapter on transfusion is much out of date as far as this country is concerned, for there is no mention of the methods of Lindeman, of Lewisohn and Weil, or of Unger. Charts showing the channels of collateral circulation after ligation of principal arteries are very instructive. The illustrations are usually good, but not always co-ordinated with the text. Considering the size of the book and the intentional brevity of descriptions, the author has produced a work which well answers the purpose for which it was intended.

Shall Disease Triumph in Our Army? A Plea for the Reorganization of the Medical Department of the United States Army. By Major Louis Livingston Seaman, Late Surgeon-Major, U. S. V. E., New York. Published by American Defense Society, Inc. No date.

The date of the preface of this work is 1906 and it is said to consist of extracts from a volume entitled "From Tokio Through Manchuria with the Japanese," which appears to have been published by the Appletons in 1904, and from the author's "The Real Triumph of Japan," published by the same house in 1906. The American Defense Society contributes no preface or introduction and the object of reissuing the book is unknown. One who reads the paper cover gets the impression that the book is a reflection on the present medical department of our army. The work is, of course, a glorification of the medical corps of the Japanese army. Since that period military medicine has been revolutionized in certain directions, notably the immunization of soldiers, and our medical corps is certainly not behind that of any other country in progress and efficiency.

The Spleen and Anemia. Experimental and Clinical Studies. By Richard Mills Pearce, M.D., Sc.D., Professor of Research Medicine. With the assistance of Edward Bell Krumbhaar, M.D., Ph.D., Assistant Professor of Research Medicine, and Charles Harrison Frazier, M.D., Sc.D., Professor of Clinical Surgery, University of Pennsylvania. 16 illustrations, color and black and white. Price, $5.00. Philadelphia and London: J. B. Lippincott Company.

The relation of the spleen to anemia has long been a source of much scientific interest and speculation. In the present volume the authors have endeavored to clarify our knowledge of the subject and have added extensively thereto from their own researches. The problem is approached from the experimental point of view. The experiments were carried out on dogs over a period of five years and reveal a large amount of painstaking work. The book is divided into three parts. The first part, which is written by Dr. Pearce, deals with the effect of splenectomy in dogs; with the supposed regulatory influence of the spleen in blood destruction and regeneration; with changes in the bone-marrow after splenectomy; with changes in the liver and lymph nodes; with metabolism studies before and after splenectomy in dogs and man. The data derived from these researches form the basis of the clinical observations contained in the second part, written by Dr. Krumbhaar. This part is concerned with the classification and analysis of types of splenomegaly accompanied by anemia, such as splenic anemia, Gaucher's Disease, Banti's Disease, Von Jaksch's Disease, acquired and congenital hemolytic jaundice, and pernicious anemia. Methods of diagnosis, prognosis, and treatment (other than splenectomy) are discussed from all angles. Particularly valuable are the diagnostic procedures detailed in connection with the various types of splenic disease. A final chapter, comprising the third part, is devoted to the surgical technique of splenectomy and the preparation and after-care of the patient. This part is written by Dr. Frazier and leaves nothing to be desired.

A list of 486 references to the literature is appended. The book contains several excellent plates illustrating the histopathology of the clinical types of splenomegaly associated with anemia, as well as the different steps in performing splenectomy. The work forms a distinctive and noteworthy addition to our knowledge of an obscure problem.

Society Reports.

ASSOCIATION OF AMERICAN PHYSICIANS.

Thirty-third Annual Meeting, Held at Atlantic City, N. J., May 7 and 8, 1918.

DR. F. H. WILLIAMS OF BOSTON, PRESIDENT.

(*Concluded from Vol. 93, page 1068.*)

The Course of Myelocytic Leucemia as Influenced by Splenectomy Following Radium Treatment.—Dr. H. Z. GIFFIN of Rochester, Minn., gave this paper. He said the history of splenectomy for myelocytic leucemia was a very tragic story. Few cases with recovery had been reported. There was a 93 per cent. mortality. If reduction of the spleen before operation by means of radium could be effected, the mortality could be considerably lowered. Twenty cases were now reported in which radium treatment had been given preliminarily. Of these nine patients had died after varying lengths of time, one year or more. Of the living patients the disease had apparently progressed as it would without splenectomy. It did not seem to have been altered in any way. The only advantage was an addition to the comfort of the patient. Whether this was a justification of the operation Dr. Giffin was not prepared to say.

Dr. G. DOCK of St. Louis said that he had a case, the patient being a man of sixty-one, who had never had occasion to consult a doctor for any illness and had been doing active work for forty years. He had an administrative capacity at a university. He was a big eater, but took little exercise. He was apparently vigorous, but medical men would look upon him as arteriosclerotic. He denied syphilis and had no scar, but the Wasserman was 4+ and it was found that he had a marked arteriosclerosis. After a Christmas dinner he was returning to his house and climbing a small hill, when he felt a severe pain radiating down the left arm and was obliged to stop. The physician who attended him said it was angina pectoris and high blood pressure, and gave him nitroglycerin. The man went to work until January 6, when he had another attack and was brought to the hospital. He had air hunger to a marked degree and the larynx worked with extreme violence. Morphine and atropine relieved his symptoms. He never got over the orthopnea. Later he developed hydrothorax. Dr. Robinson took the electrocardiogram and, without knowing that a diagnosis of coronary thrombosis had been made, he stated that the absence of the T-wave would suggest coronary obstruction. The patient died of double hydrothorax twenty-three days after the first angina pectoris attack. Post-mortem examination showed very marked syphilitic arteriosclerosis. There was thrombosis of the descending coronary with an infarct three weeks old.

Dr. E. LIBMAN of New York said that the subject of coronary thrombosis was one of the most important in clinical medicine. Many cases no doubt occurred, but autopsies were few. The question of how long a patient might survive was an important point. The patient could be recognized by the color of his face, which was peculiar and which indicated that at some time or another the patient had suffered from coronary thrombosis. Sansom had given a description of the color, but had misinterpreted the cause, which he thought was aortitis. Such patients, he said, had a peculiar leaden tint or earthy hue of the skin, which always indicated closure of the coronary. Aortitis usually had an ashen pallor. Such patients did not stand operation well, but became pulseless and went into a condition which was misinterpreted as shock. The question as to what part of the coronary was involved was important. One could sometimes say that the right branch was closed, but there was usually a left coronary thrombosis. In several cases Dr. Libman said he had been able to diagnose right coronary thrombosis. This was apt to be accompanied by a very marked enlargement of the liver. This was important for diagnosis and different from the pain of the liver that was sometimes noted. Further progress in diagnosis would have to be based upon electrocardiographic studies. In course of time one would be able to say which part of the heart muscle was involved.

Dr. S. J. MELTZER of New York said that he would like to say a word on the experimental side. It should be kept in mind that human cases were not identical with ligation cases. Ligation affected other tissues. It might be nervous structure (in spite of the myogenic theory) or it might be the conductive system. One could not be sure that the ligation was thorough enough or permanent enough. Ligation was not the same thing as thrombosis. It would be well to repeat the old experiments from a new viewpoint—to occlude the coronary artery without ligation. He would like to know what method was used for artificial respiration. With intertracheal insufflation a good surgeon could close up the lesion peripherally so the dog would be in a normal state.

Thrombosis of the Coronary Artery.—Dr. J. B. HERRICK of Chicago presented this paper. It was stated that death need not immediately follow obstruction of the coronary artery. Cases were commoner than was supposed. An accurate diagnosis could be more frequently made. Cases might be arbitrarily divided into four groups: (1) Those with instantaneous death; (2) those in which death soon followed; (3) those in which death occurred weeks or months later; (4) a hypothetical group, in which symptoms were very slight, being merely an obstruction of the twigs of the artery. The third group was important. In such cases patients had frequently had angina pectoris and they described the occurrence of the coronary obstruction as the most acute and prolonged attack they had ever had. The pain usually was referred to the epigastrium. Occasionally it simulated an acute abdominal syndrome and careful differentiation was necessary, as unnecessary operations were sometimes performed. In regard to experimental work on this subject. The ligation of the coronary artery in dogs had been done and the electrocardiogram studied. Dogs could live weeks and months after the ligation or might finally recover. In certain ligations the lesions were produced in the myocardium. They were most marked in the endocardial or subendocardial locality, or conductive region of the heart. Such phenomena as auricular or ventricular fibrillation were produced with changes in the electrocardiogram in the T-wave. This work might interpret abnormalities in the human electrocardiogram and later work might serve to show just which branch of the coronary was obstructed. The work, it was hoped, would be confirmed by autopsy findings and study.

Dr. H. A. CHRISTIAN of Boston said he would like to refer to two groups of cases mentioned by Dr. Christian. The first, those with symptoms below the diaphragm, which simulated abdominal conditions. These were frequently operated upon. A diagnostic point was the remarkable fall in systolic blood pressure. The diastolic pressure was little altered. The pulse pressure was strikingly small. Another group of cases was that in which thrombosis took place with very few symptoms; the patient, while sick, did not present a characteristic picture and the sudden death of the patient caused surprise. This was caused by rupture through the softened heart wall and death from hemorrhage. From a pathological study of these cases it was evident that a chronic thrombosis had taken place, but when it had occurred it produced very few symptoms.

Dr. HERRICK, in conclusion, said that it was not possible to duplicate exactly the diseased condition as it occurred in man. The method of ligation of the coronary with silk was used. The dog was etherized and tracheal insufflation was done. This opened a great field for experimental work in the way of producing chronic obstructions. In the human subject the occlusion of the coronary was not always complete. In animals many remained healthy for some months. They were then killed. Dr. Smith lost one animal in the ligation process. He had expected that someone would raise the question as to whether these electrocardiograms were produced by digitalis. They were not so produced.

The Serum Treatment of Meningitis.—Dr. SIMON FLEXNER of New York read this paper. He said that his remarks would be of an introductory character, the speakers who would follow would dwell on the more specific points of the subject. He would recall the historical sequence of events which would explain the progress now being made. The serum treatment of epidemic

meningitis began in 1907. It corresponded with the decline of the severe wave of epidemic meningitis which spread over Europe and America in 1904-5. At the time there was a general confirmation of the work of Weichselbaum, who found that the meningococcus was the cause of meningitis throughout the world. For the first time then figures were obtained as to the mortality of the disease, diagnosed bacteriologically, and also of the prevalence of any other cases of meningitis. A notion of the mortality according to localities and the fluctuations in mortality and incidence according to districts was also obtained. That epidemic gave a satisfactory etiological basis to work upon and a definite basis of mortality on which could be erected a conception of the value of therapeutic measures. At that time arose the conception of the serum treatment of meningitis. There had been earlier experiments, but with the increase in knowledge of immunology relating to many other bacteria, corresponding tests were made relating to meningococci. No serious effort had been made, however, to use antisera before 1906. Before discussing how the serum came to be supplied, one must ask what the idea was of the pathogenesis of the disease at that time. It was known that the meningococcus of Weichselbaum caused the disease; that this organism localized very quickly in the tissues of the central nervous system. It was found present upon the nasopharyngeal mucous membrane, both in persons having the disease and in healthy persons. The latter were called "carriers" of meningococci. The localization of the meningococcus on the nasal membrane, where it did no harm, and its presence in the meninges, where it did great damage, raised the question as to how it got from one place to the other. There was no agreement as to its mode of penetration. If blood cultures were made in persons in the first days of the disease, positive cultures were often obtained. The significant point was obvious—it first got into the blood, from thence into the meninges, or perhaps secondary infection of the blood took place. Both of these suppositions would account for the pathological process. The meningococcus might penetrate the blood stream, because at certain periods of the disease metastatic infections occurred. With involvement of the meninges were seen involvement of joints, thorax, eye, etc. It was clear that the organism could penetrate the blood, but there was no decision as to whether meningococci on the nasopharynx could penetrate directly through the lymphatic connections of the nasal mucous membrane into the blood, thence into the meninges. On the whole, the opinion was that blood infection was secondary and that the meningeal infection was lymphatic, by direct extension. Quite another conception was now held of the mode of infection, on the basis of which better practice had been established. Practice, based on the older opinion, was influenced by the circumstances under which cases came under clinical observation. These cases appeared in the civil population. They were observed for hours, days, or weeks before diagnosis of meningitis was made, perhaps before it could be made, and when these cases were observed there was a well established infection of the central nervous system. Under these circumstances it was obvious that antisera, to be effective, must be injected directly into the subarachnoid spaces. Studies since that time indicated that this was the correct procedure and that to use other means was to lean on an insecure reed. The bacteriemia, however, should also be given attention. If the antiserum was effective in the meninges, it would probably also be so in the blood. It was argued that serum introduced into the meninges found its way into the venous blood and became absorbed. It was thought that the blood infection, occurring late in the disease, could be reached and controlled through the subarachnoid space. Upon this question military organization had thrown a new light. With men entirely under medical control very much improved technique could be instituted. Many cases, it was found, could be aborted by early intravenous injection of the serum so that the character of the case was changed. This situation was now entirely appreciated in this country and a glimmering of it was dawning abroad. Another important point now being realized was that (according to Dopter's work in 1909) the meningococcus was not a fixed form, but involved a group, just as dysentery organism formed a group. Two strains might be distinguished culturally, but not clinically. Each strain had a number of variants. Specific therapy, to be effective, must be truly specific. It must be applied to variations in types of the microorganism. Dosage must be in accordance with immunological relationship. Antibodies must be adapted to antigenic properties of the organism. At present a movement was on foot to substitute a monovalent serum for a polyvalent meningococcus serum, just as soon as the exact type of organism could be obtained. Whether this would be a great advantage only the future could tell. Dr. Flexner said he hesitated to express an opinion, as the work necessitated a large staff of trained bacteriologists to examine the strains. It would take a long time to train enough men to make the procedure sufficiently accurate and safe. These reasons, however, would not be lasting, and it was impossible to produce a polyvalent serum of as high a type of specificity to a type, as the monovalent serum. This aspect of the subject was now under careful investigation.

Intravenous Serum Treatment of Cerebrospinal Meningitis.—Dr. W. W. HERRICK of New York made this presentation. He said that in the military cantonment life there had been an unusual opportunity for clinical research, and this had been used as a means of making and keeping men fit for active service. Epidemic cerebrospinal meningitis had received special study. Cases had been seen early and it was thus possible to control them effectively. It was stated that the disease was not primarily a meningitis, but took the form of sepsis in the blood stream, which later localized in the meninges. Forty-five per cent. of the cases were discovered in the pre-meningeal stage, with generalized infection and no local involvement. About two weeks after the blood stream infection the meningitis was present. One case was seen, the patient being the head nurse in the ward, who had polyarthritis, due to meningococci; she was treated with antiserum intravenously and made complete recovery. Complications of the disease were many—pleuritis, orchitis, pericarditis, arthritis, etc., were noted. Early cases responded at once to intravenous treatment. The method of treatment was similar to Cole's method with lobar pneumonia. The patient was given a desensitizing dose at the earliest possible moment, then after a dose of morphine and atropine was given a test dose of serum intravenously. The serum was introduced slowly, at a rate of not more than 1 c.c. per minute. If untoward signs appeared the treatment was suspended, but renewed a little later. As much as a 150 c.c. dose had been given in serious cases. Treatment with large doses had proved of value and it was found that cases receiving 500 c.c. did better, and that there were fewer deaths. If the intravenous treatment was to have any success at all, it had to be used boldly and in large amounts. The intraspinous method had not been neglected, but it was not used in the pre-meningitic stage. The combined treatment had been successfully applied. In serious cases, with the patient unconscious and covered with a rash, recovery to the point of being out of danger had been seen within forty-eight hours. The largest intravenous dose that had been given was 705 c.c. and the greatest number of injections ten. Disappearance of the meningococci was seen within a few days. These cases had shown very little delirium, which was characteristic of the 1904 epidemic. It was felt that if the cases could be diagnosed early and treated by the intravenous method, and the later cases treated by the combined method, that the mortality could be kept down to 15 per cent. These epidemics would in future be considered with more equanimity than they were in the past.

The Essential Properties of a Potent Antimeningococcic Serum.—Captain H. L. AMOSS, M.R.C., read this paper. There were three essential points to bring out: (1) passage of immune bodies from the blood to the spinal fluid; (2) mechanism of infection; (3) essential properties of the antimeningococcus serum. The passage of immune bodies in poliomyelitis was studied and was considered possible only under the conditions of increased permeability of the choroid plexus. It was supposed this would hold true with the meningococci. This was measured by agglutinin reaction in the cerebrospinal fluid. With a greater degree of inflammation

the agglutinin would go through in greater concentration. After an intraspinous injection there was disappearance of agglutinin from the blood in 7 hours. There was noticeable a blocking effect on the immune bodies in the cerebrospinal fluid after intravenous injection. This had not been definitely measured as yet. It was found that unless the permeability of the meningochoroid plexus was increased there was no passage of antibody. A certain accumulation of immune bodies was first necessary in the blood stream to produce this effect. As to the mode of infection—a virulent culture of meningococci introduced intraspinously would cause meningococcaemia in a few hours. It remained to be seen whether the organism in the blood stream would produce meningitis. This did not follow, although the organism remained viable 48 hours. Meningitis was not produced in the monkey by this means, although it should be remembered that the monkey was a comparatively insusceptible animal. In regard to the antisera: Reactions were always complicated by differences in the strains. The sera produced by the parameningococcus being very different from those produced by the regular meningococcus. To get a potent serum the antibody zone should be raised. Less specific antibodies as well as the agglutinins were necessary factors. In sera which gave markedly different results in treatment, there was no difference to be detected except that of agglutination. In the making of a monovalent serum the difficulty of getting cultures was a great drawback, not more than 50 per cent. of cultures being obtained. It was doubted whether a high enough titer could be obtained with the monovalent serum to warrant the efforts spent in its production.

Dr. William H. Park of New York said that the laboratories producing serum were in great difficulties as to how to get the best serum. Dr. Amoss had said that the agglutinating properties were the chief differences in the antisera and that the agglutinating power was a measure of the curative power. This was not the case with the pneumococci. Why should the agglutinating power be a measure of the curative power when the sera were equal in infectious power? The anti-infectious power was the curative power. The agglutinative power did no doubt show whether the serum matched the strain, which the complement fixation test did not show in this case. In the treatment of cases at the Board of Health laboratory in New York they had not been able to prove that the serum produced a large number of strains differing in its curative power. That, it was thought, was borne out by the pneumococcus serum. The best were those weak in agglutination. Dr. Flexner had said that he doubted whether the cases among the civil population would show the benefit of intravenous treatment. In the last few years the Board of Health had noted a mortality of 22 per cent. in New York City. The giving of a subcutaneous injection to a child had been mentioned, that was done in the earliest cases in New York City. It would not be wise, however, unless the intravenous method was found impossible.

Dr. Henry Koplik of New York said that these differences in the civil and military aspects of the disease were interesting. Granting that, as Dr. Herrick had said, the cases were at first a generalized sepsis, in some instances this was so mild as to be inappreciable. In a great majority of cases of children, in civil life, the localized manifestations would call for more intensive treatment than that for general sepsis. Several cases had recently been seen where the constitutional element was more predominant than the meningitic element. A child, in apparently good health, was taken with a convulsion, became covered with petechial rash, became unconscious and then died. No meningococci could be shown in the smear or in the cerebrospinal fluid. Such cases could be reached by intravenous injection. In spite of the low mortality, these methods could save a few more lives each year than was being done at present.

Dr. S. J. Meltzer of New York said that Dr. Flexner had not mentioned one point and he had expected to hear it stated by Major Herrick, that was how the epidemic terminated and the reason for it. This was an omission of a very important point. In regard to the passage of the infection through the choroid plexus: as soon as the entry of infection was supposed to be the nose and throat, it was very natural to consider the idea of an ascending infection which would finally pass through the choroid plexus. It had been said that it passed by way of the lymphatics; of course, if it did that, it entered the blood stream. It should be said that the infection passed through the lymph spaces. Dr. Meltzer said he never could understand why it should be the choroid plexus alone that was affected; if the blood stream was reached and the arteries, the cord and parts below the cord would be involved. Since there was no definite evidence that the central nervous system could not be reached by the blood at the same time that other organs were affected, he would like to ask for an expression of opinion why there was no involvement other than the choroid. He would rather say that the capillaries and other parts of the central nervous system also suffered change in permeability.

Dr. L. F. Barker of Baltimore said that complications like polyarthritis, pericarditis, etc., came late in the disease. If bacteriemia were present one might expect complications of that kind. In the gonococcal bacteriemia after urethritis there often occurred a polyarthritis which later became suppurating. Infection might occur early and only become apparent late in the disease. As to giving intravenous treatment only when general sepsis was present, he would think that it could be used to combat local infections and to discourage any foci that had become established as the result of the bacteriemia.

Dr. E. Libman of New York said that he thought an advantage might be gained by using combined intravenous and intraspinous treatment even in mild cases. He recently had seen a small group of cases where there was panophthalmia and the eyesight was lost. He was sorry that he had not used the intravenous treatment.

Dr. Augustus Wadsworth of the New York State Board of Health said that there was great variation in the potency of the sera produced by different laboratories. It was important for the physician to know what was the potency of the serum he was using as regards agglutinin reactions and the complement fixation test. The only complete statistics were those of the Rockefeller Institute. They kept in touch with the distribution of the serum and the clinician who used it and received reports on all cases. In the literature generally there was no knowledge of the serum used. Commercial sera were not very potent. They were now attempting to produce more potent sera, but there was no exact record of its strength. The regulations required that the potency of the serum be recorded. This was brought about by the action of the Public Health Council through Dr. Biggs. This ought to be borne in mind and more significance attached to the results of sera used.

Major Litchfield, M.R.C., Camp Upton, said they had taken very early to the use of the intravenous injections in all cases. They had a very good man for intravenous and intraspinous work, and he had never had an accident. Slight anaphylaxis had been seen in one case, but it disappeared. Young men were apt to be overconfident when they had given many injections without ill effects being seen, but with the growth of the antipneumococcus and antimeningococcus therapy trouble would be met with and accidents would occur again and again if desensitization was not done. In one case 45 c.c. were given without effect, then 60 c.c. were given intravenously in 20 minutes with very serious result. The method was good and efficient, and in the next 12 months many young men would have to be trained to its use. It was impossible to overemphasize the necessity for caution against accident, no matter how long a series of safe cases had been handled.

Dr. Simon Flexner said, in closing, that in regard to civil practice he would advocate applying the principles taught by military practice. It was a matter for judgment and to where the best point of attack against the disease should be. When there was meningeal involvement the combined treatment could be used for the time being. Dr. Amoss was careful to state that there was a great difference in the treatment of monkeys and of human beings in regard to the meningococcus infection. This was very different to the effect of

poliomyelitis in the monkey. The extent to which antibodies might pass from the general circulation to the choroid was an important question. In reply to Dr. Meltzer he would say that Dr. Amoss had spoken of the meningochoroid complex, not alone of the choroid as having affected permeability. Once the meninges were injured the antibodies could pass through the choroid, and bacteria also. With the meningococcus the position was worse than the pneumococcus for determining the infectious power and the amount of antibodies. Such overwhelming doses had to be given to animals before one could say that the serum had prevented death. In pneumococcus infection one could produce an infection which gave a measure of the infection. One was very far from knowing how to measure antimodies correctly, but one had to use any test that would bring out the important point of specificity. If the organisms produced disease, one had to counteract them. The only test showing specificity was agglutination, so that that method was the one to use at present.

Major W. W. Herrick, in closing, said it was important to keep in mind any focus of infection in the body. The meninges formed such a focus, also the pericardium. In cases developing pericarditis the meningococcus was isolated in pure culture. The intravenous treatment cleared up the picture entirely. The same was true of panophthalmia. The intraspinous method was used when the meningitis was established. The subcutaneous method was used on infants. Dr. Meltzer asked how the epidemic terminated. It had not terminated. The cold weather drove the men indoors into crowded quarters and infection easily spread. In regard to potency of the serum physicians should know the type and potency of the serum used. The serum was furnished by the government, but it was commercial in origin. It was of one type. Several types were necessary so that if the case failed to respond to one it might be changed quickly to another. The price should be standardized. In South Carolina $6 was charged for 30 c.c. serum, which put it out of the reach of the poorer patients. This matter should be taken up by the government. Major Litchfield's advice as to care in injections was very timely. They had abolished the syringe and installed a device for giving 1 c.c. per minute. In this way accident could be avoided.

Captain H. Amoss, M.R.C., in conclusion, said that they had tried to study cases as completely as possible. No differences could be detected except in agglutinating properties of the strains. It was dangerous to draw conclusions on effects on young guinea pigs. Serum A was a serum standardized by complement fixation. Serum B was standardized by agglutination. There was a great difference in the therapeutic effects.

Myrtol and Eucalyptol Poisoning.—Dr. Lewellys F. Barker of Baltimore made this report. In view of the fact that myrtol, a preparation closely allied to eucalyptol, was used in treatment of putrid bronchitis, it was worth while to mention that symptoms of poisoning had been recorded from these preparations. Myrtol and eucalyptol were derivatives of myrtaceous plants. Eucalyptol poisoning had followed both overdoses and small doses of the drug, and it appeared that some persons might have an idiosyncrasy to it. Two different syndromes were noted in the after effects—first, nervous system involvement with collapse; second, dermatitis. In the nervous type the patient became seriously ill shortly after the dose. Vomiting, diarrhoea and coma might follow. Vomiting should be induced to prevent further absorption of the poison. Skin lesions were often associated with the nervous lesions. Several fatalities had been reported from time to time. A greatly increased use of eucalyptol had resulted from its employment as a solvent for the Dakin solution, dichloramin-T. It would be interesting to know if any ill effects had been observed from its use.

Dr. Flexner said that Dr. Dakin and Dr. Dunham had discontinued its use on account of irritating properties. They were now using paraffin as a solvent.

Clinical Aspects of Peptic Ulcer with Special Reference to Roentgen-Ray Diagnosis.—Drs. J. Friedenwald and F. H. Baetjer of New York presented this subject. Seven hundred and fifty-three cases were studied by the *x*-ray. They were examined first clinically and then sent for *x*-ray examination, without note of clinical findings, to see how closely the *x*-ray findings corresponded. There were three groups of cases: (1) Those operated upon and where the diagnosis was proved; (2) Cases with positive *x*-ray and clinical signs; (3) doubtful cases. It was found that duodenal ulcer was easier to diagnose than gastric ulcer. The functional signs were important for diagnosis, a hyperactivity indicating presence of an ulcer. Complications, such as abdominal adhesions, were apt to mask the findings, and the clinical history must be considered before making diagnosis. On the other hand, the *x*-ray would often clear up misleading clinical signs. In the differentiation between gastric ulcer and malignant conditions the clinical history had to be carefully weighed. Indurated ulcer often tended to become malignant, but a microscopical examination at operation was necessary to clear up the diagnosis. If *x*-ray signs were absent it was a good reason for excluding ulcer from the diagnosis. It was shown by the *x*-ray that a long time of complete rest was necessary in order that the ulcer might heal.

Dr. L. F. Barker of Baltimore said that in regard to the motility of the stomach as shown by the *x*-ray they always made it a rule at an examination to have plates taken at short intervals, so as to get a better idea of the gastric function. It was difficult to make a diagnosis between pyloric obstruction and malignancy. Other evidence was needed besides the *x*-ray. A laparotomy was often necessary.

Dr. T. R. Brown of Baltimore said that the fluoroscopic examination of the stomach was the ideal method. The series of pictures showed the exact function of the stomach. He had used the fluroscope in ten thousand cases. The percentage of correct diagnoses was as great as with the *x*-ray. The majority of Roentgenologists depended more and more upon the fluoroscope. In regard to hypermotility, the fact was not generally recognized that this was somewhat paradoxical. There was hypermotility at first and retention toward the very end. There was a differentiation between the hypomotility with patent pylorus which was usually seen in early cases of malignant disease. It was not often recognized how many of these cases were due to visceroptosis. The symptoms accompanying the constant drag on the viscera were apt to simulate gastric ulcer.

Dr. B. W. Sippy of Chicago said that in using the *x*-ray they must not forget other important means of diagnosis. The *x*-ray was very convincing, and explained a lot of mistakes. If one studied the case carefully with regard to the pain and other symptoms one got evidence every bit as important as that afforded by the *x*-ray. The *x*-ray was valuable as confirmatory evidence, but it seldom gave evidence that one could not get before by other means.

Dr. F. H. Baetjer said that the roentgenographic diagnosis was in accordance with the clinical findings in 75 per cent. of cases. It ought to agree up to 100 per cent. It was one of the many laboratory methods in use and with all laboratory methods a proper consideration of the history of the case was necessary. All evidence must be given due weight and correlated. The adhesions of chronic appendicitis often gave confusing symptoms. The reflex activity of the stomach from other conditions could not be ruled out. The stomach could not be considered as a fixed organ. It was variable as to its position and motility. What was *normal for the individual* must be considered. A man weighing 160 lb. had a stomach high up in the diaphragm. A person of 100 lb. had a fish-hook stomach working against gravity. A stomach of this type took longer to empty. Thus the *x*-ray could never give exact findings of the stomach as it could of fixed organs. Dr. Sippy's point was a timely one. Diagnoses could not be made from *x*-ray findings alone, but from all other clinical signs.

The Healing of Peptic Ulcer.—Dr. B. W. Sippy of Chicago read this paper. The protection of the ulcer from the digestive action of the gastric juice by hourly feedings and the early giving of alkalies, formed the basis of the treatment outlined. This treatment had been applied to 2000 cases, of varying duration from one month to thirty years. The average duration was four years. The ulcers were of varying degree of penetration. The ulcer healed rapidly by cicatrization. It could be said that operative procedures had a definite mortality which weighed against this method of treat-

ment. Therefore, unless the cases were operated upon healing must take place. Three points were connected with the healing of ulcers: (1) What were the causes of ulcer? (2) What prevented the healing of ulcers? (3) What could be done to heal ulcers? By answering these questions one could arrange a rational method of treatment. First, as to cause, the mucous membrane of the stomach, from lowered resistance (perhaps vascular or perhaps from bacterial invasion) became digested and an ulcer was formed. Pepsin had a solvent action on albumin sensitized by free acid. In ulcer, therefore, it was necessary to destroy the digestive action of the juice. This could be done by the method outlined. In pyloric obstruction 90 per cent. of cases had been relieved in from one to three weeks.

Dr. J. FRIEDENWALD of New York said that he had used this method of Dr. Sippy's a great many times and had found it exceedingly valuable. It had given better results than any other line of treatment.

The Comparative Food Value of Protein, Fat, and Alcohol in Diabetes Mellitus as Measured by the Nitrogen Equilibrium.—Dr. H. O. MOSENTHAL of Baltimore read this paper. It was desired to maintain the protein tissue in spite of using a carbohydrate free diet. The patient was put upon 1000 calories with a constant proportion of protein and fat. Then 500 calories of protein fat or alcohol were added. Three periods were used: fat period, alcohol period, protein period. Finally there was a control period. On 1000 calories diet there was a constant loss of nitrogen. Plus 500 calories of fat there was no great improvement in the nitrogen balance. The fat was assimilated, but did not spare the protein. The same held true with alcohol. The alcohol possibly saved the body fat, but not the nitrogen. The results with protein addition were strikingly different. The positive nitrogen balance was very marked indeed with 1500 calories. There was thus opened up a method of therapeutic treatment for these patients, which seemed to be brought about in some way which did not occur in the ordinary individual. The previous diets had evidently affected the protein. Two patients who had not taken the alcohol did not get the results. The fat and alcohol had been used to conserve the fat of the body, while the protein preserved the protein even on the protein and fat diet.

A Case of Bulimia, with Remarks on the Causal Treatment of Some Functional Diseases.—Dr. G. DOCK of St. Louis presented this report. The textbook descriptions of this condition agreed mainly upon the polyphagia. Goiter was supposed to be a factor in this condition. In the case presented the patient, an architect, aged 36, was obliged to eat abnormally to avoid intense headaches which came on when he got hungry. Apparently he had no regular eating time, but always carried with him a quantity of toasted bread cubes and six to eight shredded wheat biscuits. The history was vague. He was well until 21 years, then began to suffer from eructations of gas which he called "gastritis." At 22 had paralysis of the right arm. He now weighed 215 lb. Gland extracts had no effect on his condition. He was a large man, but with no pathological distribution of fat or hair. There was evidently a slight neurasthenic element in the case. Upon examination it was found the man had marked nasal obstruction by polyps, with suppuration of both antra and extremely bad teeth. There was a slight polycythemia. The Wassermann test was negative. The stools were very large and full of undigested fiber. Bulky vegetables were supposed to relieve the patient's hunger better than meat. In 24 hours he consumed about 7000 calories. The stomach and alimentary canal were normal, but rather large. The patient showed marked impatience with tests that interfered with his eating. No metabolic, intestinal, or pancreatic disease was discovered. The marked sinus disease suggested irritation by an impulse such as known in itching diseases. Treatment was instituted and consisted of removal of bad teeth and draining of the sinuses, which were full of foul pus. After this the headaches and abnormal appetite disappeared within one month. The patient had a normal weight and was without symptoms. It was a platitude in medical teaching that diagnosis meant covering the *whole* condition of the patient. In this case there seemed no connection between the disease and the cure; it was simply mentioned as being unusual in its course and recovery.

Dr. L. F. BARKER of Baltimore said that they had a patient in Baltimore who was known as the Raw-Eggs-at-the-Theater Lady, on account of her habit of taking raw eggs to appease her hunger during a performance. This was a frank bulimia, and she was accustomed to take quantities of food in the night. He had not heard whether she was ever cured or not. It was an interesting case of perversion of an instinct. He had come to the conclusion that it was a central nervous disturbance, just as was chewing of the finger nails. He thought in the woman's case there was a psychoneurotic complex. He would like to emphasize the importance of Dr. Dock's concluding statements as to the importance of making an examination of the *whole* patient. Often neurotic symptoms would clear up upon removal local irritating causes. Whether in this case the effect was due to clearing up of infection, or to the rather strongly suggestive psychic influence of the removal of teeth and sinuses, which was quite a marked therapeutic performance, would be hard to say. He had noted the case of an Anzac, returning from Washington. The man had been two years blind, and now saw for the first time. He was looking out of the window and exclaiming at everything he saw. He was asked how he happened to regain his sight. He said he had been examined everywhere by specialists, and had spoken of a pain in his neck of which they took no notice. He had gone to Washington and a doctor examined his spinal vertebræ and found one in the neck displaced. The vertebra was jerked into place and the man immediately began to see. Evidently psychic suggestion played a very strong part in some cures.

Dr. WARREN COLEMAN of New York asked what proportion of the food ingested was utilized in metabolism. Was an examination of the stool made? Another point was whether the absorption of the toxin produced by the infecting organism in the sinus might not have increased metabolism to a point where most of the food was utilized.

Dr. G. DOCK, in closing, said that he was not able to make complete observations due to the complete change in the aspect of the case after treatment of the sinus. The man's weight had dropped from 215 to 175 pounds. There was a slight over nutrition before. There was a great deal of undigested fibrous material in the stools, as those of animals.

The Fractional Examination of the Duodenal Contents.—Dr. M. EINHORN of New York reported this subject. The duodenum, it was stated, played an important rôle, both physiologically and clinically. In this organ the acid contents of the stomach became alkaline. The duodenal juice was studied with regard to alkalinity: (1) In patients under duodenal alimentation; (2) in patients who had duodenal instillation with water. The tubes being already in place, the examinations were easily made. Fluid food was used. this being beef bouillon. Thirty-two persons were examined. Fasting duodenal contents were aspirated. Beef bouillon was then introduced and the contents aspirated again. The degree of alkalinity and the amount of amylopsin and trypsin were examined. Cases were graded according to acidity. It was supposed that alkalinity would be less with hyperacidity of the stomach, but this did not hold good. The duodenal juice should be of importance, as the pancreatic juice was dependent on an alkaline medium for its activity. In some cases the change did not take place as well as it should do. It was found best to examine the duodenal contents for bile, with a fasting stomach; for pancreatic activity it was best to study it after a meal.

The Relation of War Wounds to Acute Endocarditis.—Dr. H. T. KARSNER of Cleveland made this report. The incidence of acute endocarditis following wounds of the war justified calling attention to its bearing on pathology, clinical medicine and surgery. In France, during the early months of the war, the surgery was such as is seen in civil life. The great contamination of war wounds was not sufficiently considered. In eight months' experience Dr. Karsner said he performed autopsies on all deaths (eighty-eight in number) occurring in a military hospital. At first they were handicapped by lack of laboratory facilities, but later exact measurements were taken of the weight of organs. Fourteen cases of the eighty-eight showed lesions of

acute endocarditis following septicemia and pyaemia. The organisms responsible were mostly streptococci. Three showed *Staphylococcus aureus*. In one case the perfringans was found in the blood stream at death. These infections followed multiple extensive wounds, not of any particular type, but in cases where an attempt was made to save the injured parts and where the wound was allowed to drain pus for weeks and weeks. In the effort to save the joint extensive damage was done to the heart and kidneys. In the later months of the war an effort was made to determine whether the age of the soldier and the length of his term of service had any influence on these conditions. It was found that if the man was less than 27 years of age and had less than 22 months' service, the kidney weight and the heart weight were normal. The principal factor seemed to be the length of service, prolonged service leading to a great increase in the weight of the heart.

Dr. W. W. Ford of Baltimore said he would like to call attention to one point. In experimental work with the gas bacillus there was a failure of the organism to multiply in the blood stream, but if one introduced a young culture into rabbits or guinea pigs the animals died. Rapid multiplication of the organism was found at the site of inoculation. Smears of the blood of heart, liver or kidneys showed a gram +, encapsulated organism, or the gas-bacillus. No multiplication was found in the blood stream. The organism was anerobic and multiplied at the site of inoculation.

Dr. T. McCrae of Philadelphia said this was a very important communication. It had an evident bearing on the treatment of the condition. If there was involvement of the aortic valve it was easy to decide that there was endocarditis. Mitral endocarditis was very difficult to diagnose. Embolic phenomena should be looked for and would confirm diagnosis in a number of doubtful cases.

Trench Fever.—Dr. Eugene L. Opie of St. Louis read this paper, the result of studies by himself and Drs. A. Strong, H. F. Swift, W. J. MacNeal and A. Pappenheimer. From the beginning of the war, in 1914, and more in 1915, there had appeared outbreaks of an ill-defined fever, observed first by Graham, and named trench fever. Studies on the infectivity of the disease were convincing and it was proven capable of transmission to human beings. The disease was characterized by a sudden onset, inability to continue work, with paroxysms of fever. It was thought at first to be a modified form of typhoid in inoculated men. Pains in the limbs and skin spots occurred with the fever. The spleen became palpable and there were marked vascular disturbances. The disease might last for several weeks or months. It being supposed that the disease was transmitted by lice, experiments were made by allowing lice (which had bitten trench fever patients) to bite healthy persons. The rôle of lice had been the subject of much discussion and no steps had been taken by the British authorities to effect their extermination. Major Strong therefore obtained Red Cross funds for an investigation, and volunteers, from the American Expeditionary Force, offered themselves for experimental purposes. These men signed a paper to the effect that they were willing. This was required by the authorities. The volunteers were subjected to careful physical examination, and charts were kept for a week preceding the experiment. Careful studies of the urine and feces were made, to exclude possibility of typhoid. Two problems were studied: (1) infectivity of the blood. Of 16 men inoculated with infected whole blood 15 developed trench fever. Of five inoculated with clear plasma all contracted the disease. The corpuscles of the blood then did carry the infection. Inoculations of plasma, passed through a Berkfeldt filter, did not cause infection. Filtered virus then did not produce the disease. The inoculation period was from five to twenty days. The disease was transmitted through three generations subsequent to the first inoculation. The second problem was to determine whether lice transmitted the disease. Of 22 volunteers bitten by infected lice 14 developed the disease, 8 volunteers not bitten did not develop the fever. Lice from trench fever patients were put upon the volunteers and kept there 30 days till the fever developed. After 48 hours lice were removed from half of the volunteers and put on other volunteers, to exclude possibility of mechanical transmission, directly from patient to individual. It was proved that the virus carried the infection. The lice were put on the arm in a piece of old undershirt, so that eggs and larvae were reproduced normally, and these were strapped on, the men were allowed to scratch so that normal skin irritation was produced. The inoculation period after biting was from nineteen to twenty-five days, as compared with five or six days with the plasma infection. The conclusions from these experiments were that: (1) direct transmission was not essential; (2) if lice carried the disease measures should be taken to combat it by eradication of lice; (3) the eradication of lice, and by this means eradication of the disease, was not impracticable.

Dr. Futcher of Philadelphia said he had had an opportunity to see cases of trench fever in an English base hospital. Distressing nocturnal pain was a symptom of the disease. Sir David Bruce had conducted some experiments in the Hampstead Hospital. He found that if 500 lice that had bitten trench fever patients were allowed to bite volunteers the results were negative as far as transmission of the disease was concerned. It was not stated how long the lice had fed on trench fever patients. In discussing these experiments it was asked if the patients had been allowed to scratch and it was found that they were prevented from scratching. Another series of experiments were then started. The arms of the volunteers were scarified. The lice were allowed to bite and the bodies of the lice were rubbed into the abraded surface. In seven days the volunteers developed trench fever. The experiments, however, as far as the biting was concerned, were not so conclusive as those of Dr. Opie. It would seem possible that there might be two modes of transmission—by the bite and by the excrement of the lice getting rubbed into the abraded surface. It was found in the trenches that lice would leave the body of a trench fever patient and go to a healthy person. It was necessary to determine whether the disease was transmitted from one to another by lice or whether it was a disease of the louse itself.

Dr. E. L. Opie, in conclusion, said that he had not tried scarification experiments. It seemed to add little to the knowledge obtained by injecting whole blood, but there was obviously possibility of introducing the virus directly through the skin. The incubation period of seven days corresponded to that when whole blood was injected into the circulation.

Pneumonia in the Army Camps.—Dr. Rufus Cole of New York made this report. Experience, he said, was confined to one army camp. Dr. MacCallum had charge of the pathological work. Pneumonia among soldiers was a most serious disease, on account of its mortality, just as it was among the civil population. Experience on the Mexican border convinced the authorities of the seriousness of the condition. The past winter had shown alarming increase of pneumonia and a high incidence of measles. In studying types of pneumococci many abnormal types were encountered. At Camps Wheeler and Bowie Drs. Zinsser and Dochez found that many cases were due to streptococci. Under the direction of Colonel Russell a study was then made of all types of pneumonia. Two definite types were discovered. In the measles ward there were many cases of severe pulmonary infection. These were similar to cases seen by the pediatrician and not usually seen in adults. The picture of the patient was extremely distressing. The patients were alert mentally and extremely anxious. There was intense respiratory disturbance and deep cyanosis. The physical signs differed greatly from lobar pneumonia, there being few signs of consolidation. In cases that came to autopsy Dr. MacCallum found small hemorrhagic spots on the lungs. The alveoli were congested and contained blood. The later lesions showed small punctate areas with opaque forms resembling miliary tubercles. Purulent exudate was found in the bronchioles. This pneumonia following measles was often mistaken for miliary tuberculosis. Streptococci were found in the sputum of these patients, and shortly before death in the blood stream. The second type of the disease, in the pneumonia wards, resembled the cases seen in civil life. These cases had pneumococcus infection. The mortality was lower. There was increased prevalence of empyema. Often there was double infection. At autopsy both strepto-

cocci and pneumococci were found. Three types were distinguished at autopsy: (1) acute pneumonia, of the ordinary type; (2) bronchial interstitial pneumonia, due to streptococci; (3) interstitial broncho-pneumonia. In other camps there had been cases of streptococcus empyema without previous involvement. In regard to the spread of infection, it was of the utmost importance to know if infection spread from one man to another, or if there was a common cause. It was known that puerperal infection, wound infection, and septic sore throat, spread by direct transference. Epidemiological evidence showed that the latter infection followed the milk routes, but direct transmission could not be excluded. In the camp wards direct transmission evidently took place, as in 55 per cent. of throats streptococci were present. In the measles ward on admission 11 per cent of patients showed streptococci in the throat; after 10 days this rose to 38 per cent.; in two weeks to 60 per cent. The question now arose as to whether this form of infection was spreading into civil life and whether the streptococci were becoming more virulent to man, so that more normal persons were becoming infected.

The Serum Treatment of Lobar Pneumonia.—Major C. N. B. Camac, M.R.C., presented this subject. A marked difference existed in the pulmonary involvement in measles and in lobar pneumonia. Four hundred cases of measles were studied in hospital No. 6. There were 43 pulmonary complications with 12 deaths. One marked condition was a serositis, the lung appearing like a sponge dipped into blood. The term pneumonia could hardly be used for the pulmonary complication of measles. The colored troops were especially susceptible to this form. In the serum treatment a desensitizing dose was first given. Six hours later 50 c.c. of serum was gradually given by a holder, a syringe not being allowed. Only one case of anaphylaxis occurred. The clinical features of this treatment were: (1) Marked variations in temperature; (2) rapid recovery; (3) absence of toxic symptoms. It was not found advisable to wait for the return of the type; a polyvalent serum being used at once, and if type I was returned, type I serum was used later. The mortality was much higher in the streptococcus infection cases. It was found that the fatal cases were those that came to treatment late. These men were stevedores, husky men who did not easily complain. Therefore, an important point would seem to be early diagnosis and immediate use of serum. If cases did not respond to one type of serum they were quickly changed to another, with better results. The pneumococcus infection was a comparatively harmless disease compared with the streptococcus type. The leucocytes were not a reliable guide as to the condition. It would seem wise that an immunizing streptococcus vaccine be tried at the same time as the serum treatment. In regard to diet, the cases should receive 2000 calories of food and 3000 c.c. of water daily.

Major E. P. Jocelin, M.R.C., said that in studying the number of cases at Camp Devens it was obvious that the increase could be attributed to the arrival of 5000 negroes in the camp. The morbidity for the negroes was 20 per cent. higher than that for white troops. It was noted that there was a great prevalence among the officers of hemolytic streptococci. Seventy-one per cent. of the officers and 62 per cent. of the nurses showed positive throat cultures of this organism. The question arose whether to protect the patients against the officers or the officers against the patients. During April 66 negroes came into hospital with pneumonia; the mortality was 14 per cent. before that; later it rose to 25 per cent. There were no fatal cases of type I pneumonia. In all the cases of negroes autopsied lobar pneumonia was found.

Major H. Brooks, M.R.C., said that when he heard colored troops were going to Camp Devens he said that trouble was coming to Major Jocelin in the shape of a black cloud. One colored regiment had furnished more patients than 77 white divisions. He was glad Dr. Cole brought out the point about the incidence of measles and pneumonia and the type dealt with. They had also had streptococcus pneumonia, but it was not connected with measles. As regards serum treatment, it would seem as specific as the use of mercury in syphilis. The symptoms of the disease disappeared with startling rapidity. Analysis of 100 cases showed that the patients were worse for polyvalent serum. They were then given type I serum. Dr. MacCallum's work on interstitial lesions was worthy of praise.

Dr. A. Wadsworth of the New York State Health Department said that he had studied the effect of different organisms with the pneumococcus, experimentally, in the rabbit and dog. There was a difference in the progress of the lesion induced by pneumococci and that by streptococci. The induction of a true exudative type of lesion followed by complete recovery in the lung tissue and complete disappearance of the organism was seen in the former case. Following the introduction of large numbers of pneumococci and streptococci in many instances there was considerable destruction of tissue. In old pathological specimens kept at the P. & S. Dr. Wadsworth was able to demonstrate streptococci, even after so many years. The lesions of the pneumococcus type resolved, irrespective of the type of lesion. With other organisms introduced, such as streptococci, there was infiltration of the cells of the air spaces and inflammatory reaction in the lymphatics of the bronchus, as commonly seen in the experimental pneumococcus lesion, but the lesion went on further to progressive suppuration and organization.

Colonel F. F. Russell of Ancon, C. Z., said that there was a great difference in the type of pneumonia at the cantonments, depending upon the source from which the men were mobilized. In Boston, New York, Philadelphia, and Chicago, the men had had their measles. Men from the country districts of the South had not had measles, and were susceptible to it. Where measles began streptococcus pneumonia followed. There was a fundamental difference between these camps. There was also a difference between open camps and closed camps. In some camps men had remained without any shifting, but in some camps new men were continually coming in and bringing measles. These camps had a high pneumonia rate. Streptococcus pneumonia followed other conditions than measles. It had been described for years. The men who knew about it were pediatricians and doctors of contagious hospitals. It was the problem now to prevent the repetition of this year's work. One need not go to army camps to study the disease; it was found anywhere where measles was found, but the study of its prevention received a new incentive in the army camps.

Major W. Herrick said that they had had hundreds of cases at Camp Jackson. They found that the measles cases were extremely susceptible to cold. They had tried indoor and outdoor treatment and found that it was best to keep these cases in an even temperature, with beds carefully screened. The cough must be thoroughly controlled, and under these conditions a very much lower percentage of streptococcus pneumonia followed.

Dr. Rufus Cole, in conclusion, said that an alarming fact was that the streptococcus form of the disease was spreading to the civil population. There were probably many types of hemolytic streptococci, but at the present time differentiation was impossible. There was no doubt of the significance of the studies made at Camp San Antonio. Whether the men were getting more susceptible to the disease was one of the many problems to solve.

Major C. N. B. Camac said that Major Herrick had referred to the sensitiveness of measles patients to cold. They were exquisitely sensitive. The slightest exposure to cold was followed by pneumonia. The treatment should be in direct contrast to that of lobar pneumonia, where the patients were put into the air as soon as possible. The head to foot arrangement of the beds with sheets between to prevent infection was the best mode of disposal. It was found that if Dichloramin-T be used for a throat spray there were very few pulmonary complications. The process of infection seemed to be from above down and seemed to run like wild fire through the respiratory passages. If it could be controlled in the throat it was not so likely to spread downwards.

Antiscorbutics and Intravenous Therapy for Scurvy.—Dr. Alfred F. Hess of New York made this report. He emphasized the necessity of antiscorbutics in any diet. In ships in the days of sailing vessels and prolonged voyages there were always cases of scurvy. The

civil population was also dependent upon antiscorbutics in the food, and it was not always realized how narrow the margin of safety was. In Ireland, when the potato crop failed, scurvy at once appeared. From the military point of view antiscorbutics were important. In Russia, during the war, there had been thousands of scurvy cases. In France, in one sector, of 1000 men 850 had scurvy. If the war kept on this might assume serious aspects, and it was necessary to consider what were antiscorbutic foods. Experiments showed that dried vegetables soon lost antiscorbutic properties. Orange juice, if preserved, also lost this property. Orange peel, which was a waste product, seemed to have the property of staying antiscorbutics in action. Its use in asylums where the price of oranges made their use prohibitive would be an economic measure. It was found also that boiled orange juice, given in intravenous injection, acted like a charm in scurvy. Scurvy could be absolutely controlled by giving heated and neutralized orange juice intravenously on a large scale.

The Thyroid Hormone and Its Relation to Metabolism.—Mr. E. C. KENDALL presented this report. A definite chemical substance had been isolated from the thyroid gland, containing 60 per cent. iodine. This was found to have a marked effect on cretinism and myxedema. The substance existed in two forms, an amino group and an acetyl group, which bore to each other the same relation as kreatin did to kreatinin. In the myxedema patient the metabolism was 40 per cent. below normal and could be increased to normal by the injection of this hormone. The iodine content of the hormone did not enter into its action but merely increased the reactivity of the functionating groups.

Studies on Some Unusual Types of Diarrhea.—Dr. T. R. BROWN of Baltimore made this report. The mechanism of normal peristalsis, he stated, was easily disturbed. Vasomotor abnormalities, abnormal substances, psychic stimuli, etc., were all causes of diarrhea. Diarrheas were of many kinds—gastroenterogenous, achylic, of Graves' disease, of tabes, of sprue, of cholecystitis. In the thyreogenous diarrhea the nervous syndrome was the cause. In the diarrhea after cholecystectomy the stools showed absence of trypsin and diastase. They were pancreatogenous in origin. Gastric diarrheas were not. In tabes there was the true neurogenic type. In sprue there was no trypsin or diastase in the stools; pancreatin could be given with good result. In appendicitis and colitis there were probably erosions of the mucosa, due to bacterial infection. Open drainage for three months would cure these cases by changing the bacteria of the lower valve from anaerobic to aerobic.

Dr. H. S. PLUMER of Rochester, Minn., said Dr. Brown had referred to diarrhea in Graves' disease. Was there no other symptom?

Dr. BROWN said that intestinal symptoms occurred later.

Remarks on Chronic Septicemic Endocarditis with Splenomegaly; Its Treatment by Splenomegaly.—Dr. D. RIESMAN of Philadelphia presented this paper. Patients in this disease might become bacteria free and yet succumb. The cases did not all, however, terminate fatally. The symptoms often included anemia, joint pains, albuminuria, nephritis, abdominal pain, heart murmur. The spleen was always enlarged and obscured the underlying heart effect. The disease might be mistaken for splenic anemia. The accumulation of bacteria in the spleen often prevented the cure of the disease. If this focus could be controlled the heart lesion might be improved, In the case of a man 57 years of age, in whom Dr. Deaver removed the spleen, the condition cleared up wonderfully after operation. It was possible that this operation might be of similar help in other cases.

Dr. E. LIBMAN of New York asked if the blood culture was positive in that case. These patients showed an enlarged spleen with the acute streptococcus endocarditis. The spleen in these cases was large and soft. The blood picture was that of a spontaneous freedom from bacteria. There was a low white blood cell count with many lymphocytes, with total decrease in the large mononuclears. The spleen had sometimes been removed under the wrong diagnosis. He had never thought of performing this operation in the bacteria free stage. The patients usually became more anemic and he wondered what the anemia was from. There was continuous infection of the spleen and in the bone marrow. It might be of use to remove the spleen in such cases. There was the same picture in progressive anemia, even without the large spleen.

Dr. Riesman said the blood culture was negative.

The General Theory of Clinical Diagnosis, with Special Reference to the Application of a Key Principle to Major Groups of Mental Disease.—Dr. E. E. SOUTHARD of Boston presented this subject. He said that books on medical logic were dust covered, or even remained with pages uncut. The question of "what is diagnosis" was rarely considered. There were various methods of diagnosis and different factors, such as inspection, and type matching formed part of these methods. Other forms, such as diagnosis by exclusion, were used, and the form called "ex javantibus" that was to treat the patient for syphilis, and if he got well to say that he had syphilis, was often in use. In mental disease type matching was impossible as any symptoms of mental disease would match all forms of mental disease; in other words, there was no indicator. In regard to exclusion, every mental case deserved to be tested for syphilis. This should be excluded if possible. In most mental diseases there was no difference in treatment, and therefore not much use in differentiating the disease. About 15 per cent of mental disease was due to syphilis. Some sort of pragmatical scheme for orderly arrangement in diagnosis should be followed, first observation, then comparison, then exclusion, then addition of statistical data. This method was largely neglected in the textbooks and even in class A schools.

Dr. L. F. BARKER of Baltimore said that this was a most interesting subject and should be thoroughly discussed. The speaker had urged a pragmatical method. It was necessary to start from the pragmatical standpoint. The end in view was that of therapy, but there were many other aspects. The Rockefeller Institute had quite other ends than that of therapy and where the profession stopped, they began. The diagnosis per exclusionem was not complete if it did not take in the psychiatric field. There was only one real diagnosis and that was one which considered the patient as a *whole*. The somatic, psychic, and all other systems must be considered. The steps in diagnosis were briefly (1) feeling of a difficulty; (2) suspension of judgment until evidence was collected; (3) making of an anamnesis; (4) laboratory tests; *x*-ray tests. All this should be done before thinking of the diagnosis. The whole man should be studied and then the data arranged in order to stimulate suggestion. The different systems would be next considered—cardiovascular, nervous, alimentary, etc. The mind could now range over facts and leap to certain conclusions. Experience and intuition would play a part in these leaps. Then by process of deduction and reasoning the diagnostic situation could be arrived at.

Dr. G. DOCK of St. Louis said that in regard to diagnosis he once looked at a patient with cancer of the stomach and made the diagnosis. On coming away a man said to him, "I liked your diagnosis very much." Dr. Dock tried to take the compliment modestly, and he found the reason for it was that he was the first doctor who had taken the trouble to look under the patient's shirt and examine the abdomen. In regard to the Wassermann test, he did not care to have it made when it had no bearing on the diagnosis. The proportion of syphilitic cases was small. He knew of one case where the man had a 4+ Wassermann, and was considered to have tabes, yet he died of a spinal cord tumor. Syphilitics might die of a different condition.

Dr. E. E. SOUTHARD, in closing, said that he would not choose diagnosis before observation, nor did he believe in choosing an hypothesis and then going to prove it. The profession were apt to overdo the analytic side and neglect the synthetic side. The naive observer often made a better diagnosis than the analytic student. In regard to Dr. Dock's point, a man with a 4+ Wassermann should be treated for syphilis, whether he had a spinal cord tumor or not. Where the Wassermann test had not been made harm was often done. There was a proportion of syphilitic cases among the mental and nervous group, at least in Massachusetts, and even if the rest of the country was cleared up it would do no harm to clean up Massachusetts.

Clinical Types of Paralysis Referable to the Pallidal System of the Corpus Striatum.—Dr. J. RAMSAY HUNT of New York read this paper. Paralysis agitans was one of the types of paralysis due to effect on the corpus striatum. Associated movements were due to effects on the strio-spinal system and disassociated movements due to the cortical system. In normal individuals these systems worked together, in pathological conditions they became disassociated. Paralysis represented this phase. There were two types of movement; in the cortical type clonus was present, in paralysis agitans it was absent. Often the two types were combined, owing to the juxtaposition of the corpus striatum to the internal capsule. Recognition of the two types of paralysis would help in diagnosis. These facts would be of importance in reeducation.

Dr. E. E. SOUTHARD of Boston said that Dr. Franz had been doing interesting work in reeducation of hemiplegiacs and had been getting results. The reeducation of hemiplegiacs had been hopeless work hitherto, but there seemed to be a glimmer of light dawning. The future outlook might be less pessimistic.

Some Preliminary Observations on Certain Phases of Hypertension.—Dr. E. S. SMITH of Boston gave this paper. The present status of the subject would show that to avoid brain disaster, hypertension must be controlled. Factors entering into normal circulation were the peripheral resistance of the vessels, the propulsion of the blood through the arteries, and the vasomotor control. Hypertension was often caused by accumulation of toxic end products of bacterial proteins. If it persisted it caused strain on the heart and cardiac fibrosis. The cases where arteriosclerosis had resulted from hypertension were different from the luetic type. In regard to treatment, attention was paid to focal infection, absolute rest was ordered, and the protein intake of the diet was limited. Digitalis was given, but no vasodilators, unless in extreme emergency.

Dr. G. DOCK of St. Louis said he was much interested in this work. He had kept from drawing conclusions. It struck him that many patients had an unnecessarily high blood pressure. Rest, regulation of diet, attention to the bowels had a marked effect on blood pressure. He did not think it necessary that pressure should be greatly lowered as long as symptoms were being relieved by mild treatment.

Dr. H. S. PLUMER of Rochester, Minn., said he thought that putting the patient in bed in the horizontal position was responsible for the change in blood pressure.

Function of the Thyroid Gland.—Dr. H. S. PLUMER of Rochester, Minn., presented this subject. He said that the composition of the thyroid was formed by relatively dormant epithelium, filled by a certain amount of colloid. The latter did not play any part. Hypertrophy was an indication that the thyroid was overstimulated and was supplying the body with too much hormone. Colloid deposit in the gland showed it was hard worked to make enough hormone. It was either normal or subnormal. The thyroid contained fetal rests and thyroid adenomata developed postnatally and were not coordinated with the needs of the body tissues. High stimulation from high metabolism would start these adenomata functioning wildly. If the adenomata were removed from the thyroid the metabolism would at once drop to normal. These cases constituted one-third of exophthalmic goiters. A metabolic laboratory had been started to carry out this work. Twenty-five cases of exophthalmic goiter were examined and it was found that the metabolism was running 1 per cent. above normal. Removal of the adenomata caused the metabolism to drop to normal ten days from operation. It was found that 1/3 mg. of thyroid was necessary to keep up the metabolic level of the body. Myxedematous cases had a metabolism of 30. These cases were given 16 mg. of Alpha thyroxin intravenously to bring the metabolism to normal. It could be said that the thyroid hormone was as fundamentally a part of the catabolic process of higher animal life as chlorophyll was of the synthetic process of vegetable life.

Dr. L. F. BARKER of Baltimore said this was an important mathematical contribution. If one could put in so many milligrams of thyroxin and produce a quantitative caloric burning effect it was an important result.

Dr. G. DOCK of St. Louis said that this work led to exact methods of thinking. The sensibility of the patient had to be considered, these hormones might show the same irregularity in the patient as other toxic substances would show.

Dr. H. S. PLUMER said that 1½ mg. of thyroxin a day was a basal rate for needs of thyroid in the tissues according to metabolism. With higher metabolism a larger amount was needed.

Therapeutic Hints.

Formalin for Warts.—Suldey advises applications of formalin for the removal of warts and especially of venereal warts. The solution of formaldehyde is applied every evening by means of a pledget of cotton or a holder. The surface should be lightly touched with the applicator, as it is advisable not to wet the surrounding skin or mucous membrane with the solution. Usually from four to ten applications suffice to effect a cure.—*Journal de Médecine et de Chirurgie Pratiques.*

Dyspepsia with Pain and Flatulence.—

℞ Strychninæ hydrochloridi.....gr. ss
Acidi hydrochlorici dil.. .....ʒiv
Glyceriti pepsini.....ʒiij
Aquæ menth. pip.....qs. ad. ʒvj

M. Sig.: Tablespoonful three times a day after meals—Williams.

Gouty Neuralgia.—

℞ Sodii salicylatis,
Antipyrinæ .....āā ʒn
Syr. zingiberis .....ʒjss
Aq. chloroformi.....q.s. ad. ʒxii

M. Sig.: Two tablespoonfuls every 15 minutes for four doses, unless the pain ceases before that time.—Williams.

Resting Varicose Veins.—Douglas H. Stewart writes in the *Medical Council:* When a person with a varicose leg goes to bed he usually sits upon the bed and draws his leg in after him. The veins of that leg are dilated and remain more or less so for hours, therefore the vein walls do not rest. Let that person go to bed, hoist his feet up in the air, the higher the better, let him keep them there for five minutes and let him lower them slowly to the recumbent position. The veins are empty and the vein walls rest. After a few weeks of this exercise many patients declare that their whole sleep is more restful.

Cinnamon Oil in Influenza.—Oil of cinnamon has a very favorable effect on the temperature, and shortens the convalescence period. Patients who usually suffer from marked asthenia for several days after an attack of influenza regain their strength very rapidly when treated with cinnamon oil, and are able to take up their occupations on the second or third day. Twelve drops of the oil are given in half a tumblerful of water, and the dose is repeated in one hour, then ten drops are given regularly every two hours until the temperature has dropped to normal. When apyrexia is complete ten drops should be given three times a day during the following 24 or 48 hours. When influenza is thus treated from the very outset, that is, within the first three or four hours, the temperature becomes normal within 12 hours; if the treatment is begun later, it may require 24 or 36 hours to obtain this result.—*Medical Press.*

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Original Articles.

MODERN STANDARDS IN ABNORMAL OBSTETRIC CASES AND THEIR TREATMENT.*

By J. W. MARKOE, M.D.,

NEW YORK.

It is befitting that those of us who have not been called for active military service should make a concerted effort to do our part for the betterment of humanity, improving our methods and leaving no stone unturned that will minimize morbidity and mortality, especially among women and children.

Much has already been done by individuals, but the mass of the profession has not as yet awakened to its necessity. Women, in the great majority of cases, are delivered of their children by the general practitioner or midwife and the present mortality of obstetrics in this country rests upon them. Therefore we must endeavor to seek out the weak points and if possible provide a remedy. Never was there a more opportune time than the present for men, especially men in the medical profession, to redeem themselves. The shock of this stupendous war has changed the outlook. I cannot better express this change than by quoting from a most admirable editorial in the New York Tribune. "Probably never before in history, not even in the Reformation or in the revolutions of the eighteenth century has there been such a general sifting out of the useless, the wornout, the harmful, as is now going in and must follow this general shaking up of present civilization. We are indeed approaching a new age and all that enters into the future must pass the severest test of social fitness. Customs, practices, beliefs which have survived for centuries are being broken up and cast aside by the hand of necessity. Old standards of values have fallen and new ones are being raised up."

Shall we not seize this opportunity to remold the old standards which have fallen and raise up new ones which will tend to eliminate the useless, retire the wornout, and so shame the harmful by our very honesty of character and purpose that they will gladly join in the general transition?

Surgery and most of the special branches of medicine have made great strides, but to obstetrics there remains the stigma in the minds of the laity that it is really not an important branch of medicine but rather deals with a procedure that in the majority of cases terminates naturally and normally with but a slight risk to mother or child.

*Read before the Buffalo Medical Society at Buffalo, April 17, 1918.

In the olden days the feature that delayed progress in this branch was the almost fanatical modesty that prevented any male being present at a confinement. Happily this no longer exists to any great extent for gradually the general practitioner has assumed more and more of this work augmented by the few specialists that have developed, more especially in the cities.

The pendulum that relegated the general or family practitioner a secondary place has not swung so far that there does not remain a preponderance of them in the profession. Notwithstanding the great number of maternity hospitals and charities that have developed in the past twenty years with their output of specially trained obstetricians, the fact remains that the vast majority of confinements in this country are conducted by the general practitioner with the midwife, which includes in the country districts the kindly female neighbor, a close second. The ideal plan would provide a competent graduate in medicine to conduct each confinement with expert obstetricians within call for the complicated cases, but such a condition is at present far too utopian.

My object, therefore, in presenting this paper is to impress upon all of you the short-comings that should be remedied. Before taking up the study of abnormal cases let us see what are the most frequent causes of deaths in obstetrics. Harrar showed in 100,000 confinements at the Lying-In Hospital that of the deaths occurring among postpartum admissions and the emergency labors handled by a succession of midwives and doctors before admission to the hospital, a considerably more than one-third were from puerperal infection; the next greatest cause of death was eclampsia; third, peritonitis after cesarean section; fourth, rupture of the uterus, and fifth, placenta previa. Deaths from other causes were comparatively few and comprised for the most part of causes that were not directly a part of the confinement, such as tuberculosis, chronic nephritis, heart disease, etc.

Thus we see that puerperal infection leads the fatal list and we all know that in almost every instance such infection is preventable as it is due to surgical uncleanliness and furthermore, the figures given by others show that the midwives are by no means the only ones whose cases develop sepsis. Therefore it is imperative that we medical men exert our full energy to the betterment of this alarming condition of affairs.

Eclampsia mortality is being rapidly reduced of late by the more thorough investigation of the prenatal condition of the mother, together with the improved methods of treatment.

In regard to the third most fatal cause, death following cesarean section, little can be said, but time will undoubtedly show that the great number of cesareans at present performed will, as the ultimate results are better known, be reduced to those cases in which it is really indicated and which we all know are comparatively few.

Placenta previa together with accidental and concealed hemorrhage are fortunately rare, for the mortality in these cases under the ordinary circumstances is hard to combat, coming as it does in the majority of cases, without warning. Therefore the most expert treatment is called for and this especially in rural localities, is not always available. We must in every way try to instill into the minds of those who are not finished obstetricians the necessity of absolute surgical cleanliness in everything.

We have seen from the foregoing statistics that puerperal infection is the main cause of death, so only by carrying out rigid aseptic methods can we eradicate the inexcusably high mortality that exists. It is a pity that the general practitioner has not as a rule had enough up to date surgical experience to appreciate how difficult it is to prevent infection from taking place; he does not realize that killing the bacteria and spores in the materials to be used in and about surgical wounds is a difficult procedure.

The different forms of pyrogenic bacteria that the obstetrician must guard against are in most cases the Streptococcus and Staphlococcus which vary in their virulance according to the surroundings into which they are introduced.

It is quite possible to find many different forms of pyrogenic bacteria in a healthy vagina without any sign of infection just as it is possible to find in the mouth and nose of a healthy human being the pneumococcus or other virulent bacteria, but this does not excuse us from making every effort to prevent the introduction of these into any field where they may at any moment become virulent.

The normal secretion of the vagina is bactericidal, but one never knows when it is normal and it is therefore necessary for the safety of the patient not to take any chance of introducing any form of pathogenic organism.

Every physician can secure a receptacle such as a clean fish boiler, filling it with clean water containing carbonate of soda—two teaspoonsful to the quart of water—and boiling his instruments therein for not less than fifteen minutes, and better for twenty-five minutes. Sheets and dressings must be sterilized by live steam for a period of not less than twenty-five minutes, and to be more certain of its completeness this should be repeated within a few hours so as to insure that all bacteria have been killed. Special appliances for these procedures are sold in all cities but much can be done, if the principle be thoroughly understood, with an improvised apparatus.

The hands and clothing of the accoucheur must receive most careful attention—the hands especially are difficult to make surgically clean. Rubber gloves are of course a great help, but they cannot always be secured. Careful washing for ten minutes followed by bichloride solution 1-5000, or some similar solution, will be necessary.

We all know that many cases treated without any regard to sterilization recover without one sign of infection; this fact has been the great reason for unwarranted carelessness among some of the profession. A man will boast that he has had one hundred cases, but this is a very small number and he may at any moment find that he has a series of fatal or serious cases of puerperal infection due entirely to his neglect. I use the word neglect advisedly, for in the past many of the shortcomings of the nation have been due to the fact that men have attempted to perform duties for which they were not prepared. This has been seen in the automobile chauffeur; hundreds of men gave up driving horses and similar occupations to become chauffeurs without being trained. The number of accidents in consequence compelled the authorities to make stringent laws so that only those who pass a rigid examination are given the privilege of driving cars and severe penalties are imposed for failure to live up to these laws. The moral law should be sufficient for us in the honorable profession of medicine.

I believe that when our men return from the front, where it has been shown that absolute accuracy is essential not only in the trenches but in the hospitals, they will have a most beneficial influence in all walks of life by inspiring us not to undertake anything without first complying with the essential rules that govern it.

Let us in our special line be prepared to meet all its requirements, not only in hospital work but in our private cases. If the simple rules of surgical cleanliness were universally adopted by general practitioners, thousands of women who are now lost would be saved. With this in mind let us take up the subject of abnormal obstetric cases and their treatment. To define a normal confinement is somewhat difficult, as patients differ so much in their physical and nervous make-up that it is not always easy to say where the normal ends and the abnormal begins. The fact that the pelvis is normal and the relation to the child proportionate does not mean a normal labor.

Age and general development are of great importance in all cases, also the temperament of the patient; so the practitioner must study the case along these lines. The very young mother has, as a rule, an easier delivery than the woman who does not become pregnant until after the twenty-fifth year. Tact in helping these women at the time of their labor will save many a complication, for if they are left to their own devices they will frequently exhaust their forces in futile efforts which will necessitate interference at a time when the patient is exhausted; because of this I advocate the obstetric chair. Any good-sized rocking chair gives as good results as the more intricate chair that has been devised for this purpose. In this chair the patient is as comfortable as anyone can be who is suffering the pangs of childbirth. Its object is to bring the liquor amnii directly upon the dilating cervix. This and kindly encouragement will save both patient and doctor many weary hours of waiting.

If the pains are weak and ineffectual black coffee will often help; if they are too severe,

morphine is indicated. Pituitrin is being used at present by a great many physicians, seemingly without regard to what its actual effects are and the results have been far from beneficial; yet it is a useful drug when properly used. During the last year I was compelled to perform a hysterectomy for rupture of the uterus in four cases in each of which pituitrin had been used to the limit; in my opinion the ruptures were entirely due to the injudicious use of this drug. These women were all in the early child-bearing period of life, and although they recovered they are left without the hope of ever having other children.

Early rupture of the membranes when it occurs is a true complication, especially in primipara, and care should be taken to retain all the fluid possible. This in most instances will best be done by forcing the head into the cervix; the sitting posture brings this about better than anything else. Bags are frequently used and do a certain amount of good, but one hesitates to teach the general practitioner to introduce a foreign body into the uterine canal for fear of infection: I therefore have not been in the habit of advocating their use. Remember that a full bladder or overloaded rectum will delay an otherwise normal delivery.

Posterior positions of the occiput, in the great majority of cases, rotate to the front if flexion be complete and the pains good. Give these cases every chance to deliver themselves, using the chair to assist the descent of the head into the pelvis and to further flexion and anterior rotation. If in a few cases the occiput remains posteriorly, one blade of the forceps can be used as a vectis, or in certain cases where the pelvis is large and the soft parts dilatable a version will perhaps be the only solution; rarely is a craniotomy necessary, and then only in neglected cases where the child is already dead.

Breech presentations are a much more serious complication than is generally believed. They usually imply some deformity in the pelvis or malposition of the uterus. In these cases preparation should always be made for operative procedure. I never undertake a breech delivery without having a medical assistant present and all instruments ready, not only for a craniotomy on the after-coming head, but also to repair any deep laceration of the cervix or perineum.

The value of a trained assistant is that he can make pressure from above the symphysis on the after-coming head and bring through the brim of a head that could not otherwise be born. This also relieves the operator from making excessive traction from below, for severe traction not infrequently causes a separation of the cervical vertebræ, with consequent nerve injury of greater or less degree.

Never rupture the membranes in a breech presentation until the last possible moment, as one needs all the dilatation possible before undertaking the extraction of the shoulders and after-coming head. The maternal mortality in these cases is not greatly in excess of that of normal cases, but the injuries to the perineum and cervix are much greater, especially if force be necessary in the delivery.

Prolapse of the cord, in either breech or any other presentation, calls for immediate action. In rare cases the cord can be replaced by the use of a stiletted catheter which you all know, but in most all such cases the cord will again prolapse immediately if the woman assume the upright position.

Shoulder presentations are fortunately rare and in most instances indicate a pelvic deformity or uterine displacement; tumors may also be a cause. Here again we must, if possible, prevent the rupture of the membranes. The question of how to deliver such cases depends upon the extent of the deformity present.

I shall not go into the extreme cases where the only operation possible is a cesarean, but refer to those cases in which a version through the bony pelvis is quite possible. There should be no delay in these cases for the woman's strength must be conserved. Do your version early before all the waters have drained away; be sure to take the same precautions to have adequate assistants and proper instruments to meet any emergency that may arise.

If the case be seen before labor has actively set in it may be possible, in a few cases, to convert it into a vertex or breech. The chair is splendidly adapted for this purpose; by pressing the knees of the patient up against the abdomen the tendency is to straighten the uterine body.

Brow and face cases are so rare that one is seldom called upon to treat them; they are supposed to be caused by an obliquity of the uterine axis—rarely by deformities in the fetus. If the child be small and the pelvis normal there will seldom be any difficulty, but where the child is large and the proportion to the pelvis snug there will be difficulty in converting it into a normal presentation.

There are innumerable variations from the text-book abnormalities that will tax the ingenuity and common sense of the accoucheur, but above all let me firmly impress upon his mind that the worst operative risks will do far better when absolute surgical cleanliness has been observed throughout than the simplest case without it.

Having taken up the surgical aspect of abnormal cases, let us look for a moment at the medical diseases that jeopardize our women.

Eclampsia, I believe I can say, leads the list of this class of cases and its mortality is high. Here antipartum care is above all things needful. The majority of eclampsia cases can be prevented by the careful study of all pregnant women at as early a stage of their pregnancy as possible. It will not do simply to examine their urine from time to time for albumin; they must be taught to live sensible lives while they have to nourish and care not only for themselves but for their unborn children. Their diet should be regulated and they must have the maximum of fresh air; regulation of the bowels goes without saying; they should report to their physician the slightest abnormal signs, such as headache or nausea, so that he may investigate the blood pressure and urine and institute immediately such remedies as will insure proper elimination from skin, bowels, and kidneys. If the patient has been seen late and eclampsia

has occurred, we have had surprising results by the use of morphine in large doses, together with washing the stomach, rectal irrigations, and the administration of castor oil.

Dr. McPherson has published several excellent articles on this subject and has shown a reduction in the mortality from 28 per cent. by the old method to less than 8 per cent. by the new.

Cases of heart disease I have treated by keeping them in the open air night and day and feeding them well, treating their symptoms with proper medication, and allowing them to continue their pregnancy and deliver themselves normally. Much better results have been obtained in this way than by inducing labor early. Tuberculosis calls for early interruption of pregnancy, also any form of cancer.

To sum it up: The general practitioner who assumes the responsibility of confinement cases needs a most certain knowledge of the technique of surgical cleanliness. He must realize that if he take charge of a woman during the greater part of her pregnancy and anything goes wrong, such as a sudden onset of eclampsia or a malpresentation, he, in the majority of cases, is responsible; also in a case of labor where there has been no other interference, he is responsible for any puerperal infection that may arise.

I believe the careful keeping of case histories is a great help to every medical man and the more carefully these histories are recorded the better the results. He is bound to go over them from time to time, and by so doing his shortcomings are brought to his notice and he will be stimulated to overcome his mistakes.

Let us all work together and do our part to put the profession on a higher standard; to do this we must extend with sincere honesty of purpose the hand of friendship and unselfish good fellowship to all.

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WAR NEUROSES IN WOMEN.

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The present war has brought to light a multitude of new problems, difficult of solution because of the multiplexities and magnitude of modern civilization. The physician and the surgeon at the front have had many opportunities to study the resultants of modern warfare, to deal with infections, with the organic results of trauma, and the psychic manifestations of war in the form of "war neuroses" and so-called "shell shock." The troop surgeon at the cantonments has had his problems with the selection of new men and the establishment of good health in slightly damaged individuals. At his side has stood the psychologist helping him to weed out the potential coward, the probable neurotic wreck, the inefficient worker.

As is usually the case when dealing with large problems, the silent sufferer at home has been forgotten in our scheme of things masculine. We have in our desire to aid democracy forgotten that democracy begins in the home where reigns that most essential arbiter of the nation's fate—a woman. To her the nation, the struggling world must turn even now for the sons and daughters of posterity who are to carry on our work. Therefore is it necessary that we consider her health, her present problems, when a son, a husband, a brother, or a sweetheart is torn from her side. We may smile at her perpetually knitting, knitting, or rolling bandages, or stopping us on street corners crying, "Only a mite for the Red Cross," but we must ask ourselves is she paying a price beyond the personal loss of those dear to her, is she suffering from war-time ills?

"War neuroses" have to date been described as strictly masculine conditions. Yet from time immemorial we have listened to the slogan "nervous women." Why not more nervous now? Do they not suffer the same or perhaps more constant and severer strains than the male sex?

The problem of war neuroses in women is to the writer's mind peculiarly an American problem. In France, England, Belgium, and Germany the conditions have been those of actual warfare, the actual defense of the home brought the issue squarely home to the women of these countries. Their's was everything to gain, to lose; their's was to fight back of their men with every encouragement possible! But in the United States this is only gradually becoming the fact. In 1916 we elected a President with the slogan, "He kept us out of war"; the posters portrayed him as a protector of the mother and the wife because he did not rush into the tremendous European melee. The war was far away from us, we did not see our part in the struggle. The Lusitania horror had apparently been glossed over; diplomatic notes gave promise of keeping us from taking up arms—we had not realized the great principle that we were to stand for. Some far-sighted individuals saw the necessity of our entering the world war, but to the majority the message was not clear, and especially was this true of our women who saw no reason why we should take an active part. We were sending money, supplies, ships. What more could Europe want of us?

Then came the insolent message of Germany, the dismissal of her unctuous, but treacherous, ambassador and the declaration of war. To the masculine mind came relief, for we find relief in action, but to the woman came the worry, the anxiety of war—and a war she saw no necessity for. One of America's noblest women (she gave a husband and a son to the cause), Mary Roberts Rinehart, says: "So I find among women who think a vast resentment against this war. Against any war. For wars are man made. And it is the women who bear sons to fight them."

She saw the draft legislation go into effect, she struggled against "her boys" enlisting, she moved Heaven and earth to prevent his going "over there." But the inexorable decrees of Mars could not be set aside, one by one her male companions, her male offspring were leaving her to think, think, think, to worry, to feel the desperation of loneliness: as Mrs. Rinehart again ably says, "A certain morbid view is inevitable. And revelations of departmental deficiencies have brought

their inevitable train of discontent. . . . To the women at home there are quiet hours with the empty places that she feels may never be filled again: and she broods."

She called upon her male protectors to ask for a dishonorable solution of the world problem, she cried for peace; peace at any price. Her letters to her soldier were bitterly complaining, to such an extent that Capt. H. George of the Tank Recruiting Station says: "Most cases of bad morale in fighting men can be traced to the attitude of their women at home. . . . Nothing takes the fighting spirit out of a man so quickly as the pitying, sneering, or whining attitude of a woman."

So essential had this attitude become that the U. S. Army had to take cognizance of these facts and move the draft camps away from their women, who visit them and disturb the tranquillity of mind that daily training, action, etc., brings to their men.

We are dealing therefore with the reactions of the sex to a violent mental trauma and the purpose here is to survey briefly the field of the neuroses and other mental disturbances produced in women by this war.

To attack the problem one first has to consider the mental and phsical make-up of the women affected. At this point let me state that the greater number of women (and here I am kinder than most lay observers) have responded nobly to the calls made upon them. They have given freely of their moneys, of their jewelry; they have worked in camps and base hospitals; they have labored night and day on Liberty Loan and other "drives," but they have in many instances consciously, in many instances subconsciously, withheld their men from their larger duties. In fewer instances they have seized the flambeau of democracy and pushed it into the hands of their males and cried, "Fight for us, fight for our right to live." However, this command is gradually becoming more urgent and the women are responding to the call.

For the purposes of this study women will be classified as:

1. Normal women; (*a*) With adequate reactions, (*b*) With inadequate and false reactions.
2. Neuropathic women.
3. Hyperthyroid types.
4. Engaged girls.
5. Newly married women.
6. Women with families; (*a*) Dependent upon their husbands, (*b*) Independent of their husbands.
7. Women at the climacteric period.
8. Aged women.
9. Pregnant women.

All of these types have been more or less affected by the war. The tremendous unrest of the industrial and social world occasioned by the struggle to some extent has upset the equilibrium of even the best balanced nervous systems. A music teacher recently told me that she could not get the responses from her female pupils that she could in the past, as she put it, "Their minds are on the war." A corsetiere stated to me that never had she found her patrons so hard to please, so irritable, "They seem to be tense with the war," she stated.

The normal woman who reacts adequately has stopped her own emotions, held in check her own desires, and then calmly reasoned out the war and its principles for herself. She realizes the great necessity for men, and has given freely of her family. She is the type exemplified so well by the better educated classes, who have sent their sons forward and then have taken up the winning of the war themselves by executive committee and productive work. Here there is no fear of the war neurosis, the only danger for these women lies in their tendency to overwork, to give more of themselves than they are able. Exhaustion neuroses are likely to be quite common among them, in fact the writer has seen these types of cases a number of times. There is nothing especially characteristic about them, except perhaps the mental state of the patients, which is either that of marked elation, or the converse, one of severe depression, due to the fact that these women feel sorely the fact that they no longer can continue their labors.

Among the majority of so-called normal women, however, the reactions have been entirely inadequate. They have not, as has been previously pointed out, been able to grasp the ultimate reasons for the war, or our part in it. To them war meant the killing of their men, and one finds such reactions as those of a prominent concert singer who made public the statement, "I would rather kill my son than see him fight." She voiced the opinion of many women in this statement. One of the early slogans of the woman suffrage workers was that had the women had the vote we would have been out of the war; in fact they claimed that had the women of the world had control the present world carnage would not have occurred. It is indeed to be gravely doubted whether this would have been the fact, for all history points to the opposite. The ancient Greek women girdled themselves with sword-belts and fought valiantly for their rights, the women of France during the Revolution were as insatiable for blood as their men, the Sioux Indian turned over his prisoners to his women for punishment, and even in this struggle the Russian women entered the fray as a "Battallion of Death." A Joan of Arc, a Molly Pitcher, a Charlotte Cushing has taken a part in every war. It is plainly to be seen that this reaction, the desire to prevent their men from going to the front had its basis in a wish fulfilment complex, a desire to retain their men, and incidentally, as women are not economically independent, the maintenance of their homes and their comforts. The last fifteen years has been one of unusual personal extravagance on the part of the female sex in this country; styles have been ornate, outlandish furs are worn in the heat of mid-summer, the merest stripling who marries must furnish his home with "period furniture," motors bring pleasures of all kinds. This, plus the loss of her supporter, was to be the loss of the so-called normal woman. The call was too powerful and the result has been a group of inadequate reactions. Various minor neuroses have developed, the majority being of a wish fulfilment, or sexual type.

Harlow Brooks and other army surgeons have been astonished by the number of cases of hyperthyroidism that have developed in the male sex

since the beginning of the war. In fact, they have been led to give up the original belief that the condition is one preeminently femine. The test, however, should rather be checking off of these cases against those developed in women during the same period and the study of the aggravation of thyroid symptoms in women who already had minor lesions before the commencement of the war. It is difficult to do this, yet the writer has been led to believe, by the study of neurotic conditions in women, that a great many women have, with the fear of losing their loved ones, with the sudden tearing from their firesides of their men folk, developed these conditions and that the old relation still exists. Modern endocrinology has pointed to the stigmata of possible thyroid dyscrasia in apparently normal men and women, the potential victims of tachycardia, exophthalmos, goiter, etc., and certainly observers in times of peace have found them more commonly amongst women. Life insurance examiners, who in times of peace can well be compared to the present recruiting surgeons, for they examine apparently normal invidividuals, have found thyroid conditions to be preeminently feminine. Not to be forgotten as a factor in this field is the relationship of these disturbances to vagosympathetic unbalance. All are agreed that this is preeminently a feminine condition, that fear, shock, worry, prolonged strains upset this delicate mechanism, and create not only neural but endocrine manifestations. The soldier must feel them all, and at times during the stress of battle must succumb to them. His women at home bear a steadier strain; they peruse each paper, each letter, for fear that unwelcome news is there; they give up unwillingly their supporters, their offspring, with the resultant neuroses, exemplified by dysglandular and vagosympatheticonic symptoms.

Engaged girls have not suffered apparently to so great an extent from neuroses due to the war. As a rule they are younger, they look upon life optimistically, they have occupations that relieve. The heroism of a soldier, the uniform, all send feelings of pride and pleasure into the hearts of the majority. Most of them have therefore reacted without neurotic manifestations. The remainder have met their problem in one of the following ways:

They have married their lover and then either sent him proudly to the front or they have married to try to beat the draft, to save him from the front, and when this failed them developed various types of neuroses of the anxiety or sexual type. The physician who lives in a community of younger people can bear witness to the women of this type who come to him for bromides, etc., anything to still their "pains," their "insomnias," to quiet them.

A second type of engaged girl has given herself up to her lover. She has indulged in excessive demonstrations of affections, in many instances given of her sexual self, and when her lover was torn from her developed all varieties of sexual neuroses. This is especially true of women of twenty-five or thirty years who have waited for marriage until their lovers should be economically able to support them. The war robbed the man of his opportunity to climb, and the woman, seeing the destruction of her air castles, has failed to respond adequately.

Newly married women have also fallen into similar classes. They either have given freely (because they felt their ability to support themselves), or else have developed all forms of minor neuroses, chiefly of the anxiety or sexual type. To them has come especially the problem of pregnancy. Knowing full well that conception might save their males for them, they have frequently been led to sexual excesses, and here is frequently added the neurosis occasioned by the lack of longed-for children, or the neurosis caused by self-reproach in, as one of my patients said, "having been so selfish for a few years of life," without offspring. They look back over their years of coitus interruptus, etc., and develop the abnormal complexes caused by these acts. I know of the instance of one woman whose husband was killed "over there," who, when the news reached her, cried out, "I killed his child," and for weeks was a complete neurotic wreck. She still moans over her "not having his child to link her to the past."

Women with families dependent upon them and their husbands have so far been spared the severe pangs of separation. Everything is being done by the government to save these men from actual warfare. They therefore have no real strain, except that of a vague anxiety hardly sufficient to create a real neurosis, but nevertheless manifesting itself in unrest and worriment.

Women with families independent of their husbands have usually given freely of their men. They take a certain pride in feeling that their children's "daddy" will bring home a name made illustrious by war-time deeds. Theirs has been a complete marital life, and while they hope and pray for their male consorts they bravely face the future, doing their bit in properly bringing up their children to be true Americans. Neuroses here are a rarity.

A sad group at the present time are the women at the climacteric period. Their sons have just attained manhood, they have labored to develop good men, they are frequently involved in mother-son complexes, they are very jealous of their daughters-in-law to be—how much more do they feel the pangs of separation by war, how tremendous is the strain upon them at this period of life added to the tremendous upheaval in the endocrine make-up! It is in this group of women that the reactions seem to be the most violent. Here develop all types of neuroses, from the simple anxiety types to the most intense dysglandular and psychotic syndromes.

To this group belong the women who cry out against "the murder of their sons," who would rather "see their sons dead" than "over there," the women who try to reach local boards by bribery, who rail against governmental methods. These are their simpler reactions. A great many more develop definite neuroses, especially if their favorite sons are taken. The only cases of true insanity the writer has seen among women as a resultant of the present war strain belong to this group. These women as a rule suffer a complex

trauma, consisting essentially of (1) the mother-son complex, (2) the support complex (I name it so for want of a better designation), (3) the natural horror for war complex of women who have borne children, and (4) the resultants of the unbalance of their neuroendocrine systems. Small wonder, therefore, that this group should furnish the greatest number of neuroses.

Truly aged women take the war calmly. They have lived their lives, they do not have the usual worries of the other ages; they find, in fact, a certain desire to see their grandsons "do their bit." Frequently they have seen the Civil or Spanish-American war, or, if not, have been brought up to believe first of all in America, which feeling unfortunately the egotistic lives of modern Americans have destroyed to a marked extent. To these gentle old souls comes no neurosis, with them there rather is a tremendous feeling of patriotism.

The problem of pregnant women is a complex one. The married woman in this state as a rule has but little worry; her man will not be taken from her if the government can prevent. The single girl, illicitly pregnant, presents a double problem, that of her unfortunate condition combined so frequently with the desire to rid herself of the conception or the knowledge of an abortion secretly and illegally performed. The Germans have solved the problem in an obnoxious way by making illegitimate pregnancy a war-time condition to be proud of. This, however, does not appeal to the Anglo-Saxon mind. Free love in any of its forms has never been a welcome institution with the English-speaking nations; therefore these unfortunately pregnant girls face all varieties of fears, all varieties of momentous decisions, and meet them as a rule inadequately. The problem is a real one to the general practitioner of medicine, for this condition exists to a far greater extent than is generally supposed. The abortion evil is growing to Gargantuan dimensions—enough so in ordinary times, but even more so in these times of war. These girls suffer all forms of neuroses, but especially all varieties of sexual and wish fulfilment complexes. This field will be a fertile one for more study on the part of gynecologists; suffice it to state that it is a very real one for the general practitioner and neurologist.

We have attempted to outline the types of women affected, and their primary reactions to the psychic trauma of war. The actual neuroses are variegated in types, but they are essentially, in the majority, anxiety and sex neuroses, or psychasthenias. They may be considered under the following headings:

1. Exhaustion neuroses due to (*a*) Overwork and overstrain in war work, (*b*) The mental and physical strain at the time of or after the departure of their sons or husbands, etc.

2. Psychasthenias due to the prolonged fear and mental strain occasioned by the departure of the male members of their families.

3. Hysteria.

4. Hyperthyroidism and hyperadrenalism.

5. Exaggerated defense reactions.

6. Neuroses of simpler type, (*a*) Sexual, (*b*) Anxiety.

7. Climacteric disturbances.

These, in a manner comparable to those among the male sex, present no essential differences from those found in civil life. The same causes are at work, only upon a larger scale, therefore the reactions are more violent and more frequent than in times of peace. Cardiac manifestations are common; pains, palpitation, tachycardias of all types exist. One patient has the precordial pains so severely after reading of Allied reverses that she is confined to bed for two to three days. Vertigo and dizziness with associated fainting spells must by this time have become a frequent cause for "emergency calls." Gastric manifestations are not so frequent, yet one woman who read an account of bayonnetting in conjunction with seeing a motion picture of our "Sammies" attacking dummies in the South developed a most intractable vomiting.

Another patient has two sons in the army; she had always been of an hysterical type. When her boys were drafted she lived in continual dread; she never gave up her children willingly; she brooded continually and was rebellious against government of all kind. One evening she went to a nearby amusement park and was startled by the explosion of a piece of fireworks; she gave a brief cry and then became deaf. Physical examination revealed no aural defect. She had a definite corneal and pharyngeal anesthesia. After being kept quiet for a few days she gradually recovered her hearing. To her was then explained the mechanism of her affliction, the deep-seated wish fulfillment complex of not wishing to hear guns as they reminded her of unpleasant memories.

The simpler sex and anxiety neuroses manifest themselves by all forms of palpitations, precordial pains, feelings of fullness about the head, insomnia, and variegated types of morbid dreads. An entire chapter might well be devoted to the study of this type of reaction.

Hyperthyroidism and hyperadrenalism present their usual picture. The writer is led to believe that at the present time they are more frequent than under normal conditions, at least so all clinical observations on his part seem to indicate. If Crile and other observers are correct in stating that a steady strain, fear, and worry are conducive to endocrine abnormalities, especially of a thyroid or suprarenal type, the woman at home is certainly a victim of these conditions. Associated therewith one finds all types of vagosympathicotonic disturbances, but so bound up is this system with the endocrine chain that the separation of the various factors in each case is the work of the medical examiner.

Women at the climacteric are especially prone to neuropsychic manifestations. These women, under the war stress, under the strain of being separated from their loved sons, present all types of pictures, from simple precordial pains, tachycardias, insomnias, etc., to actual insanity, especially of the melancholic type.

Cases of all types could be added to exemplify the various conditions described, but the cardinal point that this war is developing neuroses in the female sex is the one to be borne in mind. A po-

lice captain, a man of remarkable acuteness of thought, stated to me recently, "I think the women are going insane from the war strain." He told me of a number of instances connected with his work, and especially of a woman who feared to cross a street, "it reminded her of a trench." The observant bystander, the music teacher, the corsetiere, the police official, among the laity has therefore noted the psychic unrest, of how much greater import is it for us to try to prevent, to cure these states of mind!

Therapy.—The therapy in general is that of all neuroses. The physician must approach the problem with sympathy, sympathy with the patient, sympathy *with our cause*. He must familiarize himself with all the factors creating the world struggle and the conflicting emotions of his patient. Unfortunately the average woman has not had adequate political education, so she sees the problem of the war as a personal one and not as a national issue. Her home is threatened, and apparently for a war across the seas in which *she* sees no necessity of our taking part. It is the duty of the physician to rectify her errors of thought, to give her mental rest and the solution of her puzzle. He can then direct her overflowing energy into new channels, into Red Cross work, knitting, etc. As to knitting Mary Roberts Rinehart makes a good point when she calls it "a mental anesthetic." The danger in any of this war work on the part of the female sex is the danger of sublimation of emotions, of the improper solution of the problem. I know of instances of women knitting, in which they cry over their work, and fondle it as if it were a lost child, an absent lover, or a husband. This work should never be done except with a clear understanding of the war's justice, when it becomes truly a labor of love, not an "anesthetic for pains"; in fact, frequently the length of the yarn measures the length of the mental strain, the flow of suprarenal substance into the blood, the overflow of neural energy.

The theater, unfortunately, at the present time, offers little relief. Everywhere songs about "daddy over there," of children crying for their dear ones, maudlin war melodies greet the ear. How much better were it if these writers of lyrics would limit themselves to the songs of the type of Cohan's "Over There," or that real message to America's women, "Keep the Home Fires Burning." To advise the theater, therefore, is a risky procedure. Books are a means of therapy. A writer in the *Atlantic Monthly* once said he would prescribe "Congressional Records" for insomnia. Well can the physician choose among modern war literature messages that will help the modern woman. Empy's latest volume, Wright's "Letters to the Mother of a Soldier," Dawson's "The Father of a Soldier," are all helpful. The reading of "A Man Without a Country" restores the nationalistic desire.

Sports are not to be neglected, for the sounder the body the brighter red the blood corpuscles, the brighter the mind.

For actual disease conditions rest, glandular therapy, tonic or sedative baths, and massage are helpful. Bromides, valerianates, etc., are virtually useless. Drugs never can stop mental processes; they are valuable only in the more tremendous types of unrest, in the excitement of hyperthyroidism, etc.

Psychotherapy of all kinds is valuable. In the climacteric and sexual neuroses especially so, for here the various complexes must be cleared up. Hypnosis is useful for the treatment of the various defense reactions, the deafness, the vomiting and allied conditions.

This has been a rather sketchy picture; it had to be so because the subject is a tremendous one and because materials are not easily to be found, not because they do not exist, but because these problems are preeminently the problems of the private physician. The writer has obtained his materials in the New York Neurological Institute, in private practice in a neighborhood hard hit by the draft, and by constant questioning of women at clubs, places of business, in their homes, and at the theater. The policeman, the managers of offices, the local board physicians, have all contributed, sometimes wittingly, sometimes unwittingly, to this study.

These war neuroses exist; they are playing an important part in our national life, and the physician at home can well do "war work" in lightening the mental burden of these women. Then they, too, will feel the poet's message who sang,

"We never give, but giving get again,
There is no burden that we may not bear,
Our sweetest love is always sweetest pain,
And yet the recompense, the recompense is there."

220 Audubon Avenue.

CANCER, A DISEASE OF DEFICIENCY.*

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When, from a correct general principle one develops the conclusions in special cases of its application, new surprises, for which one has not previously prepared, always make their appearance. And since the conclusions unfold, not according to the author's caprice, but after their own laws, it has often made the impression upon me that really it was not my own work which I wrote down, but merely the work of another.
Hermann Von Helmholtz.

Cancer is an adaptive response on the part of certain cells or cell groups to environmental change: we must start with the fundamental truth that every adaptive response made by cells to environmental change is the outcome of the interaction of two factors—environmental stimulus on the one hand and the cell potentiality on the other.[1]

There are groups of cells forming whole organs which are not in direct contact with the outer world and some that are in such contact.

The epithelium of which true cancer is made up is subject to three forms of influence: The Nutritional Factor, the Neighboring Cell factor, and the External World Factor. The epithelial cancer cell exhibits an abnormal capacity for assimilating nutriment and puts this nutriment to no useful purpose; therefore it becomes a menace to the well-being of its host, in other words a fungus. Now, in proportion as a cancer cell grows away from its normal relationship and ceases to be an absorbing or secreting agent, so does its malignancy increase.

*Presidential Address delivered before The New Cross Medical Society, May 9, 1918.

What are the conditions that favor the abnormal growth of epithelium?

The first authentic account of constipation as a disease and the cause of disease was written by Dr. Robert Bell of Glasgow and appeared in the *Lancet* for 1880; since then many volumes have been written and reputations made on the treatment of intestinal stasis. Other exciting causes are chemical irritation, *x*-rays, alcohol, soot, arsenic, betel nut, clay pipes, and many more forms of irritation.

The age incidence of cancer depends on the fact that at fifty or thereabouts the epithelial cells are not able to accomplish the amount of work they did in earlier years. The late Sir Jonathan Hutchinson said that cancer was a disease of old age and that everyone would get it if he or she lived long enough.

Cohnheim evolved the theory of embryonic "rests," and thought that these "rests" were able to take on active growth at about fifty years of age and so form malignant tumors, but he failed to tell us why "rests" should acquire this remarkable power of growth after so long; therefore his theory was always more picturesque than satisfying, still it must be admitted that Cohnheim's work has served a valuable purpose in leading the way for other investigators. Box believes that cancer is caused by protozoa; he finds them in all cancers. Protozoa are widely diffused throughout the world, they are very resistant, and many of them are so small that they can only be detected with difficulty.

In Uruguay and the Argentine cancer of the alimentary tract is very common, and Box thinks that this is due to eating fish, protozoa being abundant in fish. Whether the starting point be "rest" or protozoon the broad fact remains that neither of them could develop unless there were something in the blood stream favorable to its growth.

Working in the Randolf Spreckles Laboratory of the University of California Dr. Brailsford Robinson has conducted a series of experiments with anterior pituitary gland and found it has a marked influence on cancer growth.[2]

Rats which had been inoculated with Flexner-Jobling cancer were given anterior pituitrin in the form of subcutaneous injecton of tethelin and it was found that their cancers grew 100 per cent. more than those of the control animals. Research is still going on under Dr. Brailsford Robinson and further reports may be looked for; at the moment of writing it is impossible to appraise the value of his work on anterior pituitrin.

Altmann's Granules.—In nearly all tissue cells of vertebrata, granules can be demonstrated; and investigation of the cells of pathological tissues proved these granules absent in the cells of both carcinoma and sarcoma, but present in the cells of innocent tumors and in those produced by inflammatory conditions.[3] The granules are regarded as the elementary particles of life. They may be very well demonstrated in the cells of the intestinal epithelium. They are composed of protein, are thought to be formed from the nucleus, and are liable to undergo change into fibrils which tend to collect into masses near the nucleus; at other stages they tend to run together and form fat globules which may be stained with osmic acid. Granules vary in different specimens and at different stages of development in the same cell or cells. Ehrlich introduced a series of special names for granules in different stages. Granules bear some important relation to metabolic activity of the cells in which they reside. Altmann's granules are not found in squamous epithelium.[3]

It is reasonable to assume that there is both a local and a general factor in cancer; the local factor is probably a microparasite which stimulates the epithelial cells of adults to multiply in somewhat the same way as the male gamete initiates reproductive changes in the female gamete.

The general factor is an abnormal condition of the blood, dependent on poverty of vitamines and on the presence of certain unoxidized toxins absorbed from the alimentary canal which favor the development of the local factor. First of all, deficiency of vitamines in the food we eat, to which subject we shall return later; secondly, the absorption of toxic products which enter the blood as a result of altered or overtaxed intestinal mucous membrane and the reabsorption of toxins as a result of intestinal stasis, commonly called constipation. It must not be forgotten that cancer affecting some part of the alimentary canal is often the end result of old standing constipation.

There is a certain analogy existing between tuberculosis and cancer; in the former we have a well understood bacillus with a known antitoxin and a general condition of bad health which no physician or surgeon disputes. In cancer we can only presume the existence of a parasite, while we are only too familiar with the accompanying state of bad health.

Morton and Murphy exposed white mice to repeated small doses of *x*-rays from a Collidge tube and noted this treatment destroyed the major portion of the lymphoid system without causing other visible injury or prejudicing the health of the mice. Cancer was grafted into these and others which had not been exposed to the *x*-rays; it was noted that the tumors grew much more quickly in the mice whose lymphoid system was damaged than in the controls. This result goes to show that cancer develops most readily when injury has diminished the power of resistance.[4]

Unfortunately, cancer workers have divided themselves into two schools of thought; the larger school, which includes many eminent surgeons, looks only for the parasite and pending its discovery treats its cancer patients by surgical operations often heroic in their magnitude, and one at least has gone so far as to say that nothing more can be done till the parasite has been catalogued.

A comparatively small school regards cancer as purely an error of metabolism and treats it accordingly. A series of investigations into the metabolism of cancer were undertaken in Von Noorden's laboratories and the findings are of great interest, but they do not help us much with regard to the origin of cancer, most of the observations having been made on fairly advanced cases of carcinoma of the stomach.

To return to our analogy, the *Bacillus tubercu-*

losis and its tuberculin have not done away with the necessity for the constitutional treatment of tuberculosis by fresh air, good food, and the like. For similar reasons when the cancer parasite is discovered there will still be some conditions of the blood favorable to its development and others resistant. When we turn to cancer as an accomplished fact we are on firmer ground. In the cachexia of cancer we have to deal with a toxogenous disintegration of protoplasm independent of nutrition.[6] Free hydrochloric acid is absent from the stomach in most cases; in 10 to 13 per cent. it is present;[6] these exceptions are cases in which a cancerous growth is superimposed on an existing ulcer; as the disease advances and the ulcer becomes all cancerous the hydrochloric acid is wanting in accordance with the above-mentioned fact; further, it has been shown that the total chlorine content is not diminished and that there is no increase of sodium chloride; it follows, therefore, that the stomach has secreted hydrochloric acid in normal quantities and that it has been immediately acted upon by basic bodies derived from the tumor juices; again, if a definite amount of hydrochloric acid is introduced into a clean, empty stomach it will be found that after a short time a considerable part of it has been neutralized by the alkaline juices; all this considered, we must conclude that in cancer in or about the stomach it is not a question of diminished secretion of hydrochloric acid, but rather of rapid neutralization by pathological juices. There is some loss of mobility in cancer of the stomach and this, together with the diminished amount of available hydrochloric acid, favors putrefactive processes.

The stomach contains acetic acid very early in the disease and this is thought by some to be a specific sign of cancer. I think, however, that we should exclude excessive drinking before we diagnose cancer by the presence of acetic acid, because I am under the impression that unabsorbed alcohol sometimes undergoes acetic fermentation.

In the progress of cancer there is always a progressive anemia and some observers insist on this being a specific effect of the hypothetical cancer toxin; there is a diminution in the number of red blood corpuscles and consequently some diminution in the hemoglobin content, the specific gravity being diminished—the normal Sp. G. is 1.0591 for men and 1.0562 for women; in cancer the findings may be 1.046 and 1.040 respectively, which phenomenon depends on the reduced number of red blood corpuscles.

Dr. Robert Bell has recorded variations in the electrical polarity of the blood corpuscles of cancerous patients.

The nitrogen content of the blood may be as low as 0.79 in 100, the normal being 2.0 to 2.5 per 100.[7]

Every observer knows that there are emaciation and decline of physical strength in cancer patients; with these main symptoms there occurs dryness of the skin, loss of hair, anorexia, and psychical depression. The emaciation is less marked when patients are treated with vitamines to be described below. Patients often pine away with loss of muscular power while still retaining a fair amount of fat reserve.

Von Noorden thinks that the muscular apparatus is most affected in cancer. Malnutrition is only one cause of loss of strength; the other factor is the pathological disintegration of protein mentioned above.

It was in 1889 that F. Müller carefully examined the metabolism of cancerous patients not suffering from fever or edema and found that the nitrogen loss in gastric cancer exceeded considerably the amount that could be explained as due to the existing inanition; further the abnormally increased disintegration of protein was even more conspicuous in a patient suffering from external cancer, whose intake of food was normal. In this instance it was quite impossible to balance the excretion by an increased food supply. A daily supply of 21 grams of nitrogen failed to equalize the loss which still exceeded the intake. The intake was then reduced to the verge of starvation and still the nitrogen excreted exceeded that of healthy individuals; this abnormal excretion of nitrogen cannot be demonstrated in every case.

Müller's work has been confirmed by all subsequent investigators who have worked on similar lines. There are a few cases in which a retention of nitrogen occurs, and in some cases of cancer of the esophagus a considerable increase of weight is observed. A rise of temperature may account in a few cases for the increased metabolism of protein, and Müller was careful to experiment only in cases which had no pyrexia.

It must not be overlooked that discharges from cancers are albuminous and may account for some of the waste of nitrogen in cases of gastric cancer. Washings from the empty stomach contain regularly about 0.01 gram of nitrogen which must come from the tumor, though the new growth may be too small to be accurately felt. I hold strongly and am here referring to Müller's theory of the specific toxogenous disintegration of protein in cancer.[8]

Bearing on the toxogenous theory of cancer it is interesting to recall the incidence of cancer occurring in subjects who already suffer from diabetes. Diabetes is admittedly a disease of carbohydrate metabolism and when a disease of protein metabolism is superimposed it is easy to understand how readily fatal two such conditions are likely to be.

For twenty years it has been noticed that cancerous evolution is undoubtedly influenced by preexisting diabetes. Coma is very frequent after operations on cancerous growths and the examination of the urine for sugar before a contemplated operation has an importance that is not always appreciated. In advanced diabetes where the chances of success are so limited, operations are likely to hasten the death of the patient. When any doubt exists as to the malignancy of a discharging tumor the point may be settled by the polarimeter; normal albumins are levorotary; discharges containing cancer cells are dextrorotary. Normally, the end products of the metabolism of protein are urea 96 per cent., uric acid 1.8 per cent., ammonia 1.2 per cent., and extractives 0.6 to 0.8 per cent. In cancer the figures are urea less than 80 per cent., uric acid 1 to 5 per cent., ammonia 0.2 to 13 per cent., and ex-

tractives 13 per cent. to 23 per cent. These observations were originally made by Topfor and have been confirmed by other observers.

More than forty years ago Sir Samuel Wilks, basing his remarks on 2,000 autopsies in Guy's Hospital, came to the conclusion that the edema and cachexia of cancer were due to factors accompanying cancer. If the edema and cachexia which exist so constantly in patients suffering from malignant disease are not due to cancer itself then what are they due to?

In setting out to treat cancer we must decide between the two schools of thought and act accordingly.

Are we to regard cancer as a general condition dependent on errors of metabolism, or are we to regard it as a local condition? There can be no doubt that the cachexia of cancer is a general condition, but some still maintain that the onset is purely local; with this I entirely disagree.

Some of the epitheliomata are not very malignant and cases treated by surgical operations do very well, but the most enthusiastic surgeon is bound to admit that removal of a breast does not permanently relieve or cure scirrhus. On the other hand, there is abundance of clinical evidence to prove that cancer patients treated by vitamines and hormones live longer and have less pain than those treated only by operation.

I contend that the cancer parasite does not flourish in a blood that is well supplied with vitamines and hormonies. It is with this hypothesis that I set out to describe the rational treatment of cancer.

The Vitamines and Bios.—For more than a hundred years it has been recognized that to maintain health foods must contain something more than proteins, carbohydrates, fats, salt, and water, but the nature of that something was not made known till the twentieth century was more than ten years old. Robert Bell called the substance vitols, but the name was not generally adopted; Funk introduced the name vitamines, and spent much time in trying to unravel the mystery; he thought that vitamines were complex substances with the pyramidine base. The pyramidine base is C_5H_5N. Bell thinks vitols or vitamines are metallic colloids. Vitamines will stand a temperature of 100° C. for two hours, but are quickly destroyed at 120° C.[7]

Wildiers discovered a substance which he has provisionally called Bios, and finds that it has a wonderful influence on growth. Bios is found in all cultures of growing yeast.

It is interesting to note that the laboratory work with regard to bios was being done at the University of Louvain, whose tragic fate is one of the most conspicuous blots on the good name of our time. Bios is soluble in 80 per cent. alcohol, not in absolute alcohol or ether; it is present in some extracts of meat, in commercial peptone, and in beerwort; whatever its chemical composition may be, it is not the same thing as vitamines.[8]

Starling, Bayliss, and Hopkins have pointed out that it is not enough to estimate a diet only by the caloric value of its constituents, for the presence of small quantities of substances such as vitamines, bios and hormones must be taken into account. A crystalline substance has been isolated from rice bran in the proportion of 2.5 grams from 100 kilos.[9] For medical purposes the best way is to obtain vitamines from yeast, the bottom yeast is found to be more suitable than top yeast. In many breweries the bottom yeast is washed out of the vats, and so wasted, the material therefore has the advantage of being cheap; when yeast is obtained from the brewery it is pressed to remove any beer; after going through various pressing, heating, and filtering processes, the essential constituents are precipitated by hydrous aluminum silicate, which should be in colloid form, and is known as Lloyd's reagent; the approved dose is 45 grains a day."

The custom of our time demands that some laboratory findings should be given in support of newly stated clinical experiences.

Feeding experiments were tried on a flock of twelve pigeons contained in a large cage. On feeding with an exclusive diet of polished rice the pigeons developed a form of neuritis resembling beriberi; those that were given yeast vitamines rapidly recovered; it was found that a paralyzed pigeon was able to fly again after a few doses, and was apparently cured in twelve hours.

A pigeon being experimentally fed requires 20 grams of whole grain daily to prevent beriberi, but the addition of half a gram of yeast flour will keep it in good health.

At the present time two separate vitamines have been recognized. The anti-scurvy vitamine, which is soluble in fats, and found normally in butter; and the anti-neuritis vitamine, which is soluble in water.

Eijkman, who was pathologist to a hospital in Java during 1897, noticed that fowls, when fed on boiled polished rice that had been sent down from the wards, developed a peculiar disease resembling beriberi, and so found the first explanation of the disease beriberi.

Little or nothing is known of the chemical or physical appearances of vitamines, and their presence or absence can only be detected by biological methods. It must be remembered that the vitamines reside near the husk or skin in all corn and fruits.

Turning to the uses of vitamines, it will be remembered that Captain Cook, on his second voyage of one thousand days was successful in avoiding scurvy. In 1776 he wrote: "We came to few places where either the art of man or nature did not afford some sort of refreshment or other, either of the animal or vegetable kind. It was my first care to procure what could be met with of either by every means in my power, and to oblige our people to make use thereof, both by example and authority; but the benefits arising from such refreshment soon became so obvious that I had little occasion to employ one or the other." Scurvy is a deficiency disease due to the want of vitamines and bios.

The cubs of a lioness in the zoo persistently died and a leading surgeon gave it as his opinion that their diet of cab horse was deficient in fat; this was changed for one of good class meat and the family flourished; was it only fat that was needed? I venture to suggest that it was not so much fat as vitamines, bios, and hormones that the lions required. There must be some vitamines in good

fresh meat, because scurvy was absent from the Scott and Shackleton antarctic voyages when the men were supplied with fresh meat.

Human milk is deficient in vitamines when babies are kept too long on the breast; this fact explains the incidence of rickets in some breast fed children.

In the Philippines it has been observed that the infant of a mother fed on polished rice is likely to develop beriberi, but that it is rapidly cured by a diet of fresh cow's milk or by rice vitamines.

The most important and convincing of all evidence regarding vitamines is the experience of the Japanese navy. At one time as many as a quarter of the crews were affected with beriberi, till Baron Takaki was deputed to study the diets of other navies, and he realized that the medieval custom of feeding on polished rice was the cause; the diet was changed and beriberi avoided. One more illustration will suffice. In the Strait Settlements the Chinese eat polished rice and the Tamils boil their rice whole; as a result the Chinese get beriberi and the Tamils do not. In the prisons polished rice is used and the Tamils and Chinese suffer alike. In this country nearly all the rice sold is polished to make it look white, but here it forms only a small part of our food and we get vitamines from other sources. In 1854 cholera attacked the midland counties; there were many deaths in Staffordshire and elsewhere, but the fruit growing and cider making villages of Herefordshire escaped. The physicians of that time attributed this to the custom of eating fresh fruit; it is certain that the villagers did not peel their apples and so consumed vitamines freely; it being a fact that the vitamines exist near the peel in all such fruits.

Vitamines and bios act as catalysers; the purpose of a catalyser is to set in motion or to retard the action of other substances; there are many of these in the body, without which the formation of living matter from food does not take place properly.[9]

The principal of catalysis is well understood by chemists and the following example from inorganic chemistry will serve to illustrate what happens. Hydrogen peroxide undergoes slow decomposition into oxygen and water, but if a small portion of spongy platinum be added to it, it is at once seen to decompose quickly with the evolution of bubbles of oxygen; in this experiment the spongy platinum is the catalyser.[12]

Turning from vitamines to hormones we find that there is no hormone known to have a specific action on a cancer, but it is an established fact that the thyroid gland controls metabolism, and, as we shall see, there is clinical evidence that it influences cancer growth.

The thyroid gland is known to have four principal functions.[13] (1) It governs the growth of all cells and sustains their functional activity. (2) It controls calcium metabolism. (3) It is a profound catabolic stimulent, facilitating the breaking down of exhausted cells and governing the elimination of the waste products of their disintegration. (4) It exercises a protective antitoxic and immunizing action, defending the body not only against the toxic products of its metabolism, but against invasion by disease-producing microorganisms and injury by their products.

The colloidal substance contained in the thyroid gland is understood to be its active principal and the quality of the colloid in its turn depends on its iodine content. The iodine content of butchers' meat is very low and therefore excessive or exclusive meat diet causes poverty of the thyroid (McCarrison) and degeneration of the gland.

Poverty of vitamines also causes degeneration of the thyroid. Pigeons fed on polished rice suffer from thyroid degeneration, and animals and birds in captivity seldom have normal thyroids. Bensley has found that opossums captured in a wild state when brought under domestication develop hypothyroidism, their thyroids rapidly changing from the colloid to the hyperplastic type, due presumably to an increased ingestion of protein. In an overtaxed thyroid the intervesicular tissue becomes relatively increased in amount and the vesicles empty and shrink, all of which changes are indicative of an attempt at increased activity on the part of the gland.

The thyroid gland presides over metabolism. The abnormal processes of a disordered digestion interfere with the efficient elaboration of the thyroid's secretion, thus reducing its physiological activity.

Intestinal stasis leads to subthyroidism by reason of the action on the gland of toxic products absorbed from the static bowel.[14] A vicious circle is thus established.

When we come to consider the incidence of cancer in different countries and at different periods we are struck by the fact that wherever luxurious living abounds there cancer flourishes.

Amongst the Polynesians and Melanesians cancer is almost unknown and these two races are practically vegetarians; in Egypt cancer is seldom or never found amongst the black races; in South Africa the Boers and Europeans are large meat eaters and suffer frequently from cancer, whilst the natives who are largely vegetarians seldom so suffer. In fourteen years Dr. Johnson saw only five cases of cancer in the natives and these were living as Europeans. Renner reports that during the thirty years, 1870 to 1900, there were only twenty cases of malignant disease among 22,453 patients admitted into the colonial hospital, whilst in the next ten years there were twenty-six cases out of 10,163 admissions, a slow but steady increase in cancer incidence with the advancing influence of the white men and their meat-eating habits."[15]

Many more statistics could be given but these are sufficient to show that a diet which taxes the thyroid and is low in vitamines causes an increase in cancer.

The general treatment must be preventative and curative and at both stages will include the avoidance or treatment of constipation. It has been shown that in intestinal stasis putrefactive organisms invade the small intestine and poisonous toxins are absorbed, the small intestine is intended for the aseptic absorption of food and the colon for the bacterial destruction of residues. The invasion of the small intestine by putrefactive organisms depends on the amount of pathological delay which results either from bad habit or disease and it is necessary to remember that the bad habit of neglecting the bowels is the commonest cause of the disease which sometimes ensues.

Vitamines, including bios, may be administered

as part of our food or as medicines. All fresh, uncooked fruits and vegetables are rich in vitamines and all patients in whom cancer is suspected must take as much fresh fruit and vegetables as possible when obtainable; a pound of raw tomatoes daily will supply the necessary vitamines, salads will do the same. It must be remembered that vitamines exist immediately beneath the skin of roots and just below the peel of fruits such as apples; the bloom to be so readily seen on grapes and freshly picked apples and pears is the natural yeast and contains the substance known as bios. It is plain, therefore, that an apple just picked from its parent tree does not require peeling. I am bound to admit that there is some excuse for removing the peel from an apple which is taken from a street barrow and which, as often as not has a telltale and quite unnatural polish; there is always a remote possibility of the man who polished the apple having tuberculosis. Potatoes can be scrubbed with a hand brush and then boiled, the middle of a potato is mostly starch and potato starch is not the best form of carbohydrate; raw carrot grated into soup is often a useful source of vitamine. It is unreasonable to expect the alimentary tract of a human being in our time to make living protoplasm of dead meat unless the process is aided by catalysers in the form of vitamines, bios, or both. It is not scientific or useful blindly to order everyone to become a vegetarian; what we require is a diet rich in vitamines; meat is always poor in vitamines and often free from any appreciable amount.

To avoid useless repetition I shall for the future use the word vitamines only and it must be understood to include catalyzers derived from bios also.

Like the temperance cause the vegetarian argument has suffered much from its friends. The alarming increase in the incidence of cancer synchronizes with the advance of modern meat-eating habits. It is no more reasonable to look for vitamines in Australian rabbits that have been ten years in cold storage than it was for authorities of the zoological gardens to expect a lioness to rear her family on a diet of London cab horse.

When it is thought necessary to supplement the vitamines obtained from foods, that can be usefully done by administering yeast tablets as described above; the dose is from 10 to 45 grains in the 24 hours. I generally start by ordering a five-grain tablet three times a day and increasing to two or three tablets if required. Yeast tablets given in large doses act as an aperient. Thyroid gland is useful and may be given as a routine, but care must be taken in ordering thyroid to patients likely to have old heart disease or atheroma of the arteries. The dose of thyroid is generally one grain of the dried extract, standardized to contain 0.2 of iodine; in old people it is safer to begin with half a grain. I do not think that any good is done by giving heroic doses of thyroid. Other hormones are useful in special cases. A combination of thyroid with a preparation of solar plexus often answers better than thyroid alone and many cases of uterine cancer do well on mammary and ovarian hormones. Shirlaw has recommended a combination of thyroid, adrenal, and pituitary hormones; secretin is useful in some gastric cancers. Space does not admit of my going fully into the question of hormones.

One fact that stands out above all others is that cancer patients treated with vitamines and hormones never suffer from the distressing cachoxia and general malaise that are so constant a feature in those treated by surgical operations.

Laboratory findings with regard to vitamine and hormone treatment of cancer are not so numerous as might be wished, but there is abundance of clinical evidence accumulating to prove the truth of all I have written. Local treatment alone cannot be expected to cure a general disease, but as an adjunct to vitamine and hormone treatment local measures are of the greatest use.

Case I.—Mrs. J. aged 70, came under observation January 28, 1918; when first seen she was confined to her bed, was suffering much pain and showed signs of carcinoma of the pylorus with secondary deposits in the liver. The diagnosis was confirmed by a colleague; treatment was begun with precipitated yeast vitamines, 5 grains, and dessicated thyroid gland, ½ grain, three times a day; there was improvement from the first and after two months the patient was in good general health, had no pain and could get about; when last examined the new growths were quiescent and the patient was enjoying life; she did not show any cachexia.

Case II.—Mr. C. suffered from carcinoma of the pylorus several years ago and was put on vegetarian diet by one of my colleagues. He did not go down hill and in the early part of 1918 developed a growth on the inferior maxilla for which he consulted the writer. He was put on vitamine and thyroid powders, 5 grains and two-thirds of a grain respectively; he was also given local treatment by means of the electric vibrator; when last seen the growth in his jaw was smaller and giving no trouble; in other words it was quiescent.

Case III.—Mr. B. aged 57 came under observation with a well marked epithelioma affecting the right antrum and side of the nose. Treatment with yeast vitamines 5 grains and desiccated thyroid gland two-thirds of a grain was begun January 18, and there was gradual improvement up till March 18 when it was suspended, owing to an accident; till March 25, during this period the growth enlarged very quickly and the patient was obviously losing ground. On March 25 treatment was resumed with 7½ grains of yeast vitamines rising to 15 grains, with 1 grain of desiccated thyroid. April 7 the growth was smaller and the patient was better than he had been since treatment was suspended on March 18.

These cases are cited to show that yeast vitamines as used by the writer* have a definite beneficial effect on cancer; they are not presented as a final report.

The *x*-ray treatment of cancer has not been a great success, partly because even small doses damage or destroy the lymphoid tissue in the human subject, just as Morton and Murphy found in their experiments on mice. If you destroy portions of lymphoid tissue you render your patient less resistant to any cancer cells that remain.

One other point must be remembered in connection with thermal treatments; cancer cells cannot resist a temperature of 58° C. and some are destroyed at 55° C. whilst normal epithelial cells can resist 60° C. It does not seem to me that there is a safe workable margin between 58° C. and 60° C. You cannot work at 58° C. and be perfectly sure that you will not reach 60° C. and so do too much. I venture to say that the radium treatment of cancer has not come up to expectations.

Hyperemia.—After vitamines and hormones, by

*The precipitated yeast vitamines used were specially prepared for me by Eli Lilly & Company, of Indianapolis, U. S. A.

far the most important remedy for the treatment of cancer is induced hyperemia, which is a therapeutic measure local in technique and general in its result. The importance and comparative novelty of its use justifies me in submitting some general description of the practice.

Induced hyperemia was used empirically by the ancients, but our interest in it starts about the middle of the sixteenth century, when Ambroise Paré (born 1517, died 1590) used hyperemia to cause absorption of an abnormally large callus; it is interesting to remember that Paré preceded Harvey*, and therefore could not have understood the circulation of the blood, though he may have had some notion of it.

Every organ is hyperemic during its period of functional activity and there is no process of repair known to surgery which is accompanied by anemia; on the other hand, progressive anemia is one of the most constant signs of unsuccessfully treated or untreated cancer. If we realize these facts we must surround a cancer with hyperemia, which is the most universal autocurative agent.[15]

Treatment by hyperemia aims at flooding the affected part with normal blood, for cancer is only possible where there is giving way of the natural defenses against disease, commonly spoken of as strain.

The reaction hyperemia which appears after induced anemia, such as that produced by Esmarch's bandage, is entirely independent of the nervous system.[15]

The curative effects of hyperemia are not confined entirely to the part treated. Walsh reports a case under his care at the now abandoned Tallerman Institute, which illustrated this. The patient was suffering from old intractable eczema of both hands, which seemed to have resisted all the remedies tried; heat was applied to one hand by way of an experiment, and resulted in a general curative effect on both hands.[15]

It is as well to remember that overtreatment by hyperemia is apt to cause headache and to tax the strength generally. This is due to the absorption of toxins at a rate which is in advance of the patient's ability to deal with them. I think a patient who is likely to be suffering from atheroma of his arteries should be carefully watched if under treatment by hyperemia. There is no more remarkable effect of treatment by hyperemia than the relief of pain, a most important matter where cancer is concerned.

Hyperemia produced by cupping is known to relieve the pain in pleurisy and it is said that this is due to the drawing of blood from the inflamed pleura; there does not seem to be any doubt about the relief of the pain, but I give the foregoing explanation of its mode of action with some nervousness. It may be that the relief of pain in deep seated cancer is due to the drawing of blood from the area of the disease; at any rate, I have seen a great deal of relief follow the production of superficial hyperemia in a case of deep seated cancer.

Fat is admittedly absorbed by lymphatics, but nearly all carbohydrates, proteins, salts, water and soluble albumins generally are absorbed by the capillarics; similar laws prevail with regard to absorption of pathological materials from tissues and cavities of the body. The absorption of solid or bodily elements takes place through the lymphatics.

It has been shown conclusively that active hyperemia increases absorption. Sir Astley Cooper thought the use of cupping-glass hyperemia of value in the treatment of poisoned wounds; the converse is true also, for it has been found that positively lethal doses of cocaine can be injected into a limb beneath a constricting bandage and that death does not follow if the bandage is kept tight for at least an hour.

Hyperemia has definite solvent properties. The nodules in a case of trigger finger rapidly absorb water under active hyperemia. Thomas of Cologne has cured cases of keloid by hyperemia; the solvent process has been termed autolysis and ascribed to some ferment contained in or derived from the leucocytes. No one attributes the dilatation of a stricture wholly to the mechanical action of the dilators, the active hyperemia set up in the scar softens it and makes the cure possible.[15]

Blood serum has a solvent property, as witness the maceration and solvent effect on the skin seen when a dropsical limb is punctured and some of the serum is allowed to trickle down unprotected portions of the sin. Sir Almroth Wright has shown that the liquefaction of tissue by white blood corpuscles depends for its success on the presence of abundance of blood serum. The well known improvement in stiff joints treated by massage must be ascribed to the solvent effects of the blood.

The cellular pathology of Virchow has held the field for many years, but it must be remembered that blood cells live in serum and it is only reasonable to suppose that the cells give certain properties to the serum in which they exist.

Taken all in all it seems to me that in reality the living tissues in an as yet unborn life process may achieve annihilation of intrudent poison. There is much more of therapeutic value in the blood serum than our physiology and pathology is aware of.

Coming back to our subject, hyperemia can be induced in several ways, by cupping glasses, by Esmarch's bandage, by heat, and by massage. In cancer practice much can be accomplished by means of vibratory massage, the method used by Robert Bell, in whose clinic I first saw it applied. The electric vibrator should be used for a quarter of an hour every other day or less often. There is no doubt at all that it relieves pain and hastens the recovery of the patient, but it should be used as an adjunct to internal treatment by vitamines and hormones; obviously, if you are going to increase the blood supply to the diseased area for curative purposes you must see to it that the blood is as nearly normal as possible.

Post Scriptum.

Many writers draw comparisons between tuberculosis and cancer, attributing the declining death rate from tuberculosis to the discovery of the *Bacillus tuberculosis* and subsequent introduction of tuberculin. I do not know what proportion of tuberculous patients are injected with tuberculin, but I am certain that very few recover without constitutional treatment. When first introduced tuberculin was a dangerous remedy and often did harm;

*Harvey lived from 1578 to 1657 and his celebrated essay on the circulation of the blood was publsihed in 1628.

today it is mostly used as an adjunct to general treatment.

It is interesting to consider the cancer and phthisis death rates in this country. The following figures represent the deaths from each cause per million:

Cancer.

Year	1911	1912	1913	1914	1915
Deaths.....	992	1,023	1,064	1,069	1,121

Phthisis.

Year	1911	1912	1913	1914	1915
Deaths.....	1,061	1,021	989	1,022	1,136

Diabetes.

Year	1911	1912	1913	1914	1915
Deaths.....	106	111	118	122	130

It will be seen from the above figures that the death rates from cancer and phthisis are becoming very nearly equal, and that deaths from diabetes are increasing. During the year 1915 there was in the civil population of the United Kingdom a total of 41,676 deaths from phthisis and 39,847 from cancer. I have introduced the figures relating to diabetes, because diabetes is admittedly a disease of metabolism and it helps to show that diseases due to metabolism are becoming more fatal as we increasingly sophisticate our food.

As our knowledge of chemical pathology increases I think it will be found that the predisposing cause of cancer is some break in the normal chain of complex substances which exist between protein and urea; on which side of the amino-acids the chain breaks I do not know, but the exciting cause may be some parasite, probably a protozoon..

About half the cases of cancer begin in some part of the alimentary canal; whilst we are abusing our almentary canals more and more every year, what more reasonable than the contention that cancer is a disease due to a deficiency of vitamines and their congeners and incidentally to intestinal toxemia?

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42A New Cross Road.

THE POINT OF ENTRY.

By DOUGLAS H. STEWART, M.D., F.A.C.S.,
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THE point of entry of germs and toxins, through which they pass from a wound into the human body may seem to be a minor point; at any rate, it is a well-neglected one. Much has been written about pus and pus organisms; yet only now, or recently, has any great attention been given to the rôle of wound contained tissue, to putrefaction pure and simple, and to the dangerous combination of the two in one host. The literature of the day contains many references to the importance of making a wound sterile; but these are rather nullified by a mention of the impossibility of so doing, unless by the employment of an antiseptic of such an irritating strength that its application will tend to accomplish rather more hurt than benefit. The advantages to be obtained through the use of some of the metalloid halogens are spread abroad, possibly a little more widely than is the result of that clinical experience that demonstrates that those substances are eczema producers and retarders of Nature's healing processes.

The use and the conservation of blood serum is being taught here and there, even though the teachers seem so lacking in economy and thrift in the matters that they value, that they allow the patient's serum to run away, to soak into the bandages, to be thrown away with the soiled dressings while some attempt to replace it or its functions is made through the generous application of horses' serum. Excision or debridement is practised, all pieces of torn or contused tissue are removed lest they harbor and nourish invading germs and this is well; when possible and when even microscopic-sized fragments of dead or dying tissue are carefully taken away before they putrefy. But were the many expedients of the day admittedly feasible, successful, and practicable, perhaps nothing more need be said. The bacteria would soon be destroyed or rendered harmless and their evil works would cease. Though as things are and in view of the partial success that attends immense efforts to kill bacteria, perhaps it may be well to bestow a little of our care upon the party attacked and especially upon the point of entry rather than to give our whole attention to bactericidal measures.

In the great industries there is or was a set of men who employed putrefaction for a useful purpose. Such men were known as tanners and they placed the hides of animals in underground vaults. There those hides were allowed to putrefy or sweat until the hair and the scarf skin became so softened that their removal was an easy process; but with that removal the points of entry for that hide were opened. Therefore had the arrest of the process not been under control the whole of the subjected hide would have been rotted or rendered valueless. By submerging such a hide in a strong solution of tannic acid the microbes, the yeasts, and the proteins were all precipitated or fixed and the tissue of the hide was infiltrated or rendered hard, tough, and putrefaction-proof. In other words, the portal of entry was blocked by a coagulation of albuminoids upon the surface, be-

neath the surface and within the meshes of such a hide.

A simple experimental example lies in suspending two pieces of meat in separate test tubes, one of which contains a 10 per cent. solution of tannic acid and the other contains plain water. Both test tubes are to be kept at a temperature of 80° for four or five days. Or, in another trial, two pieces of catgut, one plain and the other tanned, may be placed in an infected wound, though they themselves should be sterile. After a few days (5 to 7) the contrast will prove very great when the two are submitted to careful examination. In a large tannery that the writer was once familiar with certain sorts of leather were changed from vat to vat for a year or more, yet they did not putrefy, although as has been said the process of putrefaction was under full headway when the hides were first introduced into the tanning mixture, which latter the tanners tasted without apparent harm.

In the MEDICAL RECORD of March 28, 1896, there appeared an article by Veeder in which it was stated that a certain patient who had had large suppuration sinuses had had pretty much all sorts of antiseptic treatment; but after those tracts had been carefully injected with solutions of tannic acid, the pus was squeezed out like cheesy worms and prompt improvement followed. This would be a sort of vice versa for the matter under present discussion, for in that instance the process might be termed a blocking of points of exit. However, the point remains to-day as it was then, *i.e.* the solution should be of sufficient strength and should be so applied as to make a visible change in the pus—if pus is present, of course.

As for serum and wound repair it seems as though many men had the idea that serum should be tapped and run off lest it produce tension. Though it surely means something when so many surgeons who are actively engaged send back word that wounds are to be closed in the shortest possible time. It also has a meaning that upon all sides is heard a condemnation of wet wounds or even so much as a wet spot upon the edge or margin of a wound. Such things surely mean that serum, leucocytes, etc., are precious and should be treasured and retained in the proper environment. It is also implied that dryness and putrefaction are contradictory conditions and that a profuse flow of wound discharges is a waste of natural efficiency. Therefore it behooves us to get a wound cleaned, dry, and closed rather than to wait until the whole state of affairs becomes irremediable through a combination of moisture, putrefaction, and processes akin to peptonization.

The presence of the first member of the combination is perhaps the most neglected factor in the modern treatment of wounds, for it makes possible all of the other factors. It must be evident to every student of the matter that the best possible condition for rapid healing is one where a wall (as it were) of tanned albumin prevents either tension or invasion; while the blood vessels are not contracted nor are serum and antibodies prevented from traveling up to the very plugs of tanned proteins that block the outlets and terminals. Tissues are hardened, are infiltrated, and their openings are sealed. All of which processes the microscopic examination will make comprehensible, and some understanding may result from a strong application of tannin solution to one's tongue or cheek-membrane. Tannic acid is an antiseptic even in the strengths of a grain to the ounce; but the present paper deals with it as a preservative astringent. A defender because it is a drier. A statement that holds good for the treatment of wet ulcer, a weeping eczema, a hyperidrosis, a ruptured blister, or any similar condition of discharge. Tannic acid acts equally well in a nosebleed or on an open carbuncle. The preparation employed is the U. S. P. tannic acid test solution. A hypodermic with a rather large caliber needle, the point of which has been carefully blunted, is an excellent instrument, and the time spent in allowing the medicament to soak in, to come in contact with every particle of that wound, to obtain the change of tissue color and to dry is never wasted.

The solution referred to in the preceding paragraph is usually labeled No. 119, because that is its proper number among the standard test solutions. An apothecary would know it either by name or number. Needless to say, its use is not accompanied by pain; but if one wishes to close a new wound at once upon its receipt, then this solution is a capital one to apply to such a wound immediately before stitching. It has a place either when employed alone or with other measures.

The writer has an idea that all wounds should not be treated alike, and the limitations of this solution have not yet appeared. He only knows that over three hundred wounds that were doing but poorly under other modes of treatment at once began to do well and progress to recovery when put upon this method. This solution is both easy to obtain and easy to apply. It certainly has a place and perhaps a wide one. Though wet in itself it soon drys and is therefore applicable to any system of dry dressing. However, the fact emphasized here is not its power as a germicide; that is well known to be great; but its ability to close the point of entry against the invasion of microorganisms.

The dressing powder with which the writer is most familiar is ethylene-diamine-sulphate of mercury one grain, sodium perborate one scruple, and boric acid to make an ounce. The wound to be treated is tanned and then this is put upon it, abundantly. Sometimes a doctor or a nurse puts the powder upon the wound first and follows that with Solution No. 119, U. S. P. If this is done the wound cannot be tanned, for the tanning solution goes into a globular or spheroidal state and runs away from the wound, or from any other predetermined locality after the manner of quicksilver when put upon a platter. Let the technique be as described in the body of this article and there will be neither difficulty nor disappointment, for these are both sequential to a deviation from plain directions.

128 WEST EIGHTY-SIXTH STREET.

CONGENITAL LARYNGEAL STRIDOR.

REPORT OF TWO CASES WITH CLASSIFICATION OF LARYNGEAL AFFECTIONS.

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Two cases of this condition have recently come to my notice. The first case of congenital laryngeal stridor was seen in a child of five months, the second, in a child of eight months. Both cases had previously been seen by a number of physicians and many diagnoses had been made, among them asthma, acute bronchitis, laryngismus stridulus, and acute laryngitis. Since the histories of the two cases and their course were practically identical it will be sufficient to describe the first case.

The stridor in breathing was noticed two days after birth, was confined entirely to inspiration, and while it became intense during crying, was always present. The inspiratory stridor could be heard across the room, while the expiration was quiet and unobstructed. In spite of this obvious difficulty in breathing, which was attended by retraction of the supraclavicular spaces and strong downward and inward traction on the lower ribs with bulging of the abdomen, there was no cyanosis, no hoarseness, no cough. The baby was breast-fed, somewhat pale, but showed no evidences of rickets or any other diseased condition. In coming to a diagnosis we were able to eliminate catarrhal affections of the larynx, like acute laryngitis, by the absence of hoarseness and cough, membranous affections by the absence of all difficulty in expiration, spasmodic affections, like laryngismus stridulus, with which it is most often confused, by the continuous character of the difficulty.

The diagnosis of congenital laryngeal stridor is made then when a child under one year of age presents marked difficulty in inspiration only, which dates from birth and is not accompanied by cyanosis, hoarseness, or cough.

The pathology of this condition as given by Ley of England in 1837, and verified by Koplik, is a congenital maldevelopment of the epiglottic and eryepiglottic folds. At about one year, through the general growth and development of the larynx, these folds no longer interfere with normal inspiration and a spontaneous recovery takes place. No treatment is indicated or possible and the prognosis is invariably good, as the child is entirely well by the end of the first year.

From the fact that no reference is made to this condition by Rotch in his book, "Diseases of Children," published in 1897, or by Kerley in 1914, it would appear that this condition is not as frequently recognized or as well known as one would expect it to be from the fact that it was fully described by Condie of Philadelphia as early as 1850. Furthermore, the more literature I consulted the more confused I became in regard to the various affections of the larynx in infants as there was very little agreement among the different authors even in the definition of terms. Thiemich of Breslau says that that which is often called laryngismus stridulus is laryngospasm and that this latter term should be used in all cases of audible breathing in infants, including congenital laryngeal stridor. From this it would appear then that he considers congenital laryngeal stridor to be due to a spasm of the larynx. Koplik, in describing congenital laryngeal stridor, states it is often associated with rickets, to which it obviously can bear no relation since it is a congenital condition and due to maldevelopment. It would appear that here he was thinking of laryngismus stridulus, as in discussing this latter condition he quotes Henoch and Kossowitz for the statement that it is present at birth.

Much confusion was also found in the discussions on etiology and pathology.

The thymus gland has figured in the etiology of laryngeal affections at least since 1712 and every decade since then some one has rediscovered the thymus as the cause of laryngeal stridor, even though it was clearly shown by Condie in 1850 and Jacobi and others in 1859 that the enlarged thymus was not associated with this condition and anatomically could not produce any irritation of the recurrent laryngeal nerve which is given off from the vagus at a point where the thymus cannot produce any pressure. But medical theories die hard, for in 1914 Kerley again speaks of the thymus gland as a frequent cause of laryngismus stridulus.

Authoritative text books show that there is still a great deal of confusion between laryngismus stridulus and congenital laryngeal stridor, and particularly in the description of laryngismus stridulus is there considerable contradiction among the older and more recent authors. This is considered a spasm of the larynx by most physicians to-day and is so described in most of the text books, but in 1850 Condie referred to the statement of Ley of England that laryngismus stridulus is not due to a laryngospasm but to an impaired innervation which prevents the proper opening of the glottis, and in 1859 Jacobi stated in his classical description of this condition that few have a correct conception of the physiological explanation of the symptoms of laryngismus stridulus which, according to his view, are not adequately explained by the spasm of the larynx. He divides the attack into three stages: the first stage is characterized by a sudden and entire apnea, respiration stopping suddenly and entirely for a few seconds, the face is bloodless and the entire muscular system is in a state of paralysis; the second stage is characterized by a return of the muscular action of the larynx as a result of stimulation by the recurrent laryngeal nerve and the spinal nerves of respiration, which causes a violent crowing inspiration; the third stage consists of convulsive respiratory action, sometimes accompanied by general convulsions or carpopedal spasms. This description of the first two stages coincides with the "holding breath spells" of Meigs, which, however, Thiemich claims is an hysterical expression of a neuropathic constitution and that it has nothing in common with laryngospasm.

The best definition of laryngismus stridulus would appear to be that it is an expression of an

abnormal excitomotor nervous system, is usually met with in children six months to three years of age affected by rickets, and is characterized by apnea followed by spasm of the larynx.

The word "croup" in the description of laryngeal affections also causes much confusion. The older authors frequently include in this term membranous laryngitis, laryngismus stridulus, and larngitis stridulosa and though later writers clearly define these conditions at the beginning of the chapter, the description of the onset, symptoms, and prognosis leave much to be desired in clearness and definiteness. Much of the confusion in the description of laryngeal affections is apparently due to the persistence of erroneous conceptions of pathology or etiology, as when laryngismus stridulus is called thymic asthma by some or the thymus gland is given a prominent place in its etiology.

After consulting text books and literature I attempted to elaborate a classification of diseases of the larynx in infants that would clearly distinguish the various conditions on an etiological basis and permit one to have a definite conception of the pathology, etiology, and prognosis of each condition described. It has simplified the subject for me and may be found useful by others.

Classification	*Pathology.*	*Etiology*
I—Congenital Laryngeal Stridor	Maldevelopment.	Heredity and prenatal factors, syphilis?
II—Laryngitis.	Inflammation.	
A. Simple.		
1. Acute.		
a. With spasm.		Extension of catarrh of nasopharynx.
b. Without spasm.		Vasomotor disturbances.
2. Chronic or Subacute.		Irritants, adenoids. Tumors } of Tuberculosis } Glottis Syphilis }
B. Membranous (diphtheria).		Klebs-Loeffler bacillus.
III—Neurosis.		
A. Laryngismus Stridulus.	Neuropathy	Neuropathic inheritance. Malnutrition. Rickets.
B. Laryngospasm.	Nerve irritation.	Pressure or stimulation of recurrent laryngeal nerve from tumors, enlarged thyroid, enlarged glands. Cerebral conditions like hydrocephalus. Spasmophilia.

191 Littleton Avenue.

DRUG ADDICTION AND THE MEDICAL PRACTITIONER.

By Thomas W. Edgar, M.D.

New York.

What am I to do with my drug addiction cases? This is the question that confronts the general practitioner frequently. Thanks to the legislative body in our State, we the practising physicians, hestitate when one of these unfortunates enters our consulting room and we either refer the patient or boldly state that we are unable to administer to his wants in precious grains.

Legislation has, through the creation of certain laws, practically made it impossible for the busy general practitioner to appreciate and understand just where his place is in the treatment of this serious illness. Laws and their amendments have inculcated in the minds of the physicians that it is hazardous to give aid to drug addicts, inasmuch as, if narcotics are prescribed, it will lay open the giver to investigation, prosecution, and frequent visits from the authorities.

The situation to-day regarding drug addiction is in an upheaval; not one physician in ten wants to treat an addict, because he feels that the procedure is too hazardous. The consequence is that he refers the patient (if he has the money) to an institution, and if the addict is without funds he is turned away, finally reaching and hitching up with the charlatan, who is only too willing to cater to his or her needs.

What is the result? Institutions are flourishing, charlatans are getting rich, and drug addiction is increasing.

The drug addict must be looked upon as one suffering from an illness, as an individual afflicted with chronic intoxication. We, the physicians, must appreciate that these unfortunates are not degenerates in the true sense of the word, but mortals laboring under adverse conditions, bowed down with the toxemia of their addiction. It is just as unfair to place the stigma of degeneracy upon them as it is to apply the same term to the users of tobacco; both are habits and both are injurious.

It is high time that the medical fraternity, especially the physicians of this great city, wake up to the fact that narcotism is becoming a menace to society, and that unless it is taken in hand and checked by personal cooperation between physician and addict, the State will assume measures to place this class of sufferers in the criminal category and again our jails and prisons will revert to the old régime.

The simple fact that drug addiction has not decreased since legislation has played its part is one of the strongest arguments in favor of every physician giving this question his timely thought. Learn the fundamental elements of treatment, consider addiction as a disease; and then treat this illness personally in your own office or the patient's home. You can do much and accomplish more in reclaiming the addict than all the institutions put together.

The law allows a licensed physician to dispense narcotics by prescription, if he is registered under the State Department of Health and the Internal Revenue Department in conservative dosage that is conducive to the health and needs of his patient. Nevertheless there are certain wolves in the profession who use this as a cloak, in order that they may seemingly traffic in narcotics and fill their pockets by bleeding the unfortunate addict.

Would it not be advantageous for each conscientious physician to treat his addiction cases personally; gain some knowledge of their affliction, and keep them from the hands of the unethical vender of drugs, whose slogan is profit?

The following suggestions may be of help to the general practitioner, and if carried out may meet with success in some cases.

The treatment of narcotism in my mind is based on five cardinal principles, namely: (1) Estimation of daily dose (24 hours); (2) eliminative treatment; (3) body weight; (4) sanitary and hygienic requirements; (5) medication and mental therapeutics.

Previous to going somewhat into detail, regarding the above I might say there is not a "specific" known for the cure of drug addiction, and for that reason medication is useful only as the necessity arises and the symptomatology requires.

In each case of drug addiction it is advised that a complete history be taken and a thorough physical examination be made, going into detail regarding cause of addiction, method of introduction, etc., noting the weight, degree of reaction, and whether or not the addict is a mixed case, taking along with the narcotic alcohol, tobacco, etc.

Estimation of the daily quantity of the drug taken is of importance, inasmuch as it gives the physician a definite idea as to the amount of the drug necessary to sustain the individual, and carry him through the day; secondly, it is the amount that enables the patient to establish his mental equilibrium, and combat his inherent longings and cravings; in other words, the addict's point of relative tolerance is indicated by the amount of drug taken in a given length of time. Less will shatter his equilibrium, more tends to act as excess luggage, producing a degree of toxicity in proportion to the amount indulged in.

It is an established fact that morphine is excreted mainly by the digestive tract, and is found in large quantities in the feces. This is more so in the recent addict than in those who have been addicted for a longer period of time. The explanation of this being that the old addict has formed a tolerance for the drug and his tissues are better able to oxidize, leaving less of the drug to pass into the intestine.

Thus purgation is a very popular form of treatment, great stress being laid on its beneficial results, while the suffering it causes is never mentioned except by those who have undergone the blue mass and calomel diet. The principle is correct, but the methods used are harsh and not conducive to body comfort.

I have found that the most satisfactory method of elimination is by the use of high colonic irrigations, made of hypertonic salt solution (NaCl), the patient taking one of these night and morning. The lower bowel and colon are thoroughly washed; the residue of fluid remaining in the intestine, which is of greater concentration than that in the intestinal wall, calls forth by osmosis more fluid, thus depleting the body in the surrounding area, with a consequent diminution of drug absorption in the intestinal canal. In this way the same eliminative results are obtained without the suffering, griping, and diarrhea which weaken the patient.

Body weight is to be charted on each visit to the office, as it is a most valuable metabolic indicator. Morphine tends to produce anorexia, with a loss of weight. This must be overcome by an increased diet of those food stuffs which will supply the loss, namely, the sugars and proteins. It is often advisable to supply artificially pepsin and diluted hydrochloric acid, as often the secretion of the stomach glands is greatly diminished, due to the action of morphine. Feed the patient up to the limit of his appetite with good wholesome food, being careful to select those food stuffs that are easily assimilable.

The sanitary and hygienic requirements of the patient are not to be neglected, as is so often the case. A hot bath is to be taken nightly, after which the skin of the entire body is to be rubbed with a heavy Turkish towel. This opens up the pores and helps elimination. Another bath worthy of note is the rock-salt bath. Have the patient buy some cheap ice-cream maker's rock salt; sew it in a bag, about a pound or so, and introduce it into the bath, three times weekly. This is a good skin stimulant.

The teeth should be thoroughly cleansed after eating. Sleeping, fresh air, regular evacuation of the bowels, habits such as staying up late at night, and associating with other addicts should all be looked into. Guard the hygiene of the patient; it will help him attain the goal of his desire.

Medication. As I said previously, a specific for drug addiction has not yet been found; consequently we must confine our medication to those symptoms displayed by our patient that need to be alleviated.

After determining the amount of drug taken daily, it is wise to prescribe enough to last for this length of time. I always feel that I get better cooperation from the patient if I give him only enough drug to last him for twenty-four hours. This method keeps him coming to the physician and the latter becomes of more importance in his life than he would otherwise, aside from giving the physician a good opportunity to study his condition daily. Secondly, he becomes dependent on his physician for his daily supply, and in this way is kept from going to an outsider for his dose.

If the patient is an addict of six months or a year standing it is advisable that the dosage be divided into three or more parts and administered on a full stomach; this prevents absorption to some extent. If divided doses are not practicable have the addict introduce some food into the stomach at the time of taking his dose.

Along with each dose of the drug one-fifth grain of calomel is given for its stimulating action on the gall-bladder. Its use often prevents constipation.

Start the patient on this treatment immediately; see him frequently, never lay stress on the fact that a cure is to be effected shortly. Establish in his mind that ultimately he will automatically cease to labor under his present illness and that by cooperation and intimacy with the physician and through the latter's appreciation of his or her condition the toxemia will gradually be lessened and the body reach such a state of resistance that artificial support will not be necessary. Always be candid with the addict; never allow him to cast suspicion on your arguments; always dominate the situation while in his presence.

After gaining your patient's confidence and establishing in his mind the fact that you are not going to rob him of his precious drug, begin to decrease the daily dosage by small quantities, de-

pending on the reaction of the patient. Never disorganize the mental equilibrium and have the addict complain that he is not getting enough. Slowly you will find the tolerance decreasing. When the second decrease in dosage is made prescribe strychnine sulphate in thirtieth-grain doses morning and afternoon; this tends to stimulate peristalsis and will act as a general tonic. Continue decreasing the dosage constantly, always taking the addict into your confidence.

This simple treatment will produce results in most cases of mild addiction in from four to five months.

The auxiliary treatments by mental suggestion and mild state of hypnosis are to be recognized by those capable of their application, and are factors worthy in all addictions.

Personality, sincerity, and sympathy with an appreciation of the clinical picture of your patient, are assets necessary in the successful application of treatment.

766 West End Avenue.

A SIMPLE THERAPEUTIC TEST OF THYROID FUNCTION.

By HENRY R. HARROWER, M.D., F.R.S.M.,

Los Angeles, Cal.

There are two broad classes of disordered thyroid function: those in which there is a secretory disturbance—the numerous cases of hypo- and hyperthyroidism—and those in which there are structural changes in the thyroid gland—the various forms of goiter.

The diagnosis of goiter is not as easy as some have thought, for while the struma may be most obvious, and this "diagnosis" may be made by the patient, or by any one with eyes to see, there are several forms of goiter, and a real diagnosis should include differentiation of the kind of struma that is present, and particularly the establishment of definite knowledge as to the functional status of the enlarged gland.

Obviously, there is great need of knowing whether a given individual is suffering with a simple hypertrophy, or whether this hypertrophy is accompanied by hypersecretion. In the one case the treatment may include the administration of thyroid extract, and perhaps iodine, while in the other such measures promptly aggravate the condition. Many large goiters are not associated with increased thyroid secretion, and, on the other hand, many cases of thyroidism show no evidence of local glandular enlargement.

It is an advantage to establish an appropriate measure of thyroid functioning in many cases where these two divergent states are suspected, and this is not difficult when the therapeutic test is applied.

It is well known that some patients are very susceptible to thyroid feeding, and small doses cause much discomfort from heart hurry and increased nervousness. Certainly such cases should not receive this kind of treatment, and before it is instituted I have followed a routine which is so simple that I have hesitated to publish it. Nevertheless, it is so effective, and of such decided utility in the differential diagnosis of this particular factor in various thyroid disorders, that I am outlining it here, and expect to hear that many have been doing something of a similar nature.

Just as we are satisfied to have approximate knowledge of the elimination of urinary solids by taking the specific gravity of the 24-hour urine and figuring the "total solids," or are benefited in our work by the very inaccurate but approximate Tallquist hemoglobin test, so we can be satisfied with something approximate if not absolutely accurate. As a matter of fact, absolute accuracy is rare in clinical laboratory procedures, and with the possible exception of the Kjeldahl urinary nitrogen test, and perhaps some of the more recent tests in blood chemistry, all our diagnostic figures are merely approximations. If, however, there is a more or less uniform factor of error, which is found each time we make a given test, the diagnostic value of our work is just as great, and we ignore the lack of accuracy and profit materially by this kind of knowledge.

The functional test for thyroid secretory activity is not scientifically accurate, and, so far as I know, it is not possible to establish a norm of this character and then to be able to say that Mr. X is suffering from a 40 per cent. hypothyroidism, or that Mrs. Y has a hyperthyroidism 70 per cent. above the average. We are glad to know that in this last hypothetical person the thyroid balance is extremely sensitive, and is overthrown with a certain measurable influence.

The Loewi test of sensitiveness to adrenalin instillations is of a similar nature, and while its accuracy has been frequently impugned, nevertheless it is indeed a helpful procedure in suitable cases. So is the following:

The individual whose thyroid secretory function it is desired to measure is given a series of graduated doses of standardized thyroid gland, at uniform intervals, for a certain period of time. During this time the patient makes careful and uniform record (a small chart facilitates this, and when it is used the findings are much more easily seen) of the pulse rate, and adds in a few words any other influence noted, and which the physician looks for with a stimulated thyroid function.

I have used varying doses of thyroid and have given them over differing periods. At present I use and recommend four daily doses of one-half grain, one grain, and two grains of U. S. P. desiccated thyroids respectively. Ordinarily, three days suffices for the test, though it may be advisable to continue the pulse record for one or two days before and two or three days after discontinuing the capsules. Here follow the written instructions which I hand to the patient:

> Take one small capsule at 8, 10, 12 and 2 o'clock. Make a note of the pulse rate, after resting at least ten minutes, at 9, 12, 3, 6 and 9 P.M. On the second day repeat this procedure, using the medium-size capsules, and on the third day use the large capsules in the same way. Do not eat or drink within half an hour of counting the pulse. It is best to arrange to eat after counting, as a full stomach sometimes modifies the rate. Always maintain the same position, preferably sitting, when counting. It is essential that hurry and exercise immediately before counting be studiously avoided. Keep a record of the pulse variations for a day and a half after the capsules are taken, or for five days in all. Carefully enter the findings on the chart. Note any other manifestations which you think may be

connected with taking the capsules on the back of the chart.

Ordinarily, this routine causes no appreciable influence upon a normal individual, while patients whose production of thyroid hormones is sufficiently increased show considerable increases on the third, and perhaps the fourth, day. In obviously hyperthyroid individuals the procedure is unnecessary, and should the test be applied in a case where the thyroid susceptibility is high—*e. g.* where the thyroid secretion is materially enhanced by this feeding—it is best to omit the large capsules altogether. Sometimes even the first series of doses is enough to start the pendulum swinging violently, in which case no further capsules need be taken, though it is well to keep track of the pulse rate for several days.

Conclusions.—It is advantageous to have an approximate knowledge of the thyroid secretory activity, especially in goiter, where it is planned to institute thyroid therapy. This can be measured quite satisfactorily by graduated thyroid feeding and carefully recording the pulse.

Where this simple procedure is carried out indications for or against thyroid feeding are established with comparative ease.

711 Baker-Detwiler Building.

Medicolegal Notes.

Insufficiency of Evidence of Negligence—Failure to Move Patient to Hospital.—Action was brought in tort for the alleged negligence of the defendant physician in the care of the plaintiff, an infant, by reason of which he became blind. The defendant signed a birth certificate which stated that he personally attended the birth of the plaintiff, although he admitted he did not deliver the child, but attended him between five and six hours after he was born. He testified that when he was first called he put a solution of nitrate of silver in the plaintiff's eyes; this was denied by the plaintiff, who offered evidence to the contrary. That such treatment was proper, "and is a part of the technique of childbirth," was admitted by the defendant and others; and there was also evidence that the administration of the solution of nitrate of silver at birth "would make the likelihood of the development of the disease of ophthalmia, which caused the blindness, very much less. "The defendant offered evidence that even if no solution of nitrate of silver was administered at birth, it was shown that the disease was due to a secondary infection, as the symptoms did not develop until eight days afterwards, and that the failure to give the treatment made no difference. The questions whether the defendant failed to administer the treatment or not, and if not administered whether the plaintiff's blindness was due to such omission as a proximate cause, were held rightly submitted to the jury, which returned a verdict for the defendant. There was nothing to show that the plaintiff's eyes were affected with ophthalmia until April 22, 1918, when the right eye became swollen and red and had an unnatural discharge; the left eye was not so badly affected. There was evidence that the defendant was called on April 24, 1916, and after being solicited to come on several occasions, appeared at the house of the plaintiff's father on April 25, 1916, between 5 and 6 o'clock in the afternoon; that at that time the plaintiff's eyes were swollen, red and closed, with pus coming from each eye when opened, and the defendant administered treatment; that the next afternoon between 5 and 6 o'clock the defendant came again and took a smear from the plaintiff's eyes, which were in a worse condition than on the day before. The records of the health department of the city of Boston showed that written notice of the case, bearing a postmark "12.30 a. m., April 27, 1916," was received. The case came before the Massachusetts Supreme Court upon the plaintiff's exceptions to the exclusion of testimony and rulings and refusal to give rulings by the trial court. It was held error to grant requests for rulings that if the infection in the eyes came from an outside source in no way related to treatment by the defendant, the jury should return a verdict for him, and that, if the jury found that the defendant did not have charge of the birth of the child, he owed no duty to it to put drops of nitrate of silver in its eyes, and the jury should return a verdict for him. The evidence was held not to sustain a finding that the defendant's failure to attend the child promptly was negligence. While it might be that the plaintiff would have received better medical treatment if he had been removed to a hospital, yet the defendant's failure to order such removal did not of itself constitute evidence of negligence sufficient to justify a verdict for the plaintiff. While a physician may advise the removal of a patient to a hospital, in an ordinary case he has no authority to order such removal. The testimony relating to the plaintiff's home and whether treatment there would have been proper or would have been more efficient and desirable in a hospital, was held properly excluded. It was also held that if the defendant violated the State statute by failing immediately to report the case to the board of health after he knew that the child's eyes had become inflamed, swollen and red, etc., the failure was evidence of negligence on his part. Whether he immediately gave such notice was held to be a question for the jury.—Medlin v. Bloom (Mass.), 119 N. E. 773.

License to Practise Medicine.—The Illinois Appellate Division holds that the State Board of Health has the right to sue for and recover the penalty provided in the Illinois statute relating to persons practising medicine or treating human ailments without a certificate issued by that board, and providing that such persons shall forfeit and pay to the People of the State of Illinois for the use of that board certain sums to be recovered in an action of debt. One who advertises, professes, offers, undertakes, or pretends to undertake to diagnose, treat, heal, or benefit a patient, regardless of whether that patient is or is not suffering from any actual ailment or disease, and who charges or accepts compensation therefor, is practising medicine within the meaning of the act. Evidence was held sufficient to show that the defendant was practising medicine within the meaning of section 2 of the act, providing that it shall be unlawful for any person to practise medicine in any of its branches without a license so to do from the State Board of Health, and section 9, providing that any person shall be registered as practising medicine within the meaning of the statute who shall treat or profess to treat, operate on or prescribe for any physical ailment or any physical injury or deformity of another, where the defendant undertook or pretended to diagnose, treat and cure the trouble of his patients by a general formula of diagnosis that "the bones or vertebræ of your back are out of their normal or proper position, etc.," and advertised and assumed or pretended to be able to "place those bones of the back in their normal or proper position," the result of so doing to be health, such adjustment being or being pretended to be by applying pressure and applying pressure and manipulation with his hands.—People v. Kane, 205 Ill. App. 32.

Statements to Physician as Evidence.—A physician, called as a witness by his patient, suing for a personal injury, may testify as to the present symptoms of his patient, and repeat the statement of the patient to him as to such symptoms, but may not repeat the history of the case given by the patient during the examination made by him. In the case in question the physician first examined the plaintiff for the purpose of treating her about 11 months after the injury. The only testimony given by him as the plaintiff's witness which could be said to be violative of the rule stated above was given in answer to the following question, viz.: "At that time she gave you the statement about her complaint?" This question was objected to by the defendant's counsel on the ground of hearsay, and the trial court overruled the objection. On appeal it was held that this ruling was entirely proper, for under the rule adverted to above the question was unobjectionable in form.—McMahon v. United Rys. Co. (Mo.), 203 S. W. 500.

Military Medicine.

The Oto-Rhino-Laryngological Service in Italy.—Major W. Sohier Bryant, M.R.C., U. S. A., writes in the *Journal of Laryngology, Rhinology and Otology*, April, 1918, praising in the highest terms the organization and efficiency of the Italian military oto-rhino-laryngological service in Italy. He found that the Italian army had advanced further in medical specialization than the other allies. Their various specialists are organized in close association. The oto-rhino-laryngological specialty is enormously important in this war, because of the great number of defective ears. The importance is observed chiefly from the medicolegal point of view because there are so many cases of defective ears antedating military service, so many are caused or aggravated in the service, and so many are caused by the autolesionists. In fact, the otological specialty may be said to be of as much importance as all the other specialties put together because of the great medicolegal importance of the ear. Bryant found oto-rhino-laryngology no less important in Italy than in France. In Italy there are more autolesionists. After eliminating the cases of trachoma from the ophthalmological total, the number of ophthalmological patients in Italy is not greater than the oto-rhinolaryngological cases. In Italy, trachoma forms half the ophthalmological service. There are many more wounds of eye than of ear.

Bryant considers that the comparative importance and excellence of the Italian medical service challenges admiration and he wishes that every one interested in the service and administration of military medicine could visit Italy to study the Italian organization and efficiency. He cannot express in too strong language his appreciation of the patriotism, scientific spirit, cordiality and hospitality with which the medical department received him everywhere. Kindly interest and courtesy were never lacking on the part of the Italians during his tour.

Maintaining the Health of the British Army.—Col. George G. Nasmith read before the American Public Health Association at Washington, D. C., a paper entitled, "How the Health of the British Army is Maintained" (*American Journal of Public Health*, April, 1918), in which he said that it was necessary to realize that in the temperate climates of Europe the vast majority of communicable diseases of importance from the military standpoint were contracted largely from three sources. (1) Directly from throat and nose secretions; this includes practically all of the ordinary diseases, like measles, whooping-cough, influenza, colds, pneumonia, scarlet fever, diphtheria, etc. (2) Directly from biting insects: *e.g.* malaria, typhus fever, plague, etc. (3) Indirectly through intestinal secretions, containing the germs of typhus fever, cholera, dysentery, etc., gaining access to the body through contaminated water, food, and flies. With this outline in mind it was easy to see that it was possible for such diseases to be held in check, provided that the sanitary and medical organization was such that the germs from one infected soldier could be prevented from reaching another. It was obviously essential in the first first place to remove from the army, at the earliest possible moment, every case of communicable disease after it had been diagnosed. This meant that there must be some means for picking out soldiers who showed symptoms of disease, which really came down to the fact that medical officers must always be on the alert and carry out the instructions of the medical services of the army with dispatch. In the British Army this was one of the very important features in the control of epidemics. If a man was suspected of having any communicable disease he was instantly placed under quarantine until the diagnosis had been confirmed, after which he was removed from the army altogether as a possible focus of infection. This method was practically the only means of eliminating diseases such as measles and scarlet fever, which could not be diagnosed by bacterial methods; but, of course, the procedure was employed in all other kinds of communicable diseases. Great Britain had been fortunate above all other nations in this respect, that she sent over, at first, a small army of regular troops, perfectly equipped from the medical standpoint, as well as in every other way. Efforts had been made for years to remove typhus "carriers" from the regular army and naturally no soldier was sent into the field who was known to have or to be a "carrier" of any contagious disease. Furthermore, the soldiers had practically all been vaccinated against smallpox and inoculated against typhoid fever. As division after division was sent out to the army in France, they too were completely equipped with sanitary squads, casualty cleaning stations, field ambulances, water carts, and other necessary medical equipment. Consequently, as the army grew and expanded into a huge force it was thoroughly equipped not only with the necessary apparatus for caring for the sick and wounded, but also with the experience acquired by those already in the field. In this way the British Army differed from all our European allies, which had been compelled to mobilize everything at once and found themselves woefully lacking in medical equipment and personnel. It could be readily seen that the British Army began under auspicious circumstances, and that thereafter its freedom from communicable diseases depended to a great extent on the preventive measures adopted. All excreta behind the front line and reserve trenches was destroyed in numerous incinerators which were kept burning night and day. The British Army was the only army which had succeeded in doing this. All other excreta which could not be burned was buried so that it could not be reached by flies.

It was the rule to sterilize all water used for drinking purposes, either by boiling, by bisulphate of soda, or by chlorine. The method of chlorinating water on a small scale in general use in the army, as it is in all of the other allied armies, was brought to the attention of the British Army authorities by the publication of a method evolved by Nasmith in 1909. This was particularly useful in the trenches where it was possible to sterilize perfectly a pail or a barrel of water if necessary. Small tablets of hypochlorite of lime, each one sufficient to sterilize a pail of water, were also ordered and issued to the first Canadian division

and proved useful. The great bulk of the water supply, however, was sterilized directly in the water carts by adding one or two spoonfuls of the dry chloride of lime to the partly filled water cart, the mixing being done by the addition of the rest of the water and by the agitation during the trip back to the place where the cart was stationed. In addition to this, large mobile filter units after a plan draughted in 1914 and officially suggested by Nasmith in 1915 after experience in the field, were adopted throughout all the British armies. These mobile filters are capable of filtering and sterilizing large quantities of water and delivering it to water carts or into standpipes, ready to drink. A check was kept on the efficiency of the filtration by mobile field laboratories. In each division there were and are some sixty water carts, each of which holds about 110 gallons. Nasmith and his co-workers attempted to get samples from all these in turn, to see whether the water had been treated. As all the sources of water supply in Flanders, with few exceptions, contain large numbers of bacteria, and as a properly chlorinated water contains very few bacteria, it was easy to tell from the bacteria and *B. coli* tests whether the water in the carts had been chlorinated, and these sample tests were adopted as a routine method of control. As there were sometimes eight divisions in Nasmith's area at one time, this water control meant a good deal of work.

Reports of all samples were sent to the A. D. M. S. of the division, who forwarded them to the medical officers of the units, with more or less caustic remarks should samples be bad. The officer in turn would get after the man in charge of the water cart, who usually had some more or less plausible excuse. The water details of the first Canadian division were the best trained lot of men Nasmith ever ran across. The very first day samples were taken from their carts, five weeks after the arrival of the division in France, they were all sterile, and there were no complaints about taste. It was an excellent example of what training could accomplish, for they had all been carefully trained in their duties in Canada and England. As the water details of any division change constantly, the efficiency of the treatment depended, to a great extent, on the constant supervision of the problem by the A. D. M. S., medical and sanitary officers.

Wells, springs, creeks, and ponds were also examined, and not infrequently samples from "springs" encountered while digging new trenches were sent in to be tested. The tremendous number of bacteria found in some of these "spring" samples Nasmith on several occasions reported as indicating the presence of some buried animal matter in the immediate vicinity of the springs, and a search proved these surmises to be correct.

Standing orders forbade the use of unboiled milk in the army, as well as uncooked vegetables, so that there was little danger from these sources. When one saw the peasants watering their vegetables with fresh house sewage, the reasons for such regulations were apparent.

Methods of Gas Warfare.—In the *American Journal of Pharmacy* for April, 1918, is a paper by S. I. M. Auld, dealing with the methods of gas warfare. After describing the several kinds of gas employed the writer goes on to say that up to the present time there has been no material brought out on either side that can be depended on to go through the other fellow's respirator. The casualties are due to surprise or to lack of training in the use of masks. The mask must be put on and adjusted within six seconds, which requires a considerable amount of preliminary training if it is to be done under field conditions. Among other surprises on the part of the Germans were phenylcarbylamine chloride, a lacrymator, and diphenylchloroarsine or "sneezing gas." The latter is mixed in with high explosive shells or with other gas shells or with shrapnel It is intended to make a man sneeze so badly that when he puts on his mask he is not able to keep it on. The sneezing gas, however, has not been a very great success. All bombardments now are of this mixed character. The shells used are marked with differently colored crosses, and definite programs are laid down for the use of artillerymen.

As regards the future of gas shells, it should be emphasized that the "gas shell" is not necessarily a gas shell at all, but a liquid or solid shell, and it opens up a whole sphere of organic chemistry to be drawn upon for materials. The material placed inside the shell is transformed into vapor or fine droplets by the explosion and a proper adjustment between the bursting charge and the poisonous substance is necessary. Both sides are busy trying to find something that the others have not used, and both are trying to find a "colorless, odorless, and invisible" gas that is highly poisonous. It is within the realms of possibilities that the war will be finished, literally, in the chemical laboratory. The Germans have not altered their type of respirator for some time, and it is not now equal in efficiency to the British or American respirator. The German respirator, even in its latest form, will break down at a concentration of 0.3 per cent. of certain substances. The German design has given more weight to military exigency, as against perfect protection than has the British. Another thing that weighs against changes in design is the fact that the German, already handicapped by the lack of certain materials, must manufacture 40,000,000 respirators a year in order to supply his Austrian, Bulgarian, and Turkish allies, as well as his own army.

In the British and American armies the respirator must always be carried with the equipment when within twelve miles of the front. Between twelve and five miles a man may remove the respirator box in order to sleep, but within five miles he must wear it constantly in the "alert" position, slung and tied in front. When the alarm is given he must get the respirator on within six seconds. The American respirator is identical with the British. The French have a fabric mask made in several layers, the inner provided with a nickel salt to stop HCN, then a layer with hexamethylenetetramine; it has no valve and is hot to wear. The French also use a box respirator, consisting of a metal box slung

on the back, with a tube connecting to the face mask; the latter is of good Para rubber and is provided with a valve. One disadvantage of this form is the danger of tearing the single rubber sheet. The German mask now contains no rubber except one washer; the elastic consists of springs inside a fabric, and the mask itself is of leather. It hardens and cracks after being wet and is too dependent upon being well fitted to the face when made.

Sarisbury Court Becomes Army Hospital.—Sarisbury Court, a famous hunting box of English Kings in Southampton, is being converted into a hospital for the accommodation of 3,000 American soldiers. The site of this manor house is a 186-acre park with a frontage on Southampton waters. In addition to the manor house, the large rooms of which will be used as wards, a number of tents of the Bossoneau type are being erected. The contract calls for the opening of 400 beds within six weeks. The construction work is under Captain F. Harper Sibley, formerly head of the Chamber of Commerce of Rochester, N. Y.

The Soldier's Chances.—Estimates based on the statistics of the allied armies show that a soldier has twenty-nine chances of coming home to one chance of being killed. He has forty-nine chances of recovering from wounds to one of dying from them. He has one chance in five hundred of losing a limb. He will live five years longer because of the physical training he has received. He is freer from disease in the army than in civil life, and he has better medical care at the front than at home. In other wars, from ten to fifteen men have died of disease to one from bullets; in this war one man dies from disease to every ten from bullets.

School for Deaf Soldiers.—The Division of Physical Reconstruction of the Surgeon General's Office has opened the first army medical school for the reconstruction of the defects of hearing and speech at Army Hospital No. 11, formerly Hotel Cape May, at Cape May, N. J.

The Status of Disabled Soldiers in Industry.—The office of the Federal Board for Vocational Education, to which Congress has entrusted the administration of the provisions of the Vocational Rehabilitation act, in order to obtain the advice and assistance of the State Compensation Boards and leading casualty companies of the country in working out the problems in connection with the employment of disabled men in industry, called a joint conference of such boards in Washington on July 25. The matter of rates of casualty companies on plants carrying accident insurance and employing disabled men who have been vocationally reeducated was discussed. In Great Britain the casualty companies have unanimously refused to advance the rates on employers of retrained soldiers, thereby refraining from adding any obstacles to the finding of employment for men refitted for industrial life.

Nurses Commended for Bravery.—A report has been received through official channels by the American Red Cross of the bravery of American Red Cross nurses during recent raids on hospitals. Major Moorehead, in command of one of these hospitals, says he cannot speak too highly of the efficiency of these nurses. He particularly mentions Miss Turnbull, the nurse in charge, Miss Elmyra Bears of Cambridge, Mass., Miss Louise Dildine of Columbus, Ohio, and Miss Constance Cooke of Berkeley, Cal. Major Murphy reports bravery on the part of Miss Natalie Scott.

Lieutenant William L. Staggers, with a medical unit of the British Expeditionary Forces, was wounded and captured several months ago, according to a card recently received by relatives in this country. Lieutenant Staggers was formerly an interne at St. Vincent's Hospital, Birmingham, Ala.

To Investigate Hazards to Women in War Industries.—An announcement made by Miss Mary Van Kleeck, Director of the Women in Industry Service of the Department of Labor, states that a committee of experts has been appointed to investigate the special hazards which war industry offers to women. The committee will visit various centers where women have been drawn into industries at work on war contracts to study the effect of such industries on the health of women employees. The committee will first visit Niagara Falls with a view to learning whether the chemical industries there offer such dangers to the health of women that their employment should be prohibited. Among those invited to serve on the committee are: Lieutenant-Colonel Harry E. Mock, Dr. Alice Hamilton of the Bureau of Labor Statistics, Dr. Richard M. Pearse of the National Research Council, Dr. J. W. Schereschewsky of the United States Public Health Service, and several members of the New York State Department of Labor.

Colored Nurses for Army.—The War Department has issued orders which will enable colored nurses who have been registered by the American Red Cross to render service for their own race in this country. These nurses will be assigned to various base hospitals at camps where about 30,000 colored troops are stationed. General Pershing was asked by cable whether the services of colored nurses could be utilized to advantage.

Ambulances Named for Quentin Roosevelt and Major Mitchel.—The American Poets' Ambulances in Italy announce that the last of their 112 ambulances provided for service on the Italian front will be inscribed in honor of Lieutenant Quentin Roosevelt and the 111th ambulance will be named for Major John Purroy Mitchel.

Outings for Convalescent Soldiers and Sailors.—Through the generosity of Dr. John A. Harriss, Deputy Police Commissioner of New York City soldiers and sailors convalescing in local hospitals are being given day water trips. Dr. Harriss has placed his steam yacht at the service of the Mayor's Committee on National Defense to be used for this purpose. The first trip was made on July 30.

Colonel J. M. T. Finney, M. R. C., U. S. A., chief consulting surgeon of the American Expeditionary Forces in France, returned to this country on July 27. It is rumored that he is here for the purpose of urging a higher rating for American army surgeons in France. No American surgeon ranks higher than a colonel, while allied medical officers rank as high as Major General.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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BEARDS.

THIS subject is discussed from the esthetico-hygienic viewpoint, by Trombetta, in the *Giornale di Medicina Militare* for April 30. He suggests that *barba*, beard, has the same derivation as *barbarian*, etc., which is to be doubted, because the Greek *barbaros* is usually regarded as cognate with Latin *balbutire*, to stammer, with the connotation of unintelligible, in reference to those who speak a language unknown to the listeners. The term *gringo*, applied to natives of the United States by Spanish-Americans, has the same significance, and other examples of the same class could be quoted. The author traces the word *barba*, beard, through most of the Aryan languages, but there is nothing to show beyond doubt its original significance. It appears to have been corrupted from a root *bard*—thence German *bart* and English *beard*. It has rather a generic significance, for most nations have special words for hair on the upper lip, chin, and cheeks.

In tracing the history of shaving it should be sufficient to go back to the Greeks and Romans, upon whose civilizations our own is based. Beards were highly esteemed among the former up to the time of Alexander the Great, who was smooth shaven. One reason for the abolition of the beard among soldiers was the fact that it afforded the enemy something to lay hold of. At an earlier period the wearing of certain types of helmet and gorget had protected the beard. The Romans wore beards down to the time of the Gallic wars, while the Gauls, albeit barbarians, were smooth shaven save for the moustache. The antiquity of barber shops and razors in Rome is variously given by historians. Some have claimed that the first barber shop, at least in that part of the world, was opened in Sicily, in 300 B. C., while other authorities make this date far earlier or later. The Sicilian seems to have been the first barber, according to concensus of opinion. Naturally, one should not confound the barber and his razor with the hair dresser, wig maker, etc., which calling was naturally much older.

The youth of Rome began to shave during the age period 20-24, and did not abandon this practice until the age of 49. The first shave was a very solemn, ceremonious family event, for it signified that the adolescent was now a man. Not until the first century after Christ did the gilded youth of Rome return to wearing beards. Within comparatively few years the practice was again renounced, save by those who bore disfiguring scars on the face, and beards did not come in again until the time of Constantine.

The name Longobardi, or Longbeards, given to German invaders in the sixth century A. D., appears to show that full beards were not much affected in civilized Europe at that epoch.

The French were not partial to beards at any time, save perhaps during the Charlemagne period, although attempts were made at various epochs to introduce different types of hirsute adornment. In the days of Louis XIV all his subjects went clean shaven save the Calvinists, who wore beards. With the Revolution there was a great change, and all kinds of facial scenery were to be seen, especially among the artists. Under the First Empire and Restoration the soldier alone had the privilege of wearing moustache and imperial, and the beard came to distinguish the bohemian and the Capuchin monk. The fashions in Italy agreed closely with those of the French.

A sort of legend has grown up that free people are free to wear beards, and the unkempt facial growth of the traditional Anarchist may represent this symbolism. Very different is the notion of the right to go clean shaven on hygienic and esthetic grounds. The author now goes extensively into the long series of eruptive conditions consequent upon the custom of wearing beards, and which either do not attack the smooth-shaven, or attack him in a mild, readily controllable form. Impetigo, true sycosis, and parasitic ringworm are the chief offenders, or were until the outbreak of the present war, when the crab louse, or *Pediculus pubis*, began to infest the beard of the soldier.

The author styles May 27, 1916, the fatal day for the beard in Italy, for on that date the War Department issued to officers and privates a memorable recommendation to remove henceforth this feature from the face, in which it is implied that the beard is a barbarism and anachronism.

THE ATHLETIC OLD MAN.

PERHAPS it is that as we grow older we are too content to accept the rôle society accords us. We are too ready to exchange baseball for croquet, boxing for billiards, and tennis for golf. It is true that in all the more strenuous forms of competitive athletics youth will be served—the baseball player and pugilist are old at 30—but that is no reason why one should sink contentedly into a lethargy at middle age and impotently watch his waist increase and his breath decrease as the years go by.

In these days of omnipresent trolleys and cheap motor-cars walking is becoming a lost art. It has become automatic now to consider our objective—is it more than a few blocks away? If so, we look

about for some means of conveyance. We pay money, hang to straps, breathe vitiated air and have our toes trodden on, to have ourselves transferred ten blocks farther on, ten blocks which we might walk in ten or at most fifteen minutes, with the greatest benefit to mind and body. An English physician, Sir Herman Weber, has recently called attention in the pages of the *British Medical Journal* to the benefits of walking and other exercise in promoting longevity. His views command the more respect when we learn that he himself is in his 95th year. He calls attention to the favorable influence which regular and vigorous walking has on metabolism, a fact first pointed out by Hippocrates. Even the aged, he says, can take long walks through hilly country with benefit. The exercise should be regular, however, and not dependent upon weather conditions, for old persons do not resume interrupted physical exercise with the same ease as the young. Many other forms of muscular work can be substituted for walking by those whose tastes lead them that way, horseback riding, hunting, golf, and so on. They must, of course, be governed by the effect which the exercise produces.

Dr. Weber does not stress it, although his intellectual activities are sufficiently illustrative, but equally prominent in promoting longevity should be placed the constant cultivation of the mind, the maintenance of intellectual enthusiasm and receptivity towards fresh impressions. Cato learning Greek at 80 is the conventional example which at once rises to the mind, but other and more modern instances will be recalled if we begin to cast about. De Morgan, after a long and not obscure career as an artist, began to write a novel at 60 and published it at 65. From then on until an unkind fate cut him off in his prime at 80 he wrote six more books only one of which was without merit, and established his fame as a novelist far above that which he had enjoyed as artist.

So, although as we pass on from the infantile twenties, through the green thirties, and past the crude forties into the experienced fifties and mature sixties, we begin to experience the pleasures of old age which, Samuel Butler tells us, are more soul-satisfying than those of youth. "Who is under fifty?" says the French Academician. "A few hobbledehoys, perhaps." While we may not be able to beat our neighbor's son at tennis, or run a hundred yards in ten seconds, let those with sporting proclivities remind us that Mike Donovan, at 60, fought six rounds with the then champion of his class and had none the worst of it. If such prowess is not ours, at least we can take regular exercise, keep our minds open to all that is new in science, to art, and all that is worth while in the world and hold our own in the realm of intellect to the last.

SOME PHASES OF MALARIA.

Of all tropical or semitropical diseases malaria stands upon an undesirably lofty pedestal. According to a well-known medical historian the malady was chiefly responsible for the decadence of Greece, and although effectual preventive measures are now known and put into practice malaria still holds its place as preeminently the disease of the tropics. It goes without saying that during the war a good deal has been heard of malaria. In fact, in campaigns undertaken in torrid and swampy lands in which mosquitos abound malaria has invalided and incapacitated more fighting men than shot and shell. Especially has this been the case in East Africa, a country of sinister reputation as regards tropical diseases.

Capt. W. F. Wicht, of the South African Medical Corps, writing in the *Dublin Medical Journal* for May, 1918, points out that in East Africa the worst enemy is the "germ" without the "Hun," and goes on to say that he does not think he is exaggerating in any way when he states that of the total number of casualties on the East African front over 80 per cent. are medical cases, and a very large proportion of these cases are due to malaria. Wicht also states that owing to the energy displayed by members of the Army Medical Corps the treatment of malaria has been practically revolutionized and furthermore that some very important points which have hitherto been unknown with regard to the malady have been brought to light.

He says that malaria may be divided into two main classes, benign and malignant, the treatment of both of which is on similar lines. So far as therapeutic treatment is concerned, he pins his faith to quinine and arsenic or a combination of the two, and, moreover, does not hesitate on account of the fear of producing blackwater fever to give quinine in massive doses.

Energetic treatment of this description should be begun at once, or the disease may lapse into a chronic state, when the results of treatment are problematical. However, as quinine in large doses is very liable to upset the digestive organs, it is best to prescribe hydrobromide of quinine in smaller doses at shorter intervals.

The most frequent complication of malaria is splenic enlargement, which can be generally overcome by rest in bed and perseverance in antimalarial treatment. Tachycardia and temporary valvular lesions are nearly always present, and in this connection Wicht advises the patient against smoking too much, pointing out that smoking affects the malarial subject to a much greater degree than one would expect. As is well known, anemia is quite a common complication. Quinine is in itself a fairly powerful hemolytic. As in all cases of anemia arsenic is here the sovereign remedy, and this drug in conjunction with good nourishing food, will usually work wonders at this stage of the disease. For malarial dysentery quinine and arsenic should be administered. Lastly, Wicht draws attention to the fact that all those who suffer from chronic malarial infection appear to be very liable to rheumatic infections.

SUDDEN DEATH IN RELATION TO RESIDUAL ADRENALIN.

Sampaio, writing in the *Brazil-Medico* of March 16 and 23, refers to the work of the Italians Cavidalli and Leocini in regard to the amount of adrenalin in the adrenals of various cadavers, with especial reference to the mode of death. The amount in question was distinctly larger in agonal forms of death. If this discovery could be properly formulated it could be utilized forensically. Professor Freire of Bahia, who is at the head of a unique institution for medicological research, the Nina Rodrigues Institute, requested the writer to take up the problem at first hand. The Italian technique was used, as follows: The cortex of the two glands is triturated in saline solution, slightly acidulated with HCl. The real extraction is effected with saturated sodium chloride solution, which is heated to boiling to complete the extraction. The filtrate is then tested for adrenalin content with a few drops of potassium ferricyanide and ammonia.

The test is purely qualitative or colorimetric. The number of shades corresponding to adrenalin content is considerable, ranging from greenish or golden yellow to dark red. Control colors are used, and for convenience three divisions are made of slight, medium, and intense coloration. The author has examined in this way the adrenals of 100 cadavers. Intense reactions were obtained in both acute and slow death, but predominated in the former. At the other extreme a mild reaction was not once seen in sudden death. It must be borne in mind that the subject of adrenal death from exhaustion of the adrenals, such as might conceivably occur in shock, is not at all under consideration in this research. The mode of death of most interest is essentially that inflicted suddenly, perhaps in the midst of vigorous health, as in suicide, accident, and homicide, but not necessarily occurring after intense effort, as in death in battle. At the other extreme is the ordinary deathbed of disease, including chronic disease, such as pulmonary tuberculosis. It is conceivable that in both types of death the amount of adrenalin might show wide variation, and it is the more striking that in no case of gradual death was there a normal amount of adrenalin remaining in the glands. This suggests at first sight a relationship between lingering death and low blood pressure, and conversely that in sudden death, as in apoplexy and uremia, the blood pressure may be high. In most deaths which demand medical inquiry, however, there is no antecedent factor which bears on the blood pressure at the time of the death wound. Hence only in concealed deaths would the test possess value. The question then arises as to the action of putrefaction on the adrenalin content of the adrenals. The Italian authors answer this question satisfactorily in showing that the adrenals resist putrefaction in a high degree, and that no changes are in evidence in respect to adrenalin content for at least 72 hours after death.

Obviously, some quantitative analysis must be made as controls of color tests, and in this way shades of color can be made to harmonize with definite quantities per 1,000 of adrenalin in solution. The limits of content are 0.01 and 0.50 per 1,000 parts of solution. A suicide with firearms presented 0.33; a homicide victim, 0.16; phenol poisoning, 0.50; rupture of a thoracic aneurysm, 0.25; drowning, 0.50; death following rupture of middle meningeal, 0.50; sudden death in coronary artery disease, 0.25. Opposed to these we find gradual decrease from phthisis, 0.01; another case of the same, 0.08; a third case, 0.04; a fourth case, 0.03, etc. There are types of slow death, however, in which the patient's illness lasts but a few days, in which the content runs about as low; in other words, it is not a mere question of long invalidism, but rather of absence of any factor which can produce agonal or violent death. Thus, in death four days after postpartum hemorrhage, the content was 0.04. In some slow deaths in which there was reason to suspect the presence of an agonal factor, the content was higher, as 0.12. Once established, the technique is not burdensome, and the test could be tried out in municipal pathological laboratories.

Enuresis.

Bed-wetting is a trying enough condition in the case of the individual child in the home, but in an institution caring for a great many it becomes quite a serious problem when present in a large proportion of the children. Formerly, whether occurring in the home or in an institution, the condition called for disciplinary measures, on the assumption that the child was wholly responsible. At present, however, it is the consensus of opinion that enuresis is entirely a medical problem, not within the individual will of the child to prevent, nor influenced by punitive measures. Even when no definite pathological condition is found to account for the local manifestation, it is apparent that enuresis often accompanies an inferior mental or physical constitution. It is perhaps very common in the precocious but nervous child, in whom the degree of mental precocity would seem to rule out wilful bed-wetting. However, the irritability of the nervous system in children of this type causes an undue reaction to any stimulus, and they have little control over any of their functions. Of course, there are tangible local conditions that cause incontinence in the bladder, but these do not constitute the problem of bed-wetting. On the other hand, as a purely local condition but which must cause the great majority of cases of enuresis, anomalies of the foreskin of male children and adhesion of the rudimentary one in female children hold the first place. When this is recognized as the etiological factor, circumcision seems to cure about 80 per cent. of these cases. There is now no longer any doubt that circumcision in the male child is a prophylactic measure of greatest importance not only in the prevention of this condition but in the prevention of many bad habits. As a therapeutic measure in many backward children who display no basis for mental deficiency, it can be compared with operations for the relief of obstructions to respiration. But although these physical and nervous con-

ditions are the basis for the bed-wetting habit, there are many exciting causes that need attention in order to prevent the attack or as after care in cases having received the active treatment indicated. Any circumstance which encourages relaxation of the sphinctors during sleep encourages bed-wetting. Sleeping in an overheated room, in an overwarm bed, or on or under a feather bed is likely to cause bed-wetting in a child so inclined. Also a child of this type sleeping with an overfilled bladder will soon lose the power of resistance of the compressor muscle, especially since he already has poor control over it. It is for this reason that fluids of any kind must be interdicted to such a child after about 6 o'clock. And it goes without saying that the awakening of the child during the night to empty its bladder will prevent the annoyance of the bed-wetting until such time as the appropriate therapeusis makes this unnecessary. Drugs usually given in this condition seem of doubtful value, except such as are tonics to the entire organism. Unless the medical point of view is accepted in relation to the cause of enuresis, and treatment is instituted accordingly, little improvement can be expected. On the contrary, the punitive measures usually adopted can but aggravate the condition.

News of the Week.

Ask Action on Health Program.—The War Service Committee of the American Hospital Association has appealed to the Treasury Department for prompt action on a comprehensive program of health conservation adopted last winter by a group of prominent sanitarians, which it claims is needed as a war measure. This program was referred to the Treasury Department on July 1. It asks for the appointment of an administrative head to be known as the Assistant Secretary of Health or perhaps the Health Administrator, to hold his place for the duration of the war. Among the important features of health control formulated in this program are the following: The establishment of standard procedures for the control of communicable disease, including reporting, diagnosis, treatment, and sanitary supervision, and the adoption of these standards by local authorities. Particular attention is to be paid to hookworm disease, malaria, typhoid fever, tuberculosis, and the communicable diseases of childhood. A comprehensive program for the hygiene of war industries is to be prepared and put into effect. Standards for maternity care and for the care and preservation of infants and children should be prepared and promulgated. A plan should be prepared and put into effect for the after care of men enlisted or drafted and subsequently rejected or discharged on account of mental or physical defects, and should include extension of facilities for the sanatorium and home care of tuberculosis victims and for hospital and home treatment for mental defectives and drug addicts. To insure the quality and reasonable cost of essential drugs and biological products, standards of potency and of manufacture should be developed and enforced. Steps should be taken for the national registration of deaths, births, and cases of preventable diseases. A program should be prepared for maintaining an adequate supply of properly trained sanitarians, physicians, and nurses during the war. The means for the extension of existing facilities should be provided by the Government.

Major Caldwell's Estate Goes to Columbia University.—The bulk of the estate of the late Major Eugene Wilson Caldwell, Medical Reserve Corps of the United States Army, amounting to about $150,000, is to go to Columbia University on the death of his wife and mother. The sum which the university will receive is to be known as the "Eugene Wilson Caldwell Fund" and is to be used for general educational purposes. Major Caldwell bequeathed his laboratory and its contents, together with the good will of the establishment, to his two friends and collaborators, Dr. Harry M. Imboden and Thomas Riker. He has requested them to continue the work upon which he was engaged.

State Board of Regents Gives Women's Hospital Alumnæ Hearing.—The State Board of Regents, at a meeting in Albany on July 22, gave a hearing to representatives of the Alumnæ Association of the New York College and Hospital for Women. After hearing the argument of the Alumnæ Association, the Board of Regents ordered the Board of Trustees of the Hospital to submit a detailed account of the institution's finances to the Alumnæ Association. The Alumnæ Association announces that it has met with marked success in its effort to raise $50,000 to maintain the Hospital for Women. If the women gain control of the hospital they will offer it to the Government for war needs.

Examining New York Babies.—The Health Committee of the Mayor's Committee on National Defense has begun the work of making physical examinations of all children under five years of age in Greater New York. Dr. S. Josephine Baker is directing the work and has established clinics in all boroughs. More than 1,000 nurses, welfare, and social workers have volunteered their services, together with 300 physicians, who will work at least two days a week free of charge. There are more than 100 clinics for this purpose in Manhattan alone. During the week beginning July 15 some 3,000 babies were examined. There is a total of over 600,000 children to be examined.

Bellevue Hospital Reports Fewer Cases of Alcoholism.—Dr. Stephen P. Jewett, head of the alcoholic ward of Bellevue Hospital, finds that during the first six months of 1918 they have treated about 1,079 cases in the alcoholic ward of Bellevue Hospital as against 3,375 cases treated during the corresponding period of 1917. Almost all the cases treated since last winter have been men ranging in age from 35 to 60 years and the majority of these were cases of chronic alcoholism. This decrease is believed to be due to the fact that much of the money that formerly went over the bar is now devoted to the purchase of Liberty Bonds and Thrift Stamps.

Penal Servitude for Dispensing Narcotic Drugs.—According to the decision of the United States Court of Appeals, a medical man recently convicted of dispensing narcotic drugs has been sentenced to serve a term of five years in the Leavenworth penitentiary and pay a fine of $12,000. At

the same time the court held a part of the anti-narcotic law dealing with the misuse of Government order blanks unconstitutional. Possibly this decision may affect the status of a number of persons now serving sentences for violation of this provision.

Pressing Need for Tuberculosis Hospitals.—The National Tuberculosis Association has issued a statement setting forth the pressing need for more tuberculosis hospitals. This statement claims that hospital facilities are needed to accommodate more than 1,000,000 tuberculous persons. In its efforts to provide the required increase in hospital facilities the association is cooperating with the capital issues committee of the Federal Reserve Board.

Civil Service Positions Open to Physicians.—The Civil Service Commission of the State of New York announces the following positions in the State Department of Health for which application must be made before August 21, 1918: *Hospital and Dispensary Organizer and Inspector*, open to men only, and carrying a salary of $2,500. The applicant for this position will be required to organize venereal clinics in different parts of the State and to advise as to their proper administration. *Lecturer on Social Diseases.* This position is open to both men and women and carries a salary of $2,500. Preference will be given to those having a general knowledge of venéreal diseases. *Assistant Physician.* This position is open to regular or homeopathic physicians and is for the purpose of providing eligibles for the position of assistant physician in the State Hospitals and other positions of a similar nature in various State and County institutions. This position carries a salary of $1,200 with increase. *Resident Physician* for State Agricultural and Industrial School, Monroe County, N. Y. This position is open to men only and carries a salary of $1,500 to $2,000 and maintenance for the physician and his family.

Medical Society Establishes Fund for Research.—The Tri-State Medical Society, at a meeting held at Freeport, Ill., on July 9 formulated plans for the establishment of a $20,000 foundation for the purpose of making the society a permanent and independent body and for the furtherance of research work. The fund is to be raised by voluntary subscription, and thus far a number of physicians have made substantial contributions.

Epidemics in Russia and Germany.—A cablegram under date of July 27 states that during the past twenty-four hours 111 cases of Asiatic cholera have been officially reported in Petrograd. The epidemic seems to be steadily on the increase, and the waters of the Neva, which are used for drinking purposes, are filled with cholera bacilli. According to official despatches received from Switzerland, several epidemics are sweeping Germany. Both typhoid and typhus fever are said to have appeared in epidemic form in Berlin and the German censor has forbidden the publication of news on the increase of influenza, though it is known that the disease has made serious ravages. Malaria is reported in the Grand Duchy of Baden, where the disease has been disseminated by troops from the Balkans.

New York City Hospitals Need Nurses.—In order to solve the problem of obtaining sufficient nurses for bedside attendance in the city hospitals and for the Bureau of Child Hygiene and Preventable Diseases of the Department of Health, the Municipal Civil Service Commission considers asking physicians to release their office nurses for half a day for this work. The Civil Service Commission will receive applications for examination from nurses who have completed their course of training but have not obtained State licenses. Married nurses will also be appealed to to take the examination.

Decline in Infant Death Rate.—An infant mortality survey by the New York Milk Committee has been made public which shows that the efforts of the various agencies engaged in infant welfare work, as well as the work of the New York Milk Committee has been effective in reducing the infant death rate in this city. The survey covers the calendar year of 1917 for which the death rate was 88.8 per 1,000 living births. In 1907 the rate was 135.8. The number of infant deaths under one year of age for the year 1917 was 12,568 as against 16,000 in 1907. The report of the Milk Committee also contains figures from 163 of the largest cities which show with one exception decreases in the death rate. The lowest mortality for cities of 100,000 is found at Omaha and Seattle, which have 59.2 and 59.4, respectively. The low rate for the country is found at Alameda, Cal., where the rate is 40.7. Other cities of 50,000 that are only a fraction above this level are Brookline and Everett, Mass., and La Crosse and Berkeley, Cal. The highest mortality of the country is at Nashville, Tenn., which has a rate of 182.2 with a population of 110,364. Chicago exceeds New York in infant mortality by nearly 18 points and Philaphia by 21 points. Other cities having an infant death rate of over 100 per 1000 living births are Baltimore, 119.3; Pittsburgh, 116.2; Detroit, 103.6; Buffalo, 103.7; New Orleans, 113.5; Jersey City, 113.8; Louisville, 110.5; Syracuse, 101.9; Birmingham, 147.5; Memphis, 145.7; Richmond, 134.5; Fall River, 153.8; Grand Rapids, 134.9, and Albany, 103.2. Boston has 98.9.

Obituary Notes.—Dr. THOMAS N. GRAY of East Orange, N. J., died of apoplexy, on July 23, at the age of 65 years. He was a graduate of the College of Physicians and Surgeons, New York, in 1879, and for some years city physician of Orange. He was president of the New Jersey Academy of Medicine, vice-president of the New Jersey Pediatric Society, secretary of the Medical Society of the State of New Jersey, chief of staff of the Bureau of Tuberculosis of Newark, and a member of the Medical War Examining Board of Essex County.

Dr. ENOCH P. LAWRENCE, a graduate of the New York University Medical Department in 1880, died at his home in Flushing, L. I., on July 26, aged 62 years. He was consulting physician to St. John's Hospital, Long Island City, and physician in charge of St. Joseph's Orphanage.

Dr. E. W. SANFORD of the Johns Hopkins Medical Faculty, a graduate of Johns Hopkins University, died at Centreville, Conn., on July 2, of blood poisoning produced by accidental inoculation while engaged in research work for the Government. He was 25 years of age.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

NATIONAL BABY WEEK IN LONDON—REFORM OF THE INDIAN MEDICAL SERVICE—EPSOM COLLEGE—BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

London, July 3, 1918.

THE first week in July is being devoted to propaganda work in connection with child welfare in its broadest sense, including all work done for the care of mother and child during pregnancy and the immediately succeeding stages. The pronouncements and the propaganda of various agencies more or less connected with so wide a movement have been much strengthened by the presence in the city of well-known advocates of Child Welfare from other countries, notably Dr. Palmer Lucas of the American Red Cross, Dr. Truby King, well known for his devoted activities in New Zealand, and Judge Neil of Chicago. Most of the leading English organizations for the care of mother and child are now represented in a National League of Health, Maternity and Child Welfare, while a new body, The Council for the Unmarried Mother and Her Child, has been included in the group. The arrangements for "Baby Week" comprise an exhibition giving practical illustration of the efforts made in diverse directions by all these organizations, and this exhibition afforded point to a series of conferences and informatory addresses delivered within easy reach of it. The arresting fact about the activities of "Baby Week" has been the absence of cant and slushy sentimentality; that the unmarried mother is the product of far-reaching social circumstances and not of essential or personal immorality has been recognized; and this, the medical and hygiene view of the situation, has been accepted also as the Christian view by the congressists as a body. The terrible experiences of the last three and a half years have aroused the public in unmistakable manner to the value of human life, and to the absolute necessity of conserving, and conserving at their fittest, the generations now arising or yet to be born. Public support is being obtained in a marked manner for all the associated movements. Government officials are not waiting to be pressed before they lend invaluable cooperation. Problems in connection with infant life, of venereal and hereditary disease, of overcrowding and unsuitable habitation, of defects in educational systems, of improper occupation of children—to mention only those that occur immediately—are now obtaining a free discussion which must have in the near future a valuable outcome. Public questions are being faced and moral problems bravely solved. It is realized that for fruitful action actual knowledge of the attendant causes or underlying conditions of infant mortality must be obtained, and that the knowledge must be discriminated even though it may be shocking. As a result of publicity the more enlightened of the populations have already realized that health is cheaper than disease, and that a high infant mortality is, if nothing worse, a piece of rank extravagance. Money will follow, and practical hygiene be made possible.

A deputation from the British Medical Association has been received by Mr. E. S. Montagu, the Secretary of State for India, who expressed himself willing to discuss the possibilities of reform in the Indian Medical Service where the conditions have been for a long time so entirely unsatisfactory that the personnel of the service is in danger of deterioration as well as being permanently below the requisite numbers. Sir Clifford Allbutt, the president of the British Medical Association, introduced the deputations, and from his experience as Professor of Medicine in the University of Cambridge he was able to state personally that the Indian Medical Service does not possess attractions for the best class of young medical men, in that the career offers no opportunities for research work, so that the rewards in it are not reaped by the more scientific representatives of the profession. Evidence was given by various officers in the India Medical Service of the discontent existing among the officers of the Service, owing to default in the regulations for obtaining leave, to difficulty in retirement, to neglect of measures for the adjustment of pay, and to unfairness in promotion, the last grievance being affected by the presence in India of two corps, namely, the India Medical Service and the Royal Army Medical Corps. Allusion was also made by different speakers to the restrictions placed upon the officers of the Indian Medical Service with regard to private practice. The representations of the deputation amounted to a warning to the Secretary of State that unless the conditions under which the officers of the Indian Medical Service worked are substantially bettered the Indian Empire will go short of doctors, so far as a European service is concerned. Mr. Montagu, who has recently been in India, agreed in substance with the arguments placed before him, and acknowledged that it would be folly on the part of the Indian Government not to be ready with more attractive offers to the medical profession in India, as soon as the war was concluded. He pointed out only the truth when he said that recent improvements had been effected in the Service, for the rates of staff pay in the field have been raised and a scheme has been devised to prevent the supersession of the officers of the I. M. S. by these of the R. A. M. C. But none the less the emoluments of the Indian Medical Service are inadequate, and the circumstances of professional life within its jurisdiction are attended with much friction. This Mr. Montagu admitted, and in the matter of private practice he thought that greater opportunities for advantaging themselves and others should be extended to officers in the I. M. S., so long as the attention upon their personal clients or the claims of individual research did not interfere with the discharge of their public duties. But he went on to touch upon the most difficult factor in the case, namely the relations which should exist between indigenous medicine and the State-supported practice of medical officers sent out from the mother country. The situation here is, of course, a grave dilemma and it has been recognized as such for a long time. A statesmanlike attitude is required both on the part of the Government authorities and on that of the medical profession if the difficulties of the dilemma are to be removed or checked instead of being allowed to increase until a real *impasse* is reached. Indigenous medicine is

represented now in India by many highly qualified and highly endowed native practitioners but these men cannot enter the Indian Medical Service from their own universities, but only after admission to the British Register, although the Indian universities are staffed by the scientific flower of the I. M. S. If the teachers are good—and they are good—it may be asked why cannot the pupils receive the full reward of education? On the other hand, if for the officers of the Indian Medical Service inducements to lead a hard life away from home are not provided, how is the good material to be obtained for staffing the native universities and maintaining in India the proper scientific level of education? Mr. Montagu said that one of the governing principles for future action in the matter which he had in his mind would be to provide increased opportunities for Indians to enter the Indian Medical Service on equal conditions with equal opportunities of promotion. He has thus recognized one horn of the dilemma, though not the one to which the deputation possibly desired particularly to draw attention. The probability is that for some time to come in India there will be found room for and need for a British Service, but that British Service will have to be a harmonious one and must not consist of two separate corps competing against each other. Side by side with a properly paid and harmonious British Service there should arise a well-educated Indian medical profession to whom proper opportunities must be given for entering a State service and so obtaining a *locus standi* in competing for State posts. But the development of the Indian medical profession depends, at any rate for some time, upon the maintenance of a thoroughly good State service, and this cannot be obtained unless fair conditions and good pay are attached to the career.

Epsom College is the English public school to which is attached a medical foundation under which pensions are granted to aged members of the medical profession or to the widows of medical men, and (far more important) under which also a gratuitous education of the highest class, together with maintenance, clothing, and even pocket money, are provided for the sons of necessitous doctors. The medical foundation is under Royal patronage and out of this fact a very annoying complication has arisen, for the college is sometimes known as the Royal Medical Benevolent College, while there is an excellent medical charity known as the Royal Medical Benevolent Fund. When testators leave their money to the Royal Medical Benevolent *Society* or *Association*, neither of which bodies has any existence save in recurring wills, which charity do they mean to benefit, the College or the Fund? Considerable sums of money have been spent in litigation and lost to medical charity by the inability of the College and the Fund to come to terms about doubtful bequests, but at the last meeting of the governors of Epsom College, a more reasonable spirit was manifested. The College may agree to the formation of a joint arbitration committee to decide the destination of legacies without recourse to law, and the Fund have already shown willingness to accede to a scheme of this sort.

Those responsible for the collection and distribution of this fund are making strenuous efforts to obtain money. The substantial sum of £20,000 was raised shortly after the outbreak of the war, and, when the needs of the necessitous Belgian doctors and pharmacists who had taken immediate shelter on English shores with their dependents had been dealt with, the rest of the money was sent by weekly installments of £200 to Belgian doctors and pharmacists in Brussels. The money was confided for transport to Belgium to Mr. C. Hoover, then the director for Europe of the Commission for Relief in Belgium, and through Mr. Hoover it reached the hands of a representative Committee of Belgian medical men and pharmacists sitting in Brussels and taking weekly evidence as to the most necessitous cases. The sum of £200 a week was decided upon by the Executive Committee of the fund because such an expenditure, though commenced early in 1916, did not imply exhaustion of the money collected until the end of 1917, by which time it was hoped that the last stages of the war would have arrived, or be arriving, and the result of this optimistic calculation was to leave the fund at the end of 1917 with only £600. Though fully aware that the time and the occasion were not propitious for the collection of money, the committee, which is representative of all classes of the medical profession in Great Britain and Ireland, made a second appeal at the beginning of this year* and are now following up that appeal in a vigorous manner. Something like £2,500 have been received in the last month or two, and, if this rate of subscription can be continued, the Fund should be enabled for at least one more year to continue its monthly subsidies to Belgium, and never did the Belgian doctors and pharmacists more sorely stand in need of material and moral assistance. Professional men in England know full well how generously through the Commission for Relief in Belgium the American people have assisted oppressed Belgium, and in that assistance the Belgian doctor and pharmacists have taken their share; none the less, if any American doctor or pharmacist is moved to subscribe to the Belgian Doctors' and Pharmacists' Relief Fund, I may mention that the chairman of the fund is Sir Rickman Godlee, Bart., 19 Wimpole Street, London, W.; the Hon. Secretary Dr. S. Squire Sprigge, "The Lancet" Offices, 423 Strand, London, W. C.; the Hon. Treasurer Dr. H. A. Des Vœux, 14 Buckingham Gate, London, S. W., and that subscriptions will be gratefully received by any of them.

OUR LETTER FROM PARIS.

(From Our Own Correspondent)

AN EMERGENCY HOSPITAL—WOMEN SOLDIERS—THE AMERICAN AMBULANCE SERVICE—Y. M. C. A. EDUCATING THE ARMY.

PARIS, June 18, 1918.

THE business-like organization of the American Red Cross in France was recently exhibited in its response to a call for an emergency hospital. A request from Dr. Blake came to the headquarters in Paris to provide a 500-bed tent hospital, to which there might be immediately transferred the patients of the Fracture Hospital menaced by constant air raids in Eastern France. Fortunately there was a hospital available not far from the point to be

*MEDICAL RECORD, March 30th, London Letter.

evacuated in a town in the American Army zone, where the Red Cross has warehouses for the purpose of meeting just such emergencies. Two men from Paris headquarters left Saturday night and on Sunday morning joined forces with the experts in charge of the warehouse, where the hospital tents were stored. By Sunday night the equipment was packed ready for shipment after a hard day's work. Help was given by Russians from a neighboring camp. The head of the warehouse is Senator Griggs of Minnesota, and through his efforts permission to move material within the Army zone was quickly obtained. Therefore by Monday morning the first freight train went through.

A 500-bed tent hospital consists of 25 tents about 20 by 60 feet in size, and each tent contains 20 beds. The tents are constructed with an outer and an inner canvas wall, having an air chamber between, which makes them suitable for cold or warm weather. In addition to the 18 windows furnishing plenty of light there is top ventilation. All the tents are connected by a covered corridor, and when the hospital is complete it covers an area about the size of a football field. From Saturday to Tuesday evening was the exact time that elapsed between the first telephone call received at Red Cross Headquarters in Paris and the arrival of the hospital at its destination where five hundred patients can be cared for. A piece of work like this shows what the Red Cross can do in an emergency.

Much has been written of the competent way in which American men are handling the emergency situations that are arising daily, but little has been said of what the women are doing in such moments of crisis. Miss Caspairs, Miss English, and Miss Wilde, of the American Fund for the French wounded, have been highly commended recently for their efficient work in the Courneuve catastrophe. They immediately volunteered their services and received permission to drive their autos to the scene of the disaster. They transported the homeless to places of shelter. Miss Caspairs used her auto to carry the refugees to Paris, while Miss Wilde, nobly refusing several shyly proffered "pourboires," established a transportation service over the dreadful roads to Le Bourget, where many of the refugees had friends who could take them in. This is only one of a dozen of instances where the young ladies of the A. F. F. W. have accomplished the same work as the men, and it is not surprising that the organization is proud of them. They drive the supply autos to the 4,000 hospitals that are on the books of the fund and they visit every corner of France to distribute the gifts that are most needed. In fact, it is women almost entirely that compose the staff of the American Fund for the French Wounded, which has become one of the most important and far-reaching American charity organizations in France.

The United States Army Ambulance service with the French army has received the announcement of the citation of Lieutenant William E. Westbrook, commanding Section 621, which speaks of his bravery and courage during a gas attack, when he evacuated a number of men who were suffering from the effects of gas. All the reports from the front recently have remarked on the excellent work of the ambulance service during the heavy fighting with but few losses. An ambulance driver, Mr. Carey Richards Evans, of S. S. U. 523, was killed last week while on duty. Mr. Evans, with another driver named Brook, was preparing to leave a "poste de secours." Evans was assisting the stretcher bearers in loading the wounded into his ambulance and Brook remained at the wheel, when a German shell exploded, killing Evans almost instantly. Brook was not hurt.

Evans was from Columbus, Ohio, and was one of the new men of the service who had trained at Allentown, Pa. He had a military funeral and was buried near the spot where he had fallen. In reporting his death his commanding officer said that "his wonderful personality made him an important cog in the crown gear of the esprit of the section, so well expressed in the editorials of the section paper." He also said that Evans was one of the most fearless men that he had ever known and that he died with a smile on his face, a man and an American to the very last. The morale of the men of the service is said to be splendid. It seems that this casualty has made them realize that their service is a man's job. They have behaved soundly and sanely as men and Americans, and the section to-day is a better one than it ever was.

Dr. John Finley, president of the Board of Regents of the State of New York, has accepted the invitation of the Y. M. C. A. to become chairman of its Army Educational Commission. The commission will undertake the carrying out of an extensive program in the American Army during the war and prepare for larger work during the period of demobilization. Its main interests in the immediate future will be in connection with the teaching of French and providing information concerning French institutions, causes of the war, and the issues at stake between the Allied nations and Germany. Illustrated lantern lectures will be given on various subjects and instruction in mathematics for promotion examinations, etc. The arrangements for this educational work under the auspices of the Y. M. C. A. have met with the approval of the Commander-in-Chief, having been outlined in a report presented to him by Mr. Anson Phelps Stokes, secretary of Yale University, who has been attending to the preliminary organization of the work.

During the fifteenth week of this year 966 deaths were registered in Paris; there were 1,053 during the preceding week and the average for the season is 1,003. Typhoid fever caused 2 deaths, measles 10, whooping cough 16, diphtheria 6, and infantile diarrhea 12. There were 32 violent deaths and 9 suicides. In Paris 367 marriages were celebrated. The birth of 653 children were registered; they comprised 343 boys and 310 girls.

116, Avenue des Champs Elysées.

Epidemic of Medical Erysipelas.—Maranon saw 70 cases of this affection (uncomplicated by traumatism) in the service of one hospital. The victims consisted of food producers, such as fishermen, truck growers, etc., and venders; it was therefore inferred that the *Streptococcus erysipelatis* was diffused by food articles and reached the nasal fossæ by autoinoculation. Of interest was the association of much streptococcus sore throat and cases of infectious pseudorheumatism.—*El Siglo Médico.*

Progress of Medical Science.

The Boston Medical and Surgical Journal.

July 18, 1918.

1 The Massachusetts Medical Society. The Shattuck Lecture Shell Shock and After. E. E. Southard.
2. Organization in Hospital Dietetics. Francis H. McCrudden.
3. A Note on Experimental Scurvy in the Guinea Pig. W. C. Rappleye.
4. Intrapartum Rupture of Uterus and Bladder: Recovery. Subsequent Closure of Vesical Fistula. George T Tyler, Jr.
5. A Case of Fractured Pelvis with Rupture of the Bladder in an Infant Under Two Years, with Recovery. Robert W. Angevine.

1. The Massachusetts Medical Society. The Shattuck Lecture—Shell Shock and After.—E. E. Southard discusses the term *neuropsychiatry*, evolved since the war and now definitely accepted, a Division of Neurology and Psychiatry having been established at Washington by the Surgeon-General. The majority of shell-shock cases are instances of functional neuroses rather than organic disease of the nervous system but puzzling admixtures of these are by no means uncommon and, moreover, organic disease of the nervous system has always been capable of imitating the phenomena of functional disease, a fact which has been absolutely proven in the present war. Though the definition of neurosis has been mainly by negatives, the work of Charcot and Babinski—with the remarkable concept of the so-called physiopathie of the latter—has yielded a number of positive features from the clinical standpoint. The diagnostician, however, remains face to face with many difficulties. For example: shell bursts and other detonations can produce hemorrhage in the nervous system and in various organs without external injury, and accordingly the hypothesis of focal structural damage to the nervous system or its membranes has to be raised; or there may be a combination of structural and functional disease. The greater number of cases of alleged shell-shock without external wound prove to be functional. There is also a group of war neuroses—especially in cases of ear injury—in which the functional disorder surrounds the organic as a nucleus. Such "periorganic" neuroses, however, are no proof that the neuroses are organic in nature. The process of such a peritraumatic disorder is, nevertheless, a functional process. Schuster claims a hypersensitive phase after shell explosion, when the patient is particularly subject to hysterical symptoms. Reported cases show that the same effect may be seen in the absence of any obvious shell explosion, emotion, or somatic disorder. The process appears to pick out the weak spots in the patient. Southard refers to the value of shell-shock data of the present war; it will help us to understand neuroses and will prove that such really exist; that a symptom, though in a sense imaginary, may be in no sense non-existent. The term "shell-shock" is inexact but it is picturesque and connotative of the war. A discussion of its nomenclature elucidates the full significance of the term: both shell and shock refer not only to outward physical figures, but also to inward, functional or psychical meaning—the mechanical and moral, physical and psychical, traumatic and seismic, or as the French say *commotionnel* and *émotionnel*, aspects. Thus the ultimate physiological and psychological questions which confront the analyst of these conditions, whether termed shell-shock or more exactly war neuroses, are brought out. In the consideration of the relation between so-called shell-shock and the major groups of mental disease, the usual classification of mental diseases has been adopted at the Boston Psychopathic Hospital, where Professor Southard's observations for the most part have been made.

The principal groups therefore are: (1) *Syphilitic.* The solution of neurosyphilis problems will be vastly aided by the records of shell-shock during the present war, and this is particularly true of questions in relation to its course in time and its spinal and cerebral placement. (2) *Hypophrenic.* From the case history literature it would seem that the feebleminded, unless they be of that very high level sometimes called subnormal, are not particularly susceptible to the neuroses. It may be that the higher and more complex specimens of mankind are more susceptbile than the lower and more simple types. It is possible, moreover, that as a result of the war there may be a number of persons whose edges have been dulled by their experiences and who will constitute important problems in mental reconstruction after the war. Others may be voluntarily inadequate in some sense as a result of the military routine life, with its tendency to psychic sloth or even somatic laziness. (3) *Epileptic.* As far as the records of the National Hospital for the Paralyzed and Epileptic, London, goes, there does not appear to have been any increase in epilepsy on account of the war. Of course, any case of epilepsy returning from the front is regarded by his relatives as shell-shock. The relation between epilepsy and shell-shock, however, is not a close one. (4) *Alcoholic.* Though alcohol may complicate the issue, there is little or no direct relation here. (5) *Encephalopathic*, in the sense of some focal brain disease. Eliminating the forms already mentioned, including the syphilitic, nervous and mental cases, all give rise to the suspicion of organic disease, possibly traumatic in origin. Whereas in head injury the nerve phenomena will ordinarily be on the opposite side of the body, the reverse is true of hysterical cases. Many complicated cases, however, occur and a glance at the differential tables developed by the French neurologists will show how fine the diagnosis between a hysterical and an organic disease may be, especially when we consider the frequency of admixtures of the two. The rule holds for the vast majority of cases that bullet or shrapnel wounds do not prdouce shell-shock, and the statistical story is so clear that it might almost be thought that the wounds are in some sense protective against shell-shock, though not against traumatic or surgical shock. Each case should be given a complete neuropsychiatric examination, having due regard to Babinski's observation that such an examination gives opportunity for all sorts of mental suggestion to the patient. (6) *Symptomatic.* These cases present problems for the internist. The association of "D.A.H." and hyperthyroidism has been observed and a cure of the latter condition by hypnosis has been reported; this Southard points out may be possible in view of the still obscure relations between mind and hormones. (7) *Senile* or *presenile.* On the whole there is no special evidence that life is to be shortened or later years made more difficult by war experiences, unless there has been some specific disorder leading to incapacity in the war. The other groups are less well understood by the general profession. They are: (8) The *Schizophrenic*, commonly known as the dementia precox group. No great number of such cases have been produced by the war, a fact that would seem to indicate that the causes of dementia precox lodge more in the interior of the body, or in special individual reactions of the mind of the victim. (9) The *Cyclothymic*, sometimes called the manic-depressive group. It has not been found that such cases have developed during active service, the cases usually being in men who were cyclothymic before they entered the army. The lecturer observes that, with few exceptions, cases which fall into the last two mentioned groups should be unconditionally excluded from the army. The study of such conditions should be a part of every man's post-graduate training for both military and civilian practice. A tenth group consists of cases of psychoneuroses, which might be called *blooming* examples of hysteria. The difficulty, however, lies in diagnosing cases which are not such blooming examples. It is into this group that the majority of shell-shock cases fall. The great proposition deducible is therefore: *that the diagnostic problem in shell-shock is the diagnostic problem of neuropsychiatry at large.* Babinski has shown that beyond the psychopathic and neuropathic conditions, there is another kind of dynamic disease operating after the manner of Charcot's "reflex" disorders. In short, the dynamopathic or functional in nervous disease has been shown to fall into two parts—a psychopathic fraction and a non-psychopathic or physiopathic fraction or reflex. By chloroforming the patient Babinski was able to bring out certain reflexes or hypertonuses that in waking life were wholly concealed. The proof of a new type of functional disease was thus made plain and a new lead of the greatest value offered in the field of psychopathology—one step more in our knowledge of the Unconscious.

New York Medical Journal.

July 20, 1918.

1. The Blood and the Soul in Ancient Belief. Jonathan Wright.
2. The Tonsil Operation and Indications Which Require It. Carroll B. Welton.
3. Undernutrition in Children. Anna M. Richardson.
4. A Possible Factor of Degeneracy. T. J. Downing.
5. Syphilitic Joints. Percy Willard Roberts.
6. Congenital Stenosis of the Esophagus. Harry Apfel.
7. A Case of Salivary Calculus. Max Nisselson.

4. A Possible Factor of Degeneracy.—T. J. Downing suggests that racial degeneracy may be brought about through the mixture of peoples of different skull type. He points out that two well defined primitive skull types are coexistent with the earliest findings of man on the earth—the long and the broad headed types. The longitudinal diameter of the one is 100 and the transverse diameter less than 80, while the other has a longitudinal diameter of 100 and a transverse diameter of more than 80. The real variation is a long sella turcica and a broad sella turcica type. In these two types the harmony of structure and function, hived in and about the craniocerebral base, bespeak the most rigid and supercrystallized racial heredity and any departure in structure or in function necessarily results in a measure of disharmony. This is demonstrated by the relation subsisting between asymmetry of form, especially of head and face, and degeneracy, both of which may be due to disharmony of structure and function in and about the craniocerebral base. Broadly speaking, in a remote period of the past, the long heads occupied all Asia on this side of a line corresponding to the Western borders of China and India. Later they overran India. Of Europe they possessed the lands west of Central Russia; of Africa they occupied at least the valley of the Nile and the countries touching the Red Sea. Practically all other lands were in possession of the broad heads. Downing asserts that wars between peoples of the same skull type cannot be degenerative. In the present war we have at least three conserving factors looking toward efficient preservation and perpetuation of the race: superselection for the race when the women outnumber the men; eighty-five per cent. of our soldier boys will return after the war, racially and parentally nondebilitated, if not virgin; and the young men who remain at home have the same racial vigor and parental potentialities as the returning soldiers. War in itself is not degenerative, and a few generations will suffice for complete restoration. In this country a fourth conservative factor is woman suffrage. Chief among the good results will be a more complete segregation and a strong tendency against race mixing. On the other hand, wars between peoples of different skull types may be degenerative, depending solely on the degree of skull type mixing which follows. Friendly migrations would be equally disastrous. The writer further points out that it was not the wars that destroyed ancient civilizations, but the subsequent mixing of the people with neighbors of different skull type—the Egyptian with the African, the long heads of Asia Minor with the broad heads of Eastern Asia and Eastern Europe, the Spaniard with the African, and so on. Its accomplishment required centuries and its rebound, if any, will need other centuries of time. A happy medium of skull type may be evolved in the centuries to come and a fair level of mankind and civilization thus insured. The long heads who remain comparatively unmixed are the Celt, the Gael, the Teuton, and the Jew. In spite of the destruction of men, of wealth, of art, and of land in the present war, there is no cause for despair. Racial degeneracy and retrogradation will not result if there is no skull type mixing after peace is declared. Downing, however, senses danger in the idealism of universal democracy, world-wide socialism, etc. Should the long heads of Europe and America invite or permit immigration of the mixed and broad head skull types, centuries of retrogression will follow, and if there is a rebound—sometimes there is none—it will take other centuries for its accomplishment. It is possible, therefore, Downing thinks, that the problem of saving our civilization will be handed again to the Jews—whose very religion is to continue as an unmixed race—as it was for 3000 years after the wars of ancient Egypt, Asia Minor, and Middle Europe.

The Journal of the American Medical Association.

July 20, 1918.

1. Some Further Considerations Concerning the Treatment of Neurosyphilis. C. Eugene Riggs.
2. The Personal Equation in Psychiatry. L. B. Pilsbury.
3. Some Vital Phases of Fractures of the Jaws. Charles J. Lyons.
4. The Medical Practitioner and Mental Hygiene. H. Douglas Singer.
5. Blood Pressure Studies of Five Hundred Men. Bertnard Smith.
6. Retropharyngeal Abscess. Calvin C. Rush.
7. Rational Preoperative Treatment with Special Reference to Purgation. Max Minor Peet.
8. Loose Bodies in the Elbow Joint. M. S. Henderson.
9. Problem of the Artificial Arm. David Silver.
10. Anesthesia and Antiseptics in Plastic Restoration of the Face and Mouth. A. E. Rockey.
11. The Work of the Training Camp at Fort Riley. William N. Bispham.
12. System for Rapid but Thorough Examination for Pulmonary Tuberculosis. Henry Farnum Stoll.
13. Trench Fever. Major W. Byam, Capt. J. H. Carroll, Lieut. J. H. Churchill, Capt. Lyn Diamond, Lieut. L. Lloyd, Captain V. N. Sorapure, and Lieut. R. M. Wilson.

7. Rational Preoperative Treatment with Special Reference to Purgation.—Max Minor Peet argues in favor of simple enemas rather than preoperative catharsis. He points out that the experience of emergency surgery demonstrates that preoperative catharsis is not necessary, the patient standing the operation equally well without preparation and often enjoying a more satisfactory convalescence. He states, however, that there are cases in which the administration of a mild cathartic before operation may be of advantage, but such cases he considers the exception. The disadvantages of preoperative catharsis are: physical and psychic weakness; loss of sleep; loss of body and intestinal fluids; hypotonicity of the intestinal wall; change in the bacterial flora of the intestine, and irritability of the rectum and lower colon. The patient not subjected to this procedure is not as prone to suffer from thirst, nausea and vomiting, abdominal distension and gas pains.

The Lancet.

June 29, 1918.

1. The Goulsonian Lectures on Modern Views on Diabetes and on the Significance of Acidosis in Disease. Lecture II. Acidosis in Diabetes (Ketosis). E. P. Poulton.
2. Delayed Primary Suture. Captain W. Girling Ball.
3. Traumatic Aneurysm of the Second Portion of the Subclavian Artery: Operation. Colonel A. H. Tubby and Lieteuant J. B. Banister.
4. Cerebral Galvanism: Treatment of Children Mentally Backward as a Result of Prolonged Illness. Captain Francis Hernaman-Johnson.
5. The Selective Treatment of Paralyzed Muscles. Major W. J. Turrell.
6. A Note on the Sterilization of Local Anesthetics. M. Macnaughton Jones.
7. Galvanometric Observation of the Emotivity of a Normal Subject (English) during the German Air-Raid of Whit-Sunday, May 19, 1918. A. D. Waller.
8. A Note on the Wassermann Reaction in Cerebrospinal Syphilis. E. H. Walker.
9. Case of Solitary Cerebral Abscess, *M. Totragenus* Infection. Major H. A. Cookson.
10. Two Cases Showing the Effect of the Incidence of English Measles Upon Pre-existing Graves's Disease. H. C. Jennings.
11. A Case of Traumatic Rupture of the Ileum. James F. O'Grady.

1. The Goulsonian Lectures on Modern Views on Diabetes and on the Significance of Acidosis in Disease—Acidosis in Diabetes (Ketosis).—E. P. Poulton, in Lecture No. 2, refers to the work of various observers on the cause and significance of acidosis in diabetes and points out that the theory of neutrality regulation has now been generally adopted. This theory states that the reaction of the blood, or its hydrogen ion concentration, is preserved at a constant level by the organism, and means must be provided to compensate for any increase of acid or alkali in the body. There are three known methods of compensation. In the case of acid there is a lowering of the alveolar CO_2 by increased pulmonary ventilation, an increase in the production of ammonia which combines with the acid, and an increase in the hydrogen ion concentration of the urine. Evidence in support of this theory is found in the observations and experiments of Hasselbalch and Barcroft. The theory of acid-intoxication has formerly

been considered sufficient to explain death in diabetic coma. Poulton, however, believes that the acid substances aceto-acetic and β-oxybutyric acids are poisonous in diabetes and that aceto-acetic acid is the poison that causes coma. As was pointed out in the previous lecture (see MEDICAL RECORD, July 27, p. 163), this substance is produced by abnormal metabolism. The actual coma may be due to fall in blood pressure, the aceto-acetic acid acting primarily on the circulation. It is remarkable how invariably the consciousness of the patient varies with the strength of the pulse. A fall in intraocular tension is another well known indication of the onset of coma. Treatment should consist of fasting and underfeeding as described in the previous lecture, in order to lower the metabolism. Occasionally carbohydrates should be given, especially in acute cases due to faulty dieting. The administration of sodium bicarbonate, by mouth or intravenously, sometimes produces excellent results. Another point to be noted is that in long standing ketosis cases there is a draining of many inorganic substances from the body; it is therefore wise to give by mouth small daily doses of potash, soda, lime, and magnesia.

Berliner klinische Wochenschrift.

May 20, 1918.

The Treatment and Correction of Amputation Stumps.—H. Brütt believes that the cause of torpid evolution so common in amputation stumps, which does not end in good cicatrization, resides in insufficient blood supply in the flaps. The ulcers and fistulæ tending toward chronicity should be treated by massage and passive movements. Passive stasis has not given the results expected of it. Brütt develops the circulation in stumps by the use of a kind of dynamometer which transmits the muscular enlargement during contraction to a weight which is slowly raised and with an increasing facility as the treatment progresses. The quartz lamp and roentgenization favor elimination of the sequestra. Fetid ulcers are irrigated with Carrel-Dakin solution. The writer has seen some excellent stumps after Pirogoff's amputation and better for walking than those obtained by Chopart's method. At the knee Gritti's operation is preferable to amputation at the point of election, as well as to fixation of a prothesis on a flexed knee. When reamputation is required the writer prefers to cover the stump with a cutaneo-fatty flap. In opposition to many surgeons he forms this flap from the amputated limb itself, rather than from the normal fellow limb. A well performed plastic operation will give a good surface for the application of a prothesis.

Pernicious Staphylococcic Phlegmonous Enteritis of the Ileum.—A. Glaus describes a phlegmonous infection involving the latter portion of the ileum, and yet remaining clinically latent. The hypertrophic spleen contained the *Staphylococcus pyogenes aureus* in a pure culture. The writer supposes it to have an enterogenous origin.

Münchener medizinische Wochenschrift.

May 7, 1918.

Deep Antisepsis in Wounds of Warfare.—R. Klapp discusses "reinforced prophylaxis" that he advocated some time ago. It requires: (1) primary excision of wounds; (2) deep disinfection with solutions of quinine derivatives. Excision of the parts must be done as early as possible, and in some cases may be followed by primary sutures. By removing the necrotic tissues freely, likewise the bacteria already infesting them, excellent results have accrued to many surgeons. Infiltration of the cleansed wound is done with isolthylhydrosuprein, which is the quinic derivative having the greatest destructive action on the streptococcus and staphylococcus. Infiltration is obtained by means of a 1:10,000 solution of this product. Irrigations with the solution have not given such good results as the infiltration method advised by Klapp. This drug acts by slowly infiltrating in the dressings, which is equivalent to a drainage flow, by killing the bacteria and overcoming the leucocytosis and granulation tissue. The solution is made in a physiological salt solution, then filtered through cotton and sterilized. Novocain or suprarenal extract may be added if required. This procedure of infiltration should not be used in poorly vascularized flaps and the same may be said of the fingers. Bone lesions are to be freely exposed, cleansed with the chisel and evened off, and then all the splits in the bones are injected with the solution, which is also injected under the periosteum and surrounding tissue areas. Wounds of the joints should be freely incised down to the capsule, through which a needle is introduced and the joint injected with the solution. The aperture made by the needle is closed with a suture and after the extra articular wound has been infiltrated it is in turn sutured. Fixation of both bones and joints is absolutely necessary. Klapp next gives his results in various types of wounds. He advises secondary suture in the majority of cases, as it does not necessitate a renewal of the infiltration. Joint wounds have appeared to Klapp to be the most favorable for this procedure.

Deutsche medizinische Wochenschrift.

May 9, 1918.

The Treatment of Furunculosis and Carbuncle.—C. Schlatter passes in review the old and modern treatments of these cutaneous infective processes, which are so common among soldiers. Abortive treatment, with tincture of iodine, carbolic acid 10 per cent., ichthyol, or the thermocautery, is applicable at the beginning of the infection. All emollient treatment is to be avoided, as it renders the surrounding skin favorable for new foci of infection. Incision relieves the pain by diminishing the tension, but does not shorten the evolution of the process. Furunculoses in general are benefited by general care of the skin, such as washing with alcohol, with or without the addition of boracic acid, the application of a 10 per cent. formalin solution to the skin areas exposed to infection and desquamative applications, such as potash soap, or ointments of sulphur or naphthol. Radiations with the quartz lamp give good results. The autovaccines and polyvalent vaccines are now being studied. For carbuncle, local anesthesia being obtained, the focus is deeply incised and cleansed with the thermocautery.

Significance in the Diagnosis of Appendicitis.—E. Schlesinger admits that there can be a cecal stasis quite independent from appendicitis, ileostasis or constipation of cecal origin. This is proved by radiographic plates which show a permanent shadow over the cecal area which may be present for weeks, although the progression of the fecal mass onwards remains perfectly normal. This stasis is never due to a functional cause, but is generally attributable to peritoneal adhesions. Laxatives have little, if any, effect on it. Surgical interference, which is necessary when fecal retention is prolonged, should consist in mobilization of the colon by breaking up the existing adhesions and doing away with any recesses. Fecal stagnation of shorter duration (two to three days after the bismuth meal) can be treated by medical means. The writer offers several *x*-ray pictures of local diverticular stasis to back up his statements.

Wiener medizinische Wochenschrift.

May 25, 1918.

Galician Dysentery.—F. C. Krasa first refers to Popper's observations relating to an epidemic of dysentery observed in Galicia in which the etiological agent was not a bacillus but an ameba differing from any known organism at the time. Popper christened it "entamoeba dysenteriæ europeæ." The epidemic studied by Krasa occurred simultaneously with that observed by Popper and underwent its evolution in the same conditions. In spite of this, the Shiga-Kruse bacillus was found in most of the cases, the Flexner bacillus and the γ-bacillus less commonly. The exact proportions were: For 32 per cent. of cases having a positive bacteriology, 30.6 per cent. were Shiga-Kruse, 1.2 per cent. Flexner and 0.2 per cent. for the γ-bacillus. The writer explains the 68 per cent. of cases having a negative bacteriological result from the difficulty in cultivating the Shiga-Kruse organism, which is easily overgrown by

the bacterium coli if the sample of feces is not very fresh. Besides, the elimination of the bacilli in the feces may vary from one dejection to another and it may even happen that the bacilli present in the ulcerations are not eliminated in the stools at all.

Correspondenz-Blatt für Schweizer Aerzte.

March 9, 1918.

Lactation and Malignant Tumors of the Female Breast.—Von Steiger refers to the belief that most women with cancer of the breast have undergone pregnancy and lactation and that the disease is deadlier when there has been repeated and prolonged nursing. This belief is by no means unanimous and claims have even been made that functional activity of the breast is a protection against malignancy. The author sought to test the subject in Swiss women, mostly from the canton of Berne. Ninety women with cancer of the breast had borne an average of 4.78. Thirty-four women with the same malady had never borne children. Of 74 women, two-thirds had nursed their children, and in about one-half of these lactation was normal. By abnormal lactation the author refers to premature weaning and drying up the breast. There were 14 histories of mastitis. The average age of the combined material was 52.5 years. Data on the duration of lactation are incomplete and the author was obliged to fix an arbitrary duration of five months or more, which he terms "normal." In any woman who did not nurse her infant five full months, nursing is set down as unphysiological. The only deduction of any significance is the relatively small percentage of cases of normal lactation as contrasted with the sum of the other cases. If of every four cases of cancer of the breast but one occurs in a woman whose breasts have performed their full physiological function, the latter can hardly be regarded as a predisposing cause. The author now obtained some control figures, as follows: He collected data concerning nearly 300 women whose ages averaged 50.3 years and whose children averaged 5.5 per woman. Of this number 76 per cent. had nursed their children, although only 28 per cent. had nursed over five months, as against 51 per cent. in the cancer material. These figures seem to invalidate the first ones, for they show that the per cent. of cancer cases with physiological nursing was almost double the average for that part of the country. For poverty or some other reason the women are evidently inhibited from protracted lactation and often from any lactation. If the combined figures prove anything at all, it is that on the whole lactation exerts an unfavorable influence and slightly predisposes to cancer.

Boletina de la Asociacion Medica de Puerto Rico.

March, 1918.

Nine Cases of Tetanus with Recovery Under Magnesium Sulphate.—Janer has treated nine cases of tetanus in the past three years with the most satisfactory results. Of the nine cases five were acute, the symptoms supervening in from two to eight days after injury. Patient No. 1 was a boy of nine with a period of eight days' incubation who recovered under antitoxin and magnesium sulphate in not excessive dosage. The second case was in a man of sixty who required amputation of an injured finger. The incubation period was five days and recovery occurred under the same conditions of treatment. The third case was a boy of five, incubation period two days. The lesion was a nail wound in the foot. On account of the sudden supervention of the disease he was given antitoxin in larger dosage. As another medical man would not consent to the magnesium treatment, Baccelli's carbolic acid method was substituted, but as no improvement was visible the magnesium was given steadily for five days in very moderate doses; after this period the patient was seen to be out of danger. Patient No. 4 developed the disease after a fifteen-day incubation period. Serum is not mentioned in the treatment. Although the case is called mild, magnesium was given in full doses over a long period of time. Patient No. 5 was a young man without definite history of infection. He received no serum, but was given magnesium in high dosage—40 c.c. of a 50 per cent. solution for two days. The convulsions ceased after the second injection. Patient No. 6 was but seventeen days old, without evidence of umbilical infection. The author believed that death would be inevitable and gave magnesium merely as palliative. The mother and patient did not come back for treatment after the third day, but five months later the child was seen in good health. Patient No. 7 was a strong negro, aged 29, whose symptoms began only forty hours after having received a punctured wound. The entire picture of the disease, including opisthotonus, developed within a brief interval. The patient was given 9000 units of antitoxin and injections of magnesium were given three times daily. After six days the convulsions seemed under control. The offending object, a piece of umbrella rib, had not been completely removed and the patient was now submitted to an operation for this purpose, after which the magnesium apparently put a complete stop to further motor manifestations. Cases 8 and 9 presented nothing unusual and in both recovery occurred. The author naturally credits the brilliant outcome in this series of cases to the Meltzer treatment. The injections were all intramuscular.

La Presse Médicale.

April 18, 1918.

Researches into Gas Gangrene of War Wounds.—Sacquépée has considered the edematous form of this affection in a prior article. Of other aspects he mentions first the gaseous toxic tumor in which there is swelling and elevation of the margin of the wound. There is an erysipeloid condition of the skin, phlyctens appear and the presence of gas may readily be made out in the tissues. The odor of the wound is sickening. There may be a profound systemic reaction, so that death may occur in 24 to 48 hours. This tumor type is an elemental one from which are derived several others. The gangrene may spread locally or septicemia may develop or the so-called bronze erysipelas may be the chief clinical manifestation. In this type of gas gangrene it is the muscles which suffer and the muscle lesions show the greatest degree and variety of behavior. There may be only a congested state with nothing to suggest gangrene, yet the bright red muscles may be infiltrated with air bubbles. The loose tissue about the muscles may be the seat of edema. The germ content comprises both aerobic and anaerobic organisms; among the latter the *perfringens*, septic vibrion, *B. bellonensis*, etc., and among the former the usual pyogenics. In hundreds of analyses made by the writer the germs most commonly found were the *perfringens* and staphylococcus, this being the commonest association. But one of two forms of the septic vibrion or the *B. bellonensis*, an anaerobe, is usually present, and considering these two anaerobes jointly one of them was present in 74 out of 100 cases. Despite some negative fruits the author believes them universally present at the outset, although perhaps not demonstrable later. To what germ or what symbrosis is the deadly character of the lesion due? The author tested the three leading suspects, *perfringens*, septic vibrion and *bellonensis*, in animal inoculation. The *perfringens* liquefies muscle tissue with formation of a putrid, sanious discharge and forms abundant gas in large bullæ and pockets. The septic vibrion causes a bright red color of the muscles with production of gas in fine bullæ. The *bellonensis* provoked extensive gas infiltration and an odor of gangrene. While the other two germs supplied powerful toxins, the *perfringens* appears to form no toxin whatever. An analysis of the phenomena resulting from inoculation appears to show that the septic vibrion and *bellonensis* are in a great majority of cases able unaided to cause the picture of gas gangrene in man. That the *perfringens* ever plays a major role in these cases is doubtful, but there is no reason to doubt that its pathogenicity is sometimes added to the activities of the others because of its presence in so many cases in large numbers. The author does not believe that the other germs, including the aerobics, play any considerable role. It is hardly conceivable that a great number of germs can engage in a pathogenic symbiosis. Such a view would make specific treatment impracticable.

Book Reviews.

Modern Urology in Original Contributions by American Authors. Edited by Hugh Cabot, M.D., F.A.C.S., Chief of the Genito-Urinary Department of the Massachusetts General Hospital; Assistant Professor of Genito-Urinary Surgery in the Harvard Medical School, Boston, Mass. Volume I. General Considerations. Diseases of Penis and Urethra. Diseases of Scrotum and Testicle. Diseases of Prostate and Seminal Vesicles. Illustrated with 368 Engravings and 7 Plates. Volume II. Diseases of the Bladder. Diseases of the Ureter. Diseases of the Kidney. Illustrated with 264 Engravings and 10 Plates. Price, $14.00. Philadelphia and New York: Lea & Febiger, 1918.

In the preface of this admirable work the editor writes apologetically that "All composite works have an inherent weakness in that they lack the smoothness and balance of works produced by a single author." He has, however, so limited his contributors and so logically arranged the sequence of their work that homogeneity is attained.

The introduction is a short history of urology in America and condensed biographic sketches of some of the more notable American urologists. There can be no debate on the wisdom of selection of these immortals and doubtless only lack of space prevented inclusion of other great men in the list. Chapter II deals with the cystoscope and its use. In these forty-nine pages the author, with consummate modesty, mentions his name only forty-nine times and that of his instrument maker only ten times. The third chapter, written by Bransford Lewis, entitled "Methods of Diagnosis in Lesions of the Urinary Tract," is especially commended, and his remarks on some vital truths regarding genito-urinary diagnosis are beyond compare in their content of sage advice to the practitioner. Section two, on diseases of the penis and urethra, is clear and instructive, and in accordance with the author's opinions and teachings as elsewhere expressed. The subject of urethral stricture is entrusted to Keyes, and the trust is well placed, since he covers the subject in concise and authoritative manner. But his pen never traced a more weird sentence than "The preventive treatment of stricture begins long before the stricture"; nor will Oberlander return thanks to him for designating him as "in Vienna." Neither will the followers of Guyon subscribe to this dictum: ". . . but unless the stricture is particularly complicated, or unless all followers have failed to pass, the tying in of a filiform is a waste of time." Nevertheless, these deviations do not detract from the excellence of the contribution. Section three, on diseases of the scrotum and testicle, is written by Smith, Stevens, Sanford, Barney, and Beer. These chapters are without exception clearly and concisely written. The illustrations of microscopic sections are intelligible inasmuch as the degree of magnification is indicated, which virtue does not obtain throughout the work. The volume ends with section four, devoted to the prostate and seminal vesicles, and written by Quinby, Pilcher, and Hugh Young. These contributions are of the high degree of excellence that might be expected of these authorities.

The section on the bladder in Vol. II is written by Kretschmer, Lower, Hagner, Caulk, Cabot, and Geraghty. Each contribution is thoroughly good, the best perhaps being those of Cabot on stone and foreign bodies in the bladder. These chapters may be accepted as models of conciseness and excellent presentations of the subjects. Hunner contributes all of section two, on the ureter. In these sixty-five pages he fully considers the anatomy, abnormalities, injuries, and diseases of the ureter. The essay is well written and replete with personal experiences. In his remarks on the anatomy of the ureter (page 253) he writes: "It is of practical importance to realize that the epithelial layers of kidney, ureter, and bladder are continuous and of similar composition, and that it is impossible in an examination of the urine to designate from which of these three organs the cells in the urine are derived. We still have patients bring written urinary analyses from laboratories where this differentiation is attempted, and it inevitably casts suspicion on the value of the entire report." This is an ill-advised attack on a method of diagnosis which has many followers and accepted by many urologists. Section three, on the kidney, is written by Quinby, Geraghty, Squier, Keyes, Edward L. Young, Jr., O'Neil, Cabot, and Binney. The anatomy and physiology of the kidney is of the usual text-book character; the description of tests of renal function is in accord with the authors' writings elsewhere published.

Chapter XI, on anomalies of the kidney, hydronephrosis, movable kidney, and injuries of the kidney, contains the only instance of overlapping or repetition in the work. The chapters on infections of the kidney and stone in the kidney and ureter are written by Keyes and Cabot. In the chapter on tuberculosis of the kidney and ureter, contributed by O'Neil, there appear twenty-seven pages of text on the pathology of this infection written by E. Granville Crabtree, to whom the editor gives no credit in his table of contents. The work ends with a chapter on tumors of the kidney by Binney, who holds to the accepted paths in all regards and liberally quotes Garceau's excellent work.

The index is good, the plates excellent, and in general the illustrations are well chosen and well executed. The reviewer is impressed (1) with the absence of repetitions and overlapping of subjects, (2) the thorough and careful review of worthy literature, (3) the completeness with which each subject is discussed, (4) the general clarity of expression, and (5) the perfect balance of subjects. In conclusion, the work may be placed in that Baconian classification of ". . . some few (books) to be read wholly, and with diligence and attention."

Cancer: Its Nature, Causes, Diagnosis and Treatment. By Robert Holmes Gréene, A.M., M.D., F.A.C.S., Emeritus Professor of Surgery, Medical Department of Fordham University, Etc. Price, $1.50. New York: James T. Dougherty, 1918.

In this book the subject of cancer is discussed under four headings: Causes of Cancer, Nature of Cancer, Diagnosis of Cancer, and Treatment of Cancer. In the preliminary remarks in the section on causes of cancer, Greene admits that we are as ignorant of the etiology of cancer now as we were when the study first began, and finds that none of the best known theories will stand all the tests. Apart from the realm of theory, the author has written in an interesting and instructive way on the nature, diagnosis, and treatment of cancer. These are the practical parts of the book, and will repay reading by every physician and surgeon. The author has emphasized many points that we think should be iterated and reiterated. For example, he says: "We cannot impress too strongly upon the physician and the patient the risk following undue handling of malignant tumors." And then, again, "Massage * * * should never be employed where the tumor is suspected of being cancerous and the examination of such growths should be undertaken with extreme gentleness and not repeated unless absolutely necessary." He also calls attention to the fact, well known to most of us outside the New York City Health Department, that cancer cells may be disseminated by incising a growth to obtain tissue for examination. In the section on diagnosis, considerable space is given to the technique of laboratory tests, especially for nonprotein sulphur in the blood and urine and the examination of gastric contents; while there are short but meaty chapters on differential diagnosis between epithelioma, syphilis, and skin diseases, on the *x*-ray and cystoscopic diagnosis, and other subjects.

Coming to the section on treatment, we find that the author believes that cancer is a constitutional disease and that operations for the cure of cancer "no more cure cancer, however much they may retard it, than does the removal of a tuberculous kidney cure tuberculosis; although both may be of help to the individual." He believes, however, that in proper cases the proper operative procedure will often retard its active development to such an extent that the individual's life may be prolonged for many years. Early diagnosis is essential for this happy operative result. According to the author, the basis of all successful treatment will be found in measures which tend to increase tissue metamorphosis.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Sixty-ninth Annual Meeting, Held in Chicago, June 10-14, 1918.

(Special Report to the MEDICAL RECORD.)

(*Continued from page 42.*)

SECTION ON PEDIATRICS.

Second Day—Friday, June 14.

Treatment of Prematurity.—Dr. ROOD TAYLOR of Rochester, Minn., presented this paper, in which he described the method employed in caring for premature children which was being used in the Pediatric Service of the University of Minnesota Hospital. From September, 1914, until the close of 1917 they had cared for 60 premature babies. The four-hour interval in feeding was employed. This they found prevented overfeeding, vomiting, and frequent disturbance of the baby. This interval between feedings had only one disadvantage, namely, it did not supply sufficient stimulation to the breasts and had to be supplemented by massage and pumping. The food was introduced by a small rubber catheter through the mouth. Only one baby in the series required tube feeding for two months, and only three as long as three weeks. The amount of food given was 100 calories per kilo body weight. The food required by a premature infant was about one-seventh the body weight daily. It was important that the baby's tolerance for food be not overstepped. The babies were clad in flannel hoods and capes, and 85° or 90° F. was the optimum temperature of the infants' beds. The bed temperatures were taken after the hot water bottles were removed. Fifteen of the babies that survived had a birth weight of less than 2 kilos and none of them weighed more than 2,000 grams. An antiseptic technique was employed, including the wearing of a mask by the nurse and by the mother when near the baby. It was important to avoid initial chilling. Only three of the babies required hospital care longer than two months. In premature babies rickets was frequent, and to prevent this disease at the end of the second month iron and cod liver oil were administered as a routine measure. Charts were presented showing the details in reference to feeding and gain in weight. Of the sixty babies, twenty-six survived.

Dr. JOHN ZAHORSKY of St. Louis said it was a much better practice to decide daily how much milk the baby should have, whether calculated by the caloric or percentage method. As to the interval of feeding, some babies did all right on the four-hour interval and others had to be fed oftener. The feeding was the most important factor in caring for a premature baby, and he made it a practice to try to work the energy quotient up to 120 or 130 by the tenth to the fourteenth day. He usually began the first day with an energy quotient of about 30 and then gradually worked it up. The interval between the feedings did not matter so much as that the baby got the proper amount of food. The cyanosis so frequently seen in premature babies was due to apnea and was largely dependent upon the amount of food. As to the temperature, it was necessary to begin with 85° or 90° F. and gradually decrease it. Slight overheating might produce cyanosis, because it decreased the child's power of oxidation and assimilation. He was especially interested in learning that they were no longer using incubators with their complicated machinery. For the apnea in premature infants caffeine and sometimes small quantities of tea might be given.

Dr. ISAAC ABT of Chicago said he supposed the four-hour interval between feedings would work out well in a considerable number of cases, but if they fed premature babies only every four hours they would have to feed larger quantities of milk than if fed at a two or three hour interval, and that would mean that the baby would be more likely to have the capacity of the stomach overtaxed and then it would vomit and lose part of the food. The point he wished to make was that they should not be bound by dogma, but should remember that they must always deal with babies as individuals. He believed that most premature infants would require feeding every two or three hours. Budin, in speaking of caring for premature infants, said that they suffered from two great troubles, the difficulty in controlling the body temperature and the difficulty in getting the infants to take sufficient food, and that it was better to feed small quantities at frequent intervals. The necessity of breast milk for premature infants should be emphasized.

Dr. LAWRENCE T. ROYSTER of Norfolk said that the vast majority of premature infants coming under his observation were in his private practice, outside of hospitals, and with these he had had some success. He imagined the stomachs of premature infants varied in capacity, just as did those of infants born at full term, and that therefore the quantity of milk would vary with different babies. He had not been successful in getting a four-hour interval unless he gave the milk through a tube, and he did not often use the tube because the mothers were not qualified to use it. His most frequent interval was two hours. Breast milk was almost a *sine qua non*, but sometimes one was driven to artificial food and when that occurred it was his plan to start feeding whey, diluted or whole, which would do to tide over a short period, and then he started cow's milk. Prematurity was a handicap and one met with a good many which were the result of accouchement forcé or cesarean section. It had been his experience that the premature babies delivered by cesarean section were easier to care for than those subjected to a tedious labor and a forceps operation.

Dr. FRANK C. NEFF of Kansas City, Mo., emphasized the importance of the antiseptic technique, and particularly of wearing a mask. Visitors should not be allowed about the premature baby. He had had no difficulty in teaching intelligent mothers to feed the babies by means of a tube.

Dr. JANE M. KETCHUM of Indianapolis said one very important point in caring for premature infants was that they should not be overhandled, and that furnished an argument in favor of the four-hour interval between feedings. She was using the tube for the first weeks. If the child was allowed to have a nipple in its mouth and make the effort to suck it learned sooner than if this were neglected. If a premature baby was low in fluids, a 5 per cent. glucose might be given per rectum and oxygen might be administered hypodermically for cyanosis. The baby should be weighed before and after nursing so that one would know what it was receiving.

Dr. JULES M. BRADY of St. Louis said he had heard Dr. Sedgwick read his paper advocating a four-hour interval between feedings at Atlantic City in 1910, and he was not convinced at that time that it was a good plan until he had tried it. If persistent vomiting occurred it was a serious symptom which diminished the infant's chances of living, and the four-hour interval lessened the possibility of vomiting.

Dr. B. B. ROWE of Duluth emphasized the importance of the face mask for those caring for premature infants. He said he had adopted the four-hour interval with the reservation that if he found it necessary he would shorten the interval.

Dr. H. M. MCCLANAHAN of Omaha spoke of the effect of the application of external heat, and cited an instance in which the temperature of the bed was 120° F. and the baby's temperature was 106° F. The baby died. In keeping up the temperature they had undoubtedly gone to the extreme in the past and certain infants were undoubtedly lost in the effort to conserve the body heat.

Dr. JAY I. DURAND of Seattle also emphasized the importance of getting the premature baby to take sufficient nourishment and disapproved the former custom of starving them on barley water. He had used the four hour interval and found that the younger the baby the more important it was to adhere to the four hour interval between feedings.

Dr. EDGAR J. HUENEKENS of Minneapolis said that to prevent rickets in the premature infant, basing his idea on the work of Schloss, he gave tricalcium phosphate with cod liver oil. The premature baby was not a normal baby and had to be guarded against anemia, spasmophilia and rickets.

Dr. HARRY LOWENBURG of Philadelphia said his experience was in accord with that of Dr. Abt, namely, that we must treat the individual. It was very dan-

gerous to become dogmatic. He had found it easier to pass the tube through the nose than through the mouth in these premature babies. One might give glucose solution through the anterior fontanelle. A propaganda should be carried to the obstetricians that they should either learn the principle of infant feeding or else leave premature infants alone.

Dr. WAHRER of Madison, Iowa, said it was well not to lose one's sense of proportion. They were making rules for the exception and rules for the exception to the exception. Some men sat up all night thinking about these things and they thought things that were only of their own thinking, but did not change the multiplication table.

Dr. ABRAHAM JACOBI said he had nothing worth while to add, but just to agree with what had just been said. In medicine, whether a thing made good or not, a doctor was always well off if he had brains and knew how to use them. He could not say that he approved of two, three or four hour feedings. They would have to use their brains in every case that came along. He thought the reader of the paper was correct in his own cases, but not in all others. One had to study the babies and the babies' mothers, so he could not say how long these babies could wait to be fed. Each baby needed to be seen by a doctor or a decent nurse and fortunately we had some decent nurses.

Dr. ROOD TAYLOR of Rochester said his paper was in no sense a propaganda for four hour feeding of premature babies. He had simply gone over Dr. Sedgwick's records of these babies and happened to find that they had been fed at four hour intervals. There was no doubt they must individualize. The four hour interval, however, helped to gauge the tolerance of the baby for the food. He had adopted this interval, but if he found the babies were not doing well he would change. All the mothers of these premature babies had been able to nurse their babies. He had had no difficulty in introducing the tube through the mouth and he thought that introduced in this way there was less danger of it entering the trachea and less danger of infection.

Intestinal Parasites in Children.—Dr. H. M. MCCLANAHAN of Omaha read this paper, in which he stated that the present classification of parasites was unscientific and he, therefore, presented the classification of Dr. Barber of Lincoln, Neb., and reviewed the recent literature. The tapeworm of meat and fish was rare in young children, but the tapeworm of the rat and the dog were more frequent and also more frequent than authorities recognized. Of the 100 cases in the series that were discovered in this paper the youngest child was five months and they were all under eight years. The tapeworm was about one-half inch long and was easily overlooked. Schloss in a series of 310 children under his treatment found intestinal parasites in 28 per cent., which would indicate that these parasites were not very rare. The fish tapeworm caused a peculiar weakness that was out of all proportion to other symptoms and was thought to be caused by a toxin of the worm. The symptoms of fish tapeworm were abdominal pain and mucus in the stools and sometimes disturbances were caused by the migration of the parasites. The writer had found on record twelve cases of intestinal obstruction caused by round worms. The diagnosis of thread worms could be made by inspection, though as a rule it was made by examination of the feces. Other things had been mistaken for worms or their ova, such as the fiber of fruits and vegetables or shreds of tissue of meats. Lay people are inclined to attribute everything to worms, while it had been the attitude of the physician to minimize their importance. The writer used the following procedure in making an examination for intestinal parasites. In the evening he gave a dose of santonin and calomel, followed the next morning by magnesium sulphate; or he might give fluid extract of epygelia. The stools were then kept for examination. He had used this routine procedure in fifty-seven cases. The plan of using the stomach tube to administer the medicine was a good one. It had been his experience that a great many of these cases were chronic in type and difficult to cure, and that might account for the many patent vermifuges on the market. In his experience it was often difficult to get the head of the parasite. Of 100 cases of dog tapeworm 34 per cent. occurred in sucklings one to six months of age and 42 per cent. in infants from seven months to three years.

Dr. WILLIAM WESTON of Columbia, S. C., said he had had experience in trying to eradicate uncinariasis which was quite unlike that of the British physicians in Egypt. He had found that there was a high birth rate and a low death rate among those infected with uncinariasis, but that their efficiency was markedly affected. He had tried all kinds of drugs for the eradication of these parasites and had found the oil of chenopodium most effective; it seldom failed when the cases were not complicated with other parasites.

Dr. LANGLEY PORTER of San Francisco said that the infection with threads was sometimes kept up by children scratching and getting the ova under their nails. As a protection against this they now packed the ends of the fingers with colodion. The medicine might be administered by having it put up into capsules and tossing the capsules into the pharynx. As an aid in getting the head, the child should be placed on a vessel full of water at body temperature, the water would support the weight of the worm, so that the other segments were not broken off from the head.

Dr. WAHRER of Fort Madison said that as a source of infection he would recall the old oaken bucket that hung in the southwestern corner of the well, in which rabbits, and sometimes rats, rested for a while, and the old mother was probably right in saying that the child had worms when it was pale and nervous and ground its teeth at night. She then gave three or four tablespoonfuls of turpentine. Mothers should be warned that this remedy was extremely dangerous, and also that there might be danger in the patent medicines containing santonin. He cited one instance in which the mother thought the child had worms, but investigation showed banana fiber; the child had eaten seven bananas the day before. He had also had several cases of myiasis come under his observation.

Dr. ROOD TAYLOR of Rochester cited an instance of lamblia infection in a child in which the mother had been treated for lamblia intestinalis. This parasite infected the upper small intestine and it was very difficult to get drugs in contact with this locality.

Dr. MCCLANAHAN, in closing, said there was one point that he left out. One frequently found intestinal parasites during acute infections where they had not been suspected, and he wondered if the worms were not partly responsible for the infection. He had used a mercurial salve for thread worms which he thought was effective. The *Lamblia flagellata*, he believed, was now considered pathogenic.

Purpura Abdominalis in Early Life.—Dr. WILLIAM WESTON of Columbia, S. C., presented this paper, the object of which, he said, was to call attention to an extremely interesting symptom complex which had received scant attention. A number of cases of purpura abdominalis had come under his attention during the last four or five years and three of these cases presented very interesting features, which were discussed in connection with the report of three illustrative cases. The outstanding symptoms in these cases were loss of appetite, irritability, thirst, abdominal crisis, sometimes severe pains about the joints, and skin manifestations of a wide variety. The pain was most often located in the epigastric region. The pulse was small and frequent, and in the writer's cases the pupils were widely dilated. In no case was there redness about the joints. Fever was present in all the cases and toward the end of the attack the temperature fell to below normal. The leucocytosis was from 18 500 to 28,500. The blood pressure was normal. Albumin was present in the urine in two of the three cases and the most frequent complication was acute nephritis. Angioneurotic edema was present often enough to be considered to have a definite relation to the condition. In the treatment rabbit and sheep serum was to be preferred to horse serum, but human serum gave the best assurance of permanent relief.

Dr. J. A. FOOTE of Washington, D. C., said that the question of the etiology of the purpuras was so involved that one could not say that much progress had been made in its solution. There was a similarity of these diseases to the diseases due to vitamine deficiency, and it was possible that there might be a factor of infection complicating the whole matter. One case of purpura

abdominalis had come under his observation in which the classical symptoms of appendicitis were present and the boy was sent to the hospital for operation. He was found to have a subperitoneal extravasation near the sigmoid. The boy recovered and the surgeon did not have any particular trouble with hemorrhage during the operation. The relationship of the purpuras to infection was suggested by their occurrence after measles in some cases. One could not be certain that it was due to a food deficiency or entirely to an infectious condition.

Dr. Rood Taylor of Rochester, Minn., said he had seen a number of these cases and found that the factors entering into the etiology differed greatly in the individual cases. There had been an attempt on the part of the physiologists to put the purpuras on a basis similar to the hemophilias, and they had also been attributed to a deficiency of blood platelets. He had had occasion to go through the records of the cases at the May clinic and found that in many there was evidence of some serious focus of infection, and all that were treated by removal of the focus improved greatly. Frequently the focus of infection was in the tonsils or teeth. Most of the cases did not have a low blood platelet count; the count was usually around 100,000. They had not been able to check the hemorrhage by transfusion anything like as easily in the purpuras as in hemophilia.

Dr. Isaac Abt of Chicago expressed the belief that the types of purpura found in children were different from those seen in adults. He asked Dr. Weston what his results were from the use of adrenalin.

Dr. Turner of Des Moines, Iowa, cited two cases belonging to this class, in one of which there was complete paralysis of the left arm and leg and of the right face, and the child died. In the second case, which was treated with calcium lactate, epilepsy developed, probably the result of hemorrhage in the brain.

Dr. Weston of Columbia, S. C., in closing, said he was glad to hear one of the men who discussed the paper say he had met a case of this condition in a negro, as this was something he had been looking for but had not thus far seen. In regard to the focal infections in early childhood as a cause of purpura, he had been unable to find any such focus in his cases. He had used adrenalin in one case, but got absolutely no results. His object in presenting the paper was to call attention to the possibility of confusing this condition with intestinal indigestion, with appendicitis, and with intussusception.

Hemophilia.—Dr. Harry Lowenburg and A. I. Rubenstone of Philadelphia presented this paper, reporting a case with complete experimental data bearing on the effect of glycerized extracts of visceral hemophylic tissues on the coagulation time of blood from healthy individuals. The tissues were obtained from a case showing remarkably slow coagulation time of the blood which came into the pediatric service of the Mount Sinai Hospital of Philadelphia. This boy bled to the extent that the slightest pressure produced ecchymosis. Two maternal uncles and a brother were also hemophiliacs. In making his experiments he had used Howland's oxylate and calcium chloride method. Tissue extracts from various organs of the body of this hemophiliac were tested against normal bloods, with the finding that the coagulation time was lengthened slightly by the cell of the tissue extracts, but most markedly so by those of the liver and thyroid. These experiments suggested that the liver and thyroid secreted an antithrombic substance which prolonged the coagulation time of the blood.

Dr. William Weston of Columbia, S. C., suggested that in the treatment of hemophilia it might be well to keep in mind the fact that the lack of fresh food might have some influence on the condition.

Etiology and Treatment of Enuresis.—Dr. Joseph Grover of Boston read this paper, in which he said that enuresis had many causes, among these two important ones were run down physical condition, due to poor food and irregular habits, and pin-worms. A large proportion of these cases could be cured within twenty-four hours, and many others could be cured or greatly relieved by strict care of the diet, sleeping and resting hours. In many instances the habit was due to an underlying neuromuscular fatigue, which affected the nerve center controlling the genitourinary mechanism, which resulted in a condition somewhat similar to a tic or habit spasm. This was taken care of by regular intervals of micturition and by allowing a limited amount of fluid toward evening. A series of 200 cases were analyzed, in which tonsils and adenoids, adherent prepuce and clitoris, and high urinary acidity were not considered or treated as causes for the disease. Accompanying nervous diseases usually disappeared with the bed-wetting. As rest was of great importance in these cases, an initial period of three or four days in bed had often proved of great benefit. In this series of 200 cases 62 per cent. were boys, and there was a predominance of blonds. In 69 per cent. the enuresis was only at night, in 38 per cent. in the daytime and night. In 68 per cent. the wetting occurred every night. Enuresis was probably never a disease entity. The psychical element was often a prominent factor in the control of the disease.

Dr. H. M. McClanahan of Omaha said he had never seen enuresis helped by circumcision. In children from six to twelve years of age many had enuresis because the viscus was small. Such children he had a confidential talk with and persuaded them to try to go a little longer without urinating in order to develop the size of the bladder, and he also advised them to stop two or three times during micturition as this helped the child to develop control of the musculature of the genitourinary mechanism. Another point was that the bladder should be thoroughly emptied at each micturition and very little fluid should be given at night.

Dr. M. L. Turner of Des Moines, Iowa, said his experience was a little different from that of Dr. Grover. He had read some place that enuresis was due to a lack of development of the nerve center controlling the bladder, and that if one would impress it on the mind of the child that he must control the bladder sphincter he could be cured of enuresis in twenty-four hours. He believed this was true in 75 per cent. of the cases. One point upon which he insisted was that no fluid should be taken after 4 P.M., and if the mother would impress on the mind of the child the fact that this restriction was for the purpose of controlling the bed-wetting, it frequently resulted in the child stopping the bad habit. Another measure he employed was prescribing the bitterest medicine he could concoct and having the child take three or four doses late in the day, at the same time impressing on his mind that the medicine was administered to stop the wetting. He believed one got better results by working along psychical lines.

Dr. Franklin N. Rogers of Manchester, N. H., emphasized the importance of rest as a factor in the treatment of enuresis. He said there was a tendency to shorten the hours of rest for children in consequence of the daylight saving plan. It was now difficult to get children to go to bed at 7 P.M.

Dr. Grover, in closing, said he agreed that in many cases a cure could be effected by psychical treatment and he cited several such instances, but there was a certain percentage of cases that were dependent upon the general condition of the child, and for these diet and rest were important factors in the treatment.

Dr. Harry Lowenburg of Philadelphia said he had come prepared to discuss Dr. Louis Fischer's paper on "Transfusion Through the Longitudinal Sinus" and regretted that the paper was not read, as he had three cases of hemophilia treated successfully by transfusion into the longitudinal sinus which he wished to report. The blood counts made before and after transfusion showed a marked increase in red cells and the hemoglobin percentage. The counts, which were very low before transfusion, approached the normal afterward.

Further Use of Pertussis Vaccine Controlled by the Complement Fixation Test.—Dr. E. J. Huenekens of Minneapolis presented this communication. After reviewing the preliminary report on his work along these lines, presented before the New York meeting of the A. M. A. in 1917, he said that in the experiments now reported he had used pertussis vaccine from two to three months old, employed in very large doses. One billion and over of dead bacilli immunized in 12½ per cent. of cases. Two to four weeks old vaccine conferred immunity in from 25 to 75 per cent. of cases. Freshly prepared vaccine, employed in the same dosage, showed evidence of antibody formation in 94 per cent. of cases.

When used in still larger doses, one, one and one-half, and two billion bacteria, 100 per cent. positive reactions were obtained. The antibodies were demonstrable within one week after the last injection. The following conclusions therefore seemed warranted: Pertussis vaccine should be employed only when freshly prepared and without preservative. By fresh vaccine was meant a vaccine less than one week old. The most effective dosage was one billion, one and one-half, and two billion, given on alternate days for three doses. It was most effective as a prophylactic, but should be of great value in the early catarrhal stage of pertussis. In doubtful cases of pertussis the vaccine should be administered before an exact diagnosis could be made, especially during an epidemic or where there was a history of previous exposure.

Dr. James T. Christison of St. Paul said that, speaking from the clinical side, they had had a very marked epidemic of whooping cough and had used vaccines in 100 cases with most astounding results. Since the beginning of the use of this particular vaccine the results had been so astonishing that they could hardly believe them possible themselves. In the State Hospital they had never gone through a winter without an epidemic of whooping cough, but this last winter they had not had a single case in the whole house, where they were caring for 165 children. He made a plea that the vaccines for pertussis prepared as described in this paper be investigated. Some children who had been exposed to the disease and in whom the catarrhal symptoms had developed were given the first dose of vaccine at this time, and the disease was apparently aborted. The highest number of injections given for immunization during the catarrhal stage was six. In families in which there was already one case of whooping cough the vaccines were given to other children in the family who had been exposed to the disease, and no secondary case had developed.

Dr. John Zahorsky of St. Louis said he had always felt that children only became immunized after a period of time, that we could not expect to immunize them with one large injection, and that it was better to give more than one injection. Bordet had called attention to the importance of the time element. It was his custom to give a good many injections over several weeks.

Dr. J. I. Durand of Seattle said that two years ago he was working with the pertussis vaccines of the New York Health Department and was very much impressed by their prophylactic value. He had since used commercial vaccines which had not given as good results.

Dr. E. C. Fleischner of San Francisco spoke of the autolysis of vaccines. The dead tubercle bacillus injected intraperitoneally into guinea pigs caused marked lesions in the omentum. At the end of two months lesions were found but the disease did not become generalized and they could not get cultures containing the bacilli from the lesions. The material from the lesions, however, gave a positive complement fixation reaction using the tubercle bacilli as an antigen, and yet two or three months after the injection there was no evidence of antigenetic properties in the lesion. On post mortem examination no tubercle bacilli were found in the lesions which would indicate that autolysis had taken place. The possibility of the autolysis of vaccines should be taken into consideration.

Dr. Frank C. Neff of Kansas City said that hitherto the results obtained from the pertussis vaccines had been so variable that no conclusion as to their value could be reached; Dr. Huenekens had shown that definite results might be obtained. It would be interesting to see how long this immunity lasted. It was well known that some individuals had a second and even a third attack of whooping cough, and this might indicate that artificially produced immunity might not be permanent.

Dr. J. A. Foote of Washington, D. C., asked Dr. Huenekens if he had come to any conclusion as to the exact time it required to produce the complement fixation reaction after the vaccines had been administered. He asked this because it was important in connection with the use of the vaccines in the treatment of whooping cough.

Dr. Cass of Milwaukee made the point that, in connection with the cases supposed to be recurrences of whooping cough, it was well to remember that other microorganisms besides the Bordet-Gengou could produce the symptoms of whooping cough, as for instance the *Micrococcus catarrhalis*.

Dr. Huenekens of Minneapolis said he had omitted many points in reference to the clinical side of the subject and had presented only the laboratory facts. A positive complement fixation test did not necessarily mean that immunity to whooping cough had been produced; it meant that antibodies were being produced, but possibly they might not be sufficient in quantity to produce immunity. All did not give a positive complement fixation after one dose of vaccine, no matter how large a dose was given; hence, time might be a factor in the production of immunity. With reference to administering the vaccines over a long period of time, his object from the clinical standpoint was to make the administration of the vaccines as simple as possible, consistent with the production of immunity. He thought the difference in results that had been reported from the use of pertussis vaccines was probably due to changes that had taken place in the various vaccines employed. He thought he could find the effect of vaccines of living bacilli on animals but found that they gave positive complement fixation tests before they had received the pertussis vaccines.

Cutaneous Hypersensitiveness as an Evidence of Infection, and Its Bearing on the Pathogenicity for Infants of the Bacillus Abortus Bovinus.—Dr. Emanuel C. Fleischner and Dr. K. F. Meyer of San Francisco presented this communication, which was read by Dr. Fleischner. He recalled that in 1916 and 1917, with the view of ascertaining the frequency of tubercle bacilli in milk, they had injected a large number of guinea pigs, and as a result found that the animals did not develop tuberculosis but developed the symptoms indicative of infection with the *Bacillus abortus*. The conclusion drawn from that investigation was that the certified milk examined was a perfectly safe food so far as tuberculosis was concerned. As a result of the injections with the certified milk the guinea pigs developed a skin reaction characterized by induration and an areola with usually a central necrosis. This reaction lasted over forty-eight hours. They had since conducted a series of experiments in an effort to determine the value of cutaneous hypersensitiveness as an evidence of infection, in the course of which a large number of animals were inoculated with the *Bacillus abortus bovinus*, and in practically every instance positive skin tests were obtained. Negative skin tests, on the other hand, were the universal result in animals that had been inoculated with dead abortus bacilli and with abortion. Realizing that in the consumption of raw milk a large number of abortus bacilli were ingested, intradermal tests were made on a series of infants to determine the possible pathogenicity of this organism, following the same technique that had been employed in the case of experimental animals. In a series of 75 infants receiving injections of milk rich in abortus bacilli cutaneous hypersensitiveness was not manifested in any instance; from this it was concluded that the *Bacillus abortus bovinus* was not pathogenic for infants.

The Remote Results of Tonsillectomy in Young Children.—Dr. John Zahorsky of St. Louis read this paper, which was based on the study of 150 children. He stated that the removal of the tonsils was often followed by immediate good results. The children might improve so far as their appetite was concerned and might feel better and gain in weight, but in judging of the results of tonsillectomy sufficient study had not been given to the remote results. The children in this series were from his private practice and ranged in age from two to twelve years. Among these children he found, subsequent to operation on the tonsils, rhinitis in 38 instances, otitis in 21, bronchitis in 49, pneumonia in 43, asthma in 16, rheumatism in 9, endocarditis in 7, chorea in 6, adenopathy in 15, and diphtheria in 3. There was manifested among these children an increased tendency to bronchitis, bronchial pneumonia, and malnutrition. One could not depend upon tonsillectomy to improve the general condition of a child. It was much better to direct attention to the development of immunity and of a vigorous resistance to disease than to rely upon tonsillectomy to eradicate infec-

tion. A child must have one or more attacks of a disease in order to develop immunity. This was probably the reason gastrointestinal disturbances were so frequent in infancy; they were an indication of an attempt to produce immunity to intestinal microorganisms of different varieties. It was also notable that during the first two years a child attended school he, as a rule, suffered from a series of colds and respiratory affections and then seemed to become immune to them to a certain extent. He wished to make it emphatic that in children under eight years of age one should only remove the tonsils after a careful investigation of the nutrition and resistance of the child by a pediatrist; he was the one to decide whether the tonsils were to come out or not. He also wished to protest against the tendency to attribute everything from chorea to appendicitis to diseased tonsils. With the incomplete removal of the tonsils before the age of seven years, there was a tendency for the lymphoid tissue to return. When a child had an acute infection of the tonsils or a tonsillitis the present tendency was to operate immediately. In these cases it might be better to wait until the acute infection had subsided.

Dr. Harry Lowenburg of Philadelphia said that Dr. Zahorsky had brought up a most important subject and had made one statement with which they would all agree, namely, that the question as to whether the tonsils should be removed should be decided by the pediatrist. His experience, however, was not at all in accord with that of Dr. Zahorsky in regard to the other statements that he had made. He felt convinced that the pediatrist, in the interest of child conservation, was in need of propaganda to have the tonsils removed more frequently than was being done. This propaganda should be popularized. In the hands of a good operator it was better to take out healthy tonsils rather than to err on the other side by leaving in diseased tonsils. He hoped that it would not go out from this section that the consensus of opinion of the section was against tonsillectomy. He hoped the child conservation propaganda would include the advice to have the tonsils removed more frequently. Any one who had observed cases of rheumatism and endocarditis before and after the removal of the tonsils could not disregard the tonsil as an etiological factor in these diseases. Dr. Zahorsky's statement that a child had to have one or more attacks of an infection in order to become immunized to it did not appeal to him. He was very sure that one attack of heart disease should lead one to decide to remove the tonsils. An attack of acute follicular tonsillitis was also an indication for the removal of the tonsils just as much as an attack of acute appendicitis was an indication for the removal of the appendix.

Dr. Isaac Abt of Chicago said that he was surprised that Dr. Zahorsky held such views. The fact that a few cases of subsequent tonsillectomy developed various diseases did not prove the point he attempted to make. The idea that a child should be sick a great deal in order to be well a little was not in accord with the teachings of physiology, pathology, or biology. Dr. Zahorsky's contentions were fallacious.

Dr. E. C. Fleischner of San Francisco also deplored Dr. Zahorsky's attitude on this subject, and said that the laity had come to recognize the value of tonsillectomy and that if the health of children was not improved by this operation they would have found it out and would not permit their children to be operated upon. The beneficial results of tonsillectomy properly performed were well recognized by the lay public. It was a great mistake to make statements such as those of Dr. Zahorsky, because many men in the profession might believe them and they might work a great deal of harm. The teaching should be that tonsillectomy in properly selected cases and by properly selected operators provided a means of improving the health of many children.

Dr. Langley Porter of San Francisco said he thought Dr. Zahorsky in reality did not think any differently than the rest of them did in regard to tonsillectomy. The whole thing resolved itself into the question of whether the tonsil had any function in the body, and nobody was able to demonstrate that unequivocally. Even if a normal tonsil had a definite function, when it became infected it was no longer fitted to perform that function, and hence the individual having infected tonsils was as well off, or better off, without them than with them. A focus of infection in a tonsil should be drained just as would be done in any other part of the body, and that meant removal of the tonsil. In reference to the mouth breathing after tonsillectomy or adenectomy, attention had been called to the fact that where there was a high palatal arch the removal of the tonsils and adenoids might not correct the mouth breathing; in such cases the services of an orthodontist were needed.

Dr. Zahorsky, in closing, said that he still felt that the removal of the tonsils was done too carelessly in many instances, and that the teaching that the tonsil was a menace to the human body, and that wherever one was able to see a tonsil it should come out, was all wrong. He was not talking about abscesses, imbedded tonsils, or of obstructions that prevented breathing, but he was protesting against the idea that the removal of the tonsils would cure everything. With reference to the question of having an infection and thus producing immunity, he felt sure that a pneumococcus otitis had prevented many from having an attack of pneumonia.

Group Medicine and Pediatrics.—Dr. Charles E. Hansel read this paper, in which he emphasized the need for pediatricians in the smaller cities and described the difficulties encountered in establishing such a specialty outside of the large centers. He believed that group medicine would aid in the solution of this problem and that this would react to the welfare of the public, and especially to that large class of people who were not able to employ a specialist and who did not wish to accept medical treatment as a charity. One reason for the failure of group medicine was that sometimes one man wished to occupy the center of the horizon and the rest were only satellites. Every man in the group should be willing to consider himself but a cog in the wheel, and should be willing to sacrifice something and to cooperate with the others in the group. The problem of adjusting finances had often proven a stumbling block to group medicine. He suggested a plan whereby each man in the group should receive a sum equivalent to the income he had been receiving from his practice during the preceding one or two years, and the excess profits should be pooled and distributed in such a way that the incomes of the various members would tend to become equalized. A group should not include more than six or seven men or it would become unwieldy. Group medicine offered a number of advantages, one being that the mediocre man could do better in a group than alone, because he could devote all his time and energy to one field.

Dr. R. N. Andrews of Mankato, Minn., said he had belonged to a group for two years and would not go back to the old way of practising medicine. The question of finances was an important one and had to be adjusted satisfactorily if the group was to be successful. In the group to which he belonged the surgeon and the internist received equal incomes.

Dr. F. N. Rogers of Manchester, N. H., described his experience with group medicine and said he considered group medicine a failure and merely another method of fee splitting.

Dr. Joseph I. Grover of Boston said he had once been asked to join a group in a Massachusetts town and had investigated the matter and found that the other physicians in the town did not seem to feel very kindly toward those belonging to the group, and he had decided that a man would do better to keep out of such a group.

Dr. O. W. Rowe of Duluth spoke of the advantages of this plan and said one got swifter action through a group than by the old way. He acknowledged that physicians outside of the group were apt to hold aloof from those associated with the group.

Dr. Hansel, in closing, said that while the other physicians might stand aloof at first, that stage would be passed after a time. He had gone through the experience and knew whereof he spoke.

The Diagnostic Study of Conditions in the Throat Producing Dyspnea.—Dr. Albert Bell of Cincinnati said that there were two types of dyspnea, one type in which the breathing was of increased frequency and another in which it was slow with increased depth. He described the mechanism of these types and reported the case of a child supposed to have laryngeal diph-

theria when brought to the hospital. The child was suffering from dyspnea and difficulty in swallowing. When brought to the hospital the child's temperature was 100°, pulse 139, and the respirations were slow and deep. The diagnosis of laryngeal diphtheria was questioned because the child did not have the constant rhythmical distress that was characteristic of the laryngeal stenosis of diphtheria. The author then described the symptoms and signs of foreign bodies, adenitis, laryngeal diphtheria, retropharyngeal abscess, thymus enlargement, etc., and compared them with the findings in the case reported. The decision reached was that in the case reported the diagnosis was retropharyngeal abscess.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners of Maryland.

December, 1917.

(*Continued from page* 134.)

MATERIA MEDICA.

1. Tartar emetic; name the official preparation and give the dose as an expectorant and as an emetic, and the incompatibles.

2. (*a*) Name six official preparations of mercury. (*b*) Name two alkaloids of opium.

3. (*a*) Give the official name and dose of Epsom salts, Rochelle salts, and Glauber's salts. (*b*) State strength of dilute hydrochloric acid as compared to absolute acid.

4. What is incompatibility in medicines, and what are the different kinds of incompatibles? Give examples of each.

5. How does an antagonist differ from an antidote? Give examples.

6. (*a*) Define briefly electricity as a remedial agent. (*b*) Define massage.

7. (*a*) Name the official preparations of zinc. (*b*) Mention the alkaloids of nux vomica.

8. Name a vesicant derived from the animal kingdom, one derived from the vegetable kingdom, and one from the mineral kingdom.

9. (*a*) Define antiseptics. (*b*) Name two intestinal antiseptics most generally used. (*c*) Name three most generally used externally.

10. Define toxins and antitoxins, and mention some conditions in which serum therapy has proven successful.

THERAPEUTICS.

1. Name four salts of sodium, and special uses.

2. Write two prescriptions in official terms, without abbreviations, containing three ingredients; one prescription for use as a stomachic, the other for acute rheumatism.

3. Therapy of nux vomica—preferable preparations, and mode of administration.

4. Acidum tannicum—therapy and preferable preparations.

5. Emetinæ hydrochloridum—therapy and administration.

6. Epinephrina—therapy and administration.

7. Paraffinum—therapy and method of use.

8. Therapy of hydg. bichlor. and hydg. chlor. mite.

9. Three salts of ammonium—therapy of each.

10. Therapy of belladonna—symptoms of overdose and treatment.

PATHOLOGY.

Give pathology of:

1. Acne vulgaris.
2. Acute otitis media.
3. Pernicious anemia.
4. Angina pectoris.
5. Locomotor ataxia.
6. Tuberculus meningitis.
7. Acute nephritis.
8. Dental caries.
9. Reynaud's disease.
10. Duodenal ulcer.

ANSWERS.

MATERIA MEDICA.

1. The *official name* of *tartar emetic* is Antimonii et potassii tartras. *Dose*, as an *expectorant*, 1/12 grain; as an emetic, ½ grain. *Incompatibles* are: Acacia, mineral acids, alcohol, alkalies, ammonia, ammonium carbonate, antipyrine, carbonates, bicarbonates, calcium chloride, gelatin, lead salts, lime water, mercuric chloride, metallic salts, sulphides, tannic acid and vegetable astringents.

2. *Six official preparations of mercury.*—Hydrargyri chloridum corrosivum, hydrargyri chloridum mite, hydrargyri iodidum flavum, hydrargyri iodidum rubrum, hydrargyri oxidum flavum, hydrargyri salicylas.

Two alkaloids of opium: Morphine, codeine.

3. *Epsom salt* is Magnesii sulphas, *dose*, four drachms; *Rochelle salt* is Potassii et sodii tartras, *dose*, two and a half drachms; *Glauber's salt* is Sodii sulphas, *dose*, four drachms.

Hydrochloric acid contains 32 per cent. of HCl.

The dilute acid contains 10 per cent. HCl.

4. *Incompatibility* is that relation between medicines which renders their admixture unsuitable. Incompatibility may be chemical, pharmaceutical, or therapeutic. *Chemical incompatibility* is seen in compounding an acid with a base, and forming a salt. *Pharmaceutical incompatibility* is seen in compounding a resinous tincture with an aqueous solution. *Therapeutic incompatibility* is seen when two agents are administered together which have an opposite action, such as belladonna and physostigma.

5. *Antidotes* are remedies which, acting chemically, physiologically, or even mechanically, are capable of combatting and neutralizing the effect of poisons on the system. *Examples*, alkalies and dilute acids; magnesium sulphate and lead salts.

Antagonists are medicines which possess exactly opposite properties to each other. *Example*, atropine and morphine in their action on the pupil of the eye.

6. "*Electricity* is employed in medicine to restore functional activity to peripheral nerves and muscles when conduction has not been completely cut off by some irreparable lesion; to promote general nutrition; to arouse the nerve-centers in states of depression; to combat various sensory disturbances which are of a functional character or which depend upon minor lesions of the peripheral nerves or their centers; to effect the rapid passage of drugs through the unbroken skin (cataphoresis); to bring about the coagulation of blood in aneurysmal sacs; to favor the absorption of inflammatory or degenerative products; and in the form of the galvanocautery, to excise or destroy hypertrophied tissues or morbid growths."—(Stevens' *Modern Materia Medica.*)

Massage is a method of systematically rubbing, kneading, or stroking the body for the (supposed) purpose of breaking down adhesions, modifying nutrition, or improving the circulation.

7. The *official preparations of zinc* are: Zinci acetas, zinci carbonas præcipitatus, zinci chloridum, zinci oxidum, zinci phenolsulphonas, zinci stearas, zinci sulphas, zinci valeras, and zincum.

The *alkaloids of nux vomica* are: Strychnine and brucine.

8. *A vesicant derived from the animal kingdom*, cantharides; one derived from the *vegetable* kingdom, mustard; one derived from the *mineral* kingdom, iodine.

9. *Antiseptics* are agents that prevent or hinder the growth of microorganisms, without necessarily destroying them. Two *intestinal antiseptics:* creosote and guaiacol. Three *external antiseptics:* potassium permanganate, mercuric chloride, and iodine.

10. *Toxins* are poisonous products of bacteria.

Antitoxins are substances manufactured in the body, which neutralize the effect of toxins.

Serum therapy has proven successful in plague, rabies, diphtheria, tetanus, typhoid, streptococcus infection, serpent venom, and other infections.

THERAPEUTICS.

1. *Sodium bicarbonate* is an antacid, and gastric sedative; it is also an analgesic.

Sodium carbonate is an antipruritic.

Sodium sulphate is a purgative, and hepatic stimulant.

Sodium chlorate is a deodorant, detergent for ulcerated surfaces and foul sinuses; it is also used in tonsillitis and laryngitis in the same way as potassium chlorate.

2. *As a stomachic:*

℞ Sodii bicarbonatis.....ʒij
Tincturæ zingiberis.....ʒiv
Infusi gentianæ compositi (U. S. P., 1870), q. s., ad.....ʒviij
Misce et signa: One tablespoonful before meals.

For acute rheumatism:

℞ Sodii salicylatis.....ʒiv
Potassii bicarbonatis.....ʒiv
Aquæ menthæ piperitæ, q. s., ad.....ʒiv
Misce et signa: One dessertspoonful, in water, after each meal.

3. NUX VOMICA. *Preferable preparations:* Tincture, dose ɱv-xx. Strychnine sulphate, dose gr. 1/60 to 1/30. The tincture may be given in fluid form; the strychnine in pills or tablets. *Physiological action:* Strychnine is a bitter tonic, stimulates appetite, secretion, and digestion, increases peristalsis, stimulates the vasomotor centers, and so raises arterial tension, stimulates both accelerator and inhibitory nerves of the heart. All the functions of the spinal cord are exalted by strychnine, reflex, motor, vasomotor, and sensory. Large doses cause dilated pupils, irregular and jerky respiration, increased reflexes. *Therapeutic indications:* As a general tonic or bitter; in indigestion, cardiac depression, impaired peristalsis, pneumonia, phthisis, amenorrhea, dysmenorrhea, impotence, some forms of paralysis, chorea, epilepsy, neuralgia, alcoholism, and urinary incontinence.

4. TANNIC ACID. *Therapeutics:* "Locally, tannic acid is much used to check excessive secretion and to impart tone to relaxed mucous membranes. In subacute and chronic laryngitis and pharyngitis a solution of from 1–5 gr. to the ounce makes a useful spray. Some surgeons have found injections of the glycerite, more or less diluted, efficacious in subacute and chronic urethritis. The same preparation is frequently beneficial in chronic vaginitis, leucorrhea, erosion of the uterine cervix, and chronic cervical endometritis. Lotions and dusting-powders containing tannin sometimes act favorably in hyperidrosis of the feet.

"When it can be brought in direct contact with a bleeding surface tannic acid is a reliable hemostatic. In epistaxis strips of lint spread with vaseline and tannic acid make an excellent tampon. In hematemesis or enterorrhagia the drug may be given in full doses by the mouth. As it is absorbed in the form of gallic acid, which has no styptic power, it is valueless as an internal remedy in hemorrhages outside of the alimentary canal. As it forms more or less insoluble tannates with tartar emetic and the vegetable alkaloids, it may be employed as a chemical antidote in poisoning by one of these drugs. Cantani and others have spoken highly of enteroclysis with a hot tannic acid solution (2 per cent.) in Asiatic cholera.

"*Administration.*—When its action is desired in the stomach, tannin should be given in powder; if the intestine is to be reached, it should be given in pill."—(Stevens' *Material Medica.*)

5. *Emetine hydrochloride* is used in cases of amebic dysentery, liver abscess, and pyorrhea alveolaris. It is administered by the mouth in doses of 2 grains, and hypodermically in ½-grain doses.

6. *Epinephrin* is a substance obtained from the medullary portion of the suprarenal glands of the sheep (or other animal). It is *official* under the name of Glandulæ suprarenales siccæ; dose 4 grains. *Properties:* "It is a strong cardiac stimulant, slowing the pulse-rate and affecting the heart muscle in the same way as digitalis; it is a powerful vasoconstrictor and raises blood-pressure more than any other known substance; it increases the tone of all muscular tissue; it causes diminution of peristalsis and a depression of the respiratory center, which may result in respiratory failure and death. *Uses:* In minor surgery as a local vasoconstrictor; hay fever (both internally and locally); bronchitis; bronchial asthma; congestion and edema of the lungs; cardiac diseases (here it should be employed with caution); Addison's disease; shock."—(Wilcox's *Material Medica.*)

Adrenalin chloride is employed in the form of the solution 1:1000.

7. *Paraffin* "is largely used as an emollient and protective dressing and as a substitute for animal and vegetable fats in ointments. It is bland and unirritating, and has little tendency to change. It probably has somewhat less penetrating power than lard.

"Subcutaneous and submucous injections of paraffin, as recommended by Gersuny, have been employed with gratifying results for the correction of various defects and for cosmetic purposes. They have been used successfully in preventing rectal and vaginal prolapse, in relieving incontinence of urine and of feces, in filling depressions caused by the removal of tissue, in correcting nasal deformities, etc. The paraffin should have a melting-point of from 100° to 104° F., should be sterilized by boiling, and should be injected while warm and semisolid. The paraffin is not absorbed, but remains where injected and finally becomes encapsulated."—(Stevens' *Materia Medica.*)

8. (1) Hydrargyri chloridum mite (calomel), dose gr. ss to x; used in syphilis, as a laxative or purgative, in congested or cirrhotic liver, in diarrhea, and as a diuretic. It is a heavy, white powder; amorphous; tasteless and odorless; it is insoluble in cold water and in alcohol, and very slightly soluble in boiling water; when exposed to the light it becomes discolored (first yellow, then gray) and partially decomposed; it sublimes without fusing. (2) Hydrargyri chloridum corrosivum (corrosive sublimate), dose gr. 1/60 to 1/30; used as an antiseptic, disinfectant, antiparasiticide, in syphilis, interstitial nephritis. It occurs as heavy, colorless crystals, with sharp and metallic taste, and acid reaction; it is soluble in 16 parts of cold water, and 2 of boiling water.

9. *Ammonium carbonate* is used as a cardiac and gastric stimulant, also as an expectorant, and in the cure of alcoholism.

Ammonium chloride is used as an expectorant, in neuralgias, hepatic disorders, rheumatism, and alcoholism; externally it is used in inflammatory conditions of mucous membranes.

Solution of ammonium acetate is used as a diaphoretic and diuretic in fevers, chronic nephritis, dropsy, and alcoholism.

10. BELLADONNA.—*Therapeutic indications:* To relieve pain, relax spasm, check sweating, as a mydriatic, for night sweats, to check griping of purgative; in asthma, to check fevers, in heart disease, shock and collapse, acute coryza, urinary incontinence, chordee, low delirium of fevers, mania, alcoholism; as an antigalactagogue, and to relieve spasmodic cough.

Symptoms of belladonna poisoning: "In the first stage, that of delirium, there are dryness of the throat, thirst, difficulty of deglutition and spasms upon swallowing liquids, face at first pale, afterwards highly reddened, pulse extremely rapid, eyes prominent, brilliant, with widely dilated pupils, complete paralysis of accommodation, disturbances of vision, attacks of giddiness and vertigo, with severe headache, followed by delirium, occasionally silent or muttering, but usually violent, noisy, and destructive, accompanied by the most fantastic delusions and hallucinations. Usually the urine is retained, and the body temperature is above the normal. The delirium gradually subsides, and the second stage, that of coma, is established, with slow, stertorous respiration, and gradually failing pulse, until death occurs from respiratory or cardiac paralysis, or sometimes in an attack of syncope during apparent amelioration."—(Witthaus.)

Treatment: The stomach should be washed out; pilocarpine may be given hypodermatically; morphine may be given cautiously during the period of violent excitement; cold applications to the head and artificial respiration are useful. There is no chemical antidote.

PATHOLOGY.

1. *Acne vulgaris.*—"An inflammation of the sebaceous gland structure and surrounding tissues. There first occurs retention of the sebaceous secretion, which is soon followed by hyperemia and exudation about the glands and in the gland-wall (*acne papulosa*), and in-

filtration of the connective tissue (*acne tubercula*), followed by suppuration (*acne pustulosa*). If the inflammatory action be severe, destruction of the gland with a resulting cicatrix occurs."—(Hughes' *Practice of Medicine.*)

2. *Acute catarrhal otitis media.*—"With the development of an acute tympanitis, the superficial structures become more or less injected or hyperemic, accompanied by a swollen, infiltrated condition of the lining mucous membrane. A serous effusion, mixed with a hypersecretion of the mucous glands, soon fills the cavity with a thin, watery fluid, or a thick, turbid secretion which macerates the mucous membrane and holds in suspension the desquamated epithelial cells. Owing to the numerous folds or reduplications of the mucous lining, the process is frequently confined to the attic, while the remaining part of the cavity is unaffected. The inner layer of the membrana tympani becomes involved in the inflammatory condition of the tympanic space, which weakens its resistance through the process of maceration and desquamation. With an extension of the infiltration to the fibrous layer, the membrane becomes so devoid of strength as frequently to rupture under the excessive pressure of the tympanic secretions. The inflammatory process of the tympanum usually affects the lining membrane of the mastoid process, to a greater or less extent, through the intervening antrum. The Eustachian tubal structures also are generally simultaneously involved, which may proceed from the tympanum, but usually results from the same causality that produces the tympanitis."—(Alling and Griffin's *Epitome on Eye and Ear.*)

3. *Pernicious anemia.*—"The blood is scanty and pale, with alterations in the size, shape, and number of the red blood cells and diminished hemoglobin. It coagulates very slowly and imperfectly. There is no increase in the white corpuscles. The bone marrow becomes fetal, red, and adenoid in character containing nucleated red blood cells, macroblasts, neutrophiles, and eosinophiles. There is a deposition of iron pigment in the liver cells and those of the spleen. The heart, larger arteries, liver, spleen, kidneys, stomach, and muscles exhibit circumscribed or diffused fatty degeneration. There is not much emaciation, although pallor of the surface of the body is pronounced. The muscles are often unusually red. Changes in the ganglion cells of the sympathetic, sclerosis of the posterior columns of the cord, softening of the lumbar segment, and atrophy of the gastric mucous membrane may be encountered coincidently. Hemorrhages into the skin, mucous membranes, and retina may also be observed."—(Hughes' *Practice of Medicine.*)

4. *Angina pectoris.*—"Various theories have been advanced to explain the occurrence of angina. That of *intermittent claudication* is based upon the analogous attacks of pain which sometimes occur in the legs when their arteries are partially obstructed. In such a case the circulation suffices for rest or restful movement, but prolonged exertion causes cramplike pain and temporary lameness (claudication). Similarly in a heart poorly supplied with blood (ischemic), or in which the driving power is defective, exertion may cause a temporary exhaustion of the muscle. This condition would be favored by increased peripheral tension, which is sometimes permanently present, and sometimes exists during an attack. It may also be produced by chill (contraction of the peripheral arterioles). But in some cases the tension is permanently low, and then we may suppose that a slight increase of work, which would be no obstacle to a healthy heart, is sufficient to cause exhaustion to a damaged one. It is in cases of hindrance to the work of the *left ventricle* that angina occurs.

Other theories are that the pain is a neuralgia of the cardiac nerves, or that it is due to tension of the ventricular walls, induced by acute dilatation. Allbutt considers that it is not truly cardiac, but originates in the first part of the aorta. Mackenzie, adopting generally the claudication theory, compares the pain to that produced by the obstructed evacuation of other hollow viscera (*e.g.*, biliary colic), and regards it as a protective reflex."—(Wheeler and Jack's *Handbook of Medicine.*)

5. In *locomotor ataxia* the posterior columns of the spinal cords and the posterior nerve roots are involved.

The posterior columns of the spinal cord are gray and shrunken, and show considerable overgrowth of connective tissue in the columns of Goll, Burdach, and Lissauer; this process extends upward from the lumbosacral region; the posterior nerve roots degenerate and become atrophic. The meninges over the affected parts become opaque and adherent. Some of the cranial nerves may also atrophy, notably the optic, but also the motor oculi and vagus.

The process is destructive and progressive; it is not a simple wasting, although the nerve fibers are atrophied, but it is characterized by irritation, changes in the axis cylinders, overgrowth of the connective tissue, and sometimes congestion; the spinal ganglia may be affected.

6. *Tuberculous meningitis.*—"The pia and arachnoid membranes are injected and matted together. There is a fibrino-purulent exudate, well marked in the interpeduncular space and following the course of the cerebral vessels along the Sylvian fissures. Tubercules are found, especially along the middle cerebral arteries and arteries of the anterior and posterior perforated spaces. The convolutions are flattened, the sulci obliterated, and the cerebral substance is edematous and infiltrated with leucocytes, with occasionally the formation of an abscess. The lateral ventricles are distended with a turbid fluid containing excess of albumen and diminution of the normal Fehling-reducing agent, and great increase of lymphocytes. Occasionally tubercule bacilli are found. Miliary tubercles and caseating tuberculous lymphatic glands are found elsewhere in the body."—(Woodwark's *Manual of Medicine.*)

7. *Acute nephritis.*—"The kidneys are generally swollen, engorged, more vascular, and of red color; in the second stage the organ remains large, irregularly red, especially the cortex; the tubules are engorged and filled with epithelium, blood corpuscles, and fibrin. The capsule is easily detached, and is more opaque than normal. If the termination is favorable the swelling lessens, the vascularity diminishes, and the tubules gradually return to their normal condition."—(Hughes' *Practice of Medicine.*)

8. *Dental caries.*—"The primary stage of caries is determined by the presence at a certain portion of a tooth of an acid capable of dissolving the inorganic salts. The matrix of the prisms is the first to be dissolved, and into the spaces thus formed crowd organisms which, given a suitable pabulum, produce more acid and further destruction of the surrounding tissue. There is good reason to believe that, apart from its natural resistance to solution, the enamel offers no vital resistance to attack. After the solution of the enamel the dentine is decalcified in a similar manner, and later the remaining organic portion of the tooth substance is digested by the bacteria, which perform their work by means of secreted enzymes, digesting the tissue in much the same way as the pepsin of the gastric juice acts upon albuminous materials. . . . Dental caries is, as a rule, a progressive disease, but under certain conditions its progress becomes arrested. In such cases the teeth generally show an extensive loss of tissue, the enamel of the masticating surfaces, and even of the sides, having disappeared. The exposed dentine is darkly stained, and presents to the eye a polished appearance. An examination with a probe will show that the dentine is as hard as, if not harder, than in the normal condition. This state, which is known as *spontaneous arrest of caries*, may be found in both the deciduous and permanent teeth; in the latter the condition is most frequently met with in hypoplastic first permanent molars. It occurs only in teeth with living pulps, and the appearance of the teeth suggests that the disease, when active, was of a general and rapid character. Microscopical examination shows that the dentine retains the color of carious dentine, or is perhaps slightly darker. The dentinal tubes, which can be easily seen in the discolored part, end apparently upon the surface."—(Colyer's *Dental Disease.*)

9. *Raynaud's disease* "is a very rare disease, characterized essentially by symmetrical gangrene. The cause is unknown; but there are three chief theories brought forward to explain the disease. These are that it is due (1) to endarteritis obliterans, (2) to peripheral neuritis, (3) to vascular spasm. The affection is associated with some disturbance of the vasomotor system,

as a result of which local stagnation of the peripheral circulation occurs. In consequence of this there arise localized anemia, congestion, and finally gangrene, symmetrically distributed."—(Hughes' *Practice of Medicine.*)

10. *Duodenal ulcers.*—"As a rule, the ulcers are single, but they may be multiple. The most frequent seat is in the ascending portion of the duodenum about half an inch from the pylorus. They have a punched-out appearance, are round or oval in outline, and, if recent, are funnel-shaped, with the apex toward the serous coat. The edges are usually smooth, rarely ragged. They vary in diameter from a few millimeters to several centimeters, and may extend to the muscularis or even to the serosa."—(Stevens' *Practice of Medicine.*)

(To be continued.)

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION †
Alabama*.	S. W. Welch, Montgomery	Montgomery ... Jan. 14
Arizona*	A. H. Williams, 219 Goodrich Building, Phoenix	Phoenix ... Oct. 1
Arkansas	T. J. Stout, Brinkley	Little Rock
California	C. B. Pinkham, Sacramento	Sacramento ... Oct. 21
Colorado	David A. Strickler, Empire Building, Denver	Denver ... Oct. 8
Connecticut*	Chas. A. Tuttle, New Haven	New Haven ... Nov. 12
Delaware	J. H. Wilson, Dover	Wilmington ... Dec.
Dist. of Col'bia.	E. P. Copeland, Washington	Washington ... Oct. 8
Florida*	W. M. Rowlett, Tampa	Jacksonville. Atlanta
Georgia	C. T. Nolan, Marietta	Augusta
Idaho*	Ray H. Fisher, Rigby	Boise ... Oct. 1
Illinois	F. C. Dodds, Springfield	Chicago ... Sept.
Indiana	W. T. Gott, Oxfordsville	Indianapolis
Iowa	G. H. Sumner, Des Moines	Des Moines ... Sept. 10
Kansas	H. A. Dykes, Lebanon	Topeka ... Oct. 8
Kentucky	J. N. McCormack, Bowling Green	Louisville.
Louisiana	E. W. Mahler, New Orleans	New Orleans
Maine	F. W. Searle, Portland	Portland ... Nov. 12
Maryland	J. McP. Scott, Hagerstown	Baltimore ... Dec.
Massachusetts*	W. P. Bowers, 1 Beacon St. Boston	Boston ... Oct. 8
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing ... Oct. 8
Minnesota	T. McDavitt, St. Paul	Minneapnlis ... Oct. 1
Mississippi.	J. D. Gilleylen, Jackson	Jackson
Missouri	G. H. Jones, Jefferson City	Kansas City ... Sept. 30
Montana*	S. A. Coons, Helena	Helena ... Oct. 1
Nebraska	J. J. Hompes, Lincoln	Lincoln
Nevada	S. L. Lee, Carson City	Carson City. ... Nov. 4
N. Hampshire	Walter T. Crosby, Manchester.	Concord
New Jersey	A. MacAlister, Trenton	Trenton ... Oct. 15
New Mexico	R. K. McClanahan, East Las Vegas	Santa Fe
New York	G. M. Wiley, Univ. of State of New York, Albany	New York Albany ... Sept. 24 Syracuse Buffalo
N. Carolina	H. A. Royster, Raleigh	Raleigh ... June
N. Dakota	G. M. Williamson, Grand Forks.	Grand Forks ... Jan. 7
Ohio	H. M. Platter, Columbus	Columbus ... Dec.
Oklahoma	J. B. Williams, Wetherford	Oklahoma City ... Oct. 8
Oregon	B. E. Miller, Portland	Portland ... Jan. 7
Pennsylvania.	N. C. Schaeffer, Harrisburg	Philadelphia ... Jan.
Rhode Island.	B. U. Richards, Pawtucket	Providence
S. Carolina	A. E. Boozer, Columbia	Columbia.
S. Dakota	P. B. Jenkins, Waubay	Deadwood
Tennessee	A. B. DeLoach, Memphis	Memphis Nashville Knoxville.
Texas	M. F. Bettencourt, Mart	Austin
Utah	G. F. Harding, Salt Lake City	Salt Lake City. ... Oct. 7
Vermont	W. Scott Nay, Underhill	Burlington. ... Feb. 11
Virginia	J. W. Preston, Roanoke	Richmond
Washington*	C. N. Suttner, Spokane	Spokane ... Jan. 7
W. Virginia	S. L. Jeyson, Charleston	
Wisconsin	J. M. Dodd, Ashland	Madison. ... Jan 14
Wyoming	H. E. McCollum, Laramie	Thermopolis
National Board.	J. S. Rodman, Philadelphia	

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State

The Textile Industry of Germany.—The defunction of this industry causes no immediate hardship because of paper and other substitutes. After the war the new paper industry must be fostered. Paper will be made a textile fabric, and from paper threads (textilose) bags, twine, etc., can be made. Woven in sheet form it can be used for shoe uppers and belting and for other substitution for leather. The nettle has also become a recognized textile and remarkably fine thread can be made from it. A premium of 400 marks per hectare of nettles is offered by the government. The nettle is equally valuable for fodder, especially for poultry feed. —*La Presse Médicale.*

Miscellany.

The Management of Tuberculosis in Great Britain.—Sir Robert W. Philip, writing on tuberculosis in relation to the war in the *Edinburgh Medical Journal* for May, 1918, points out that there is not time to dwell on the general adoption of co-ordinated antituberculosis measures. So far as the United Kingdom is concerned the methods had become stereotyped in the Report of the Departmental Committee on Tuberculosis. That committee recommended the creation of a network of antituberculosis schemes throughout the country, and the program was beginning to be carried out just before the war. The several elements in the scheme were being forged according to the varying needs of different parts of the country. A special tuberculosis staff was in course of selection. Everything pointed to the establishment of uniform antituberculosis activity, when the war intervened. Since July, 1914, the movement has been largely held up. Schemes which were getting under way throughout the country have been crippled or stopped. Men chosen for the tuberculosis service were hurried away to war service. Sanatoriums and hospitals erected for tuberculosis were given up to wounded and sick soldiers. Buildings of all kinds in course of erection were held up or diverted to other purposes. The stern events of war have, however, only thrown into sharper relief the urgent need for a wisely directed, comprehensive campaign against tuberculosis. With the continuance of the war there has been traceable in some parts of the country an increase in the death rate from tuberculosis. The British are still up against an aggressive infection with immense ramifications, whose ravages can only be checked and overcome by unremitting efforts along assured lines.

One encouraging fact, however, has emerged during the war, namely, that the British forces have suffered less than those of other European powers. Dr Hermann Biggs of New York has stated emphatically that France has suffered from the war in this respect infinitely more than Britain. He associates the result with the fact that in Britain the tuberculosis problem had been efficiently met before the war, while in France, on the other hand, practically nothing had been done. His statements, however, have not been universally accepted, and, as Philip says, the British must not plume themselves overmuch, but must try to estimate the bearings of tuberculosis as occurring in the British War Service. Officers and men discharged because of tuberculosis return to civil life and the State assumes certain responsibilities toward them. With this in mind fullest use should be made of expert guidance available within the services and outside, in respect of the examination of men before admission to the services and in respect of the discharge of tuberculous men and their subsequent treatment and care. Men have been admitted to the services who should not have been passed, and some have been excluded unduly. Men have not been discharged who should have been, and some discharged men might have been retained. After discharge the men have often drifted for lack of direction.

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Original Articles.

THE PHYSICAL BASIS OF WAR SHOCK.

A PLEA FOR THE MORE PHYSICAL CONCEPT AND BASIS OF TREATMENT OF THE MENTAL AND INCAPACITY DELINQUENCY OF VICTIMS OF WAR HYSTERIA AND SHOCK.

BY HOMER WAKEFIELD, M.D.,

NEW YORK.

WITH the progress of active warfare overseas, and with the participation of constantly increasing millions of men, our returning transports will bring back two types of maimed soldiers, both demanding reconstruction and reeducation; the surgical and mental cases. Both will tax the acumen and ingenuity of the medical profession to the utmost, but the latter class will probably more than the former present difficulties, both in way of immediate treatment and in reconstructive training in behalf of useful and self-sustaining after lives or careers. Should the Central Powers be enabled to hold out for a military decision a year or two hence, when our country can bring its full resources to bear, we may expect numbers of thousands of men, not maimed in body, who have suffered mental impairment through fright, shellshock, and allied causes, returned as mental or "nervous" wrecks, exhibiting defects rendering them delinquents, and until in some measure restored, dependents upon society. Such cases will present the greater difficulty because of the apparent absence of actual physical injury, on which account we may expect our psychiatrists, following the experience of France, to divide into two diverse camps or schools, based upon the purely psychical or metaphysical theory, on the one hand, and the physical or material theory, on the other. The one group will probably be treated too wholly by hypnotism, psychic impression, persuasion, and other purely mental means, while the other may too wholly ignore such measures; both of which would prove most unfortunate.

A prime objective of this paper is to set forth: (1) the absolute unity and indivisibility of the physical and the mental; (2) the mentality solely as a function of the physical body; and (3) in the final analysis, of interrelations between the mind and body, which involve quite as much influence of the body upon the mind as of the mind upon the body. Moreover, that the mentality, as a function of the physical body, is not exclusively a function of the brain or nervous system, but of the entire solid and fluid constitutents of the body, their chemical and physical status, and of the biologic reactions as dependent upon these factors.

The Psychoneuroses of War Shock.—In those cases of concussion trauma of the more delicate tissue structures, which do not exhibit macroscopic rupture or other form of broken integrity, we must not lose sight of the fact that in more violent traumas such naked eye evidences do appear, showing that the lesser ones differ in degree only. In fact, we observe that the malfunction of tissue integrity disrupted by concussion trauma is not unlike the malproduct of anemia.

The investigation of war shock has been so far baffling, only because it has not been sufficiently recognized as a genuine *traumatic* shock. That its true status has been obscured by an excess of theories regarding it, there is little doubt. Even on the part of those who look to the physical body for the lesions responsible for the major manifestations, there has been much disposition to confine the mischief done to a single organ and to seek repair by a single rectification or by an artificial supply of some particular secretory product, whereas the clinical picture should be a more general one.

The recognition of the spasmodic deflection of the major volume of blood of the body from the superficial to the deep circulation, and the asphyxial effect of such deflection upon the dependent superficial and extremity tissues, on the one hand, and on the venous stasis of the internal glandular and other organs, and upon the blood *per se*, on the other, has been conspicuous by its absence. The predisposing features, such as spasmodic phenomena of low density tissues, have likewise escaped consideration, though emotional proclivities, actual fright, and chill have been mentioned by writers on the subject. It is gratifying to note that Henderson, Crile, Van Slyke, Cullen, Cannon, and others have observed acidosis as an important chemical change incident upon impared circulation.[5]

An interesting and most significant observation made by Cannon, Fraser, and Hooper[4] is that in the onset of shock (1) the red corpuscles are apparently retained in the capillaries, (2) the blood in proportion to the extent of the shock, exhibits a markedly higher red cell than a venous count, while (3) hemorrhages further exaggerate the diversity. The obvious explanation of this is that upon spasmodic contraction of the superficial tissues, the involved capillary collapse evacuates the corpuscles of lower specific gravity and fluid constituents of the blood and reduces the capillary lumen beyond the capacity of the denser red cells to pass. Moreover, it may be implied that the muscle and integumental tissues would exhibit a much higher percentage of red cells in shock than observed in the lobe of the ear, a finger, or a toe, unless those parts were coincidently especially subjected to spasmodic local

anemia by chill. Those tissues which have been previously affected by accrued metabolic or fatigue products, exhibit hyperesthesia and correspondingly excessive spasmodic reactions. It appears imperative that all of these factors must be considered collectively in order to grasp properly the composite clinical entity, even as physical phenomena.

Non-recognition of the stasis of the rising column of blood in dilated venous trunks, its increased volume and weight coincident with the lowered blood pressure and progressive general circulatory failure may lead to disaster and death. Cannon[5] finds that acidosis increases as the blood pressure falls. Wiggers[39] suggests that a further reduction of venous pressure by bleeding would seem a rational procedure in the case of acute cardiac failure. Either that or dilution of the blood by hypertonic salt solution also further decreases the hemoglobin percentage, while conversely cases appear to be benefited by transfusion of blood after hemorrhage complications.

In this connection, the long ago ascertained fact should not be neglected that "in asphyxia the unaerated blood passes with so much difficulty through the systemic capillaries as finally to arrest the action of the heart."[15] The arterial blood, according to Flint[6] normally contains less water than the venous, but the observed fact that the capillary blood becomes more concentrated relative to the extent of the shock shows that it becomes more retentive of the corpuscle elements with the extension of constriction of the capillary luman. Cannon, Fraser, and Hooper[4] observed that "a dilution of the blood which continues to progress beyond the fourth or fifth day after injury is ominous, and the longer the dilution continues the more unfavorable it becomes," signifying the presence of sepsis.

It will be recalled that many of the survivors of the "Black Hole of Calcutta" afterward died of septic fever. Since venous blood contains a higher percentage of water than arterial blood, we may deduce that asphyxiated blood in general exhibits a fall in specific gravity as evidence of partial disintegration, despite that its red cells pass through constricted capillaries with difficulty. Swelling of these cells would also be a factor. Hydremia may be regarded as a suboxygenation sequence and as a factor of susceptibility to infection.

Resultant Physical Incapacity of War Shock.—We have long been familiar with the peculiar consequences of violent injuries of shock proportions which have borne the name of amnesia, in which the victim of a fall, a blow, a runaway or railroad accident, etc., suddenly was mentally cut off from all his past experience and consequently from its utilization in the interpretation of current sense perceptions. The obliteration of all memory, habit, and automatic activity, and in some cases of some of the primal instincts, as may be imagined, places an individual in the position of a new-born infant, with everything to be experienced and learned over again, even in the use of the voluntary muscles and the capacity for all physical expression, thus demanding vocational reeducation.*

*As early as 1789 Rey Regis, a physician of Montpellier, France, recognized the existence of a motor paralysis as depending on a lost memory of motor force, due to a lesion of certain parts of the brain. ("Natural History of the Soul," London, 1789.)

These effects may be partial or complete, and in different cases may or may not be amenable to restoration of the lost store of past experience and knowledge. Amnesia may be *simple*, with loss of memory only, *localized*, systematic or general; it may be continuous, alternating or periodic, stationary or progressive. In causation it may be termed traumatic, toxic, autotoxic, fatigue, asthenic, emotional, etc. In its manifestations, it may be predominately sensory (or perceptional) or motor. Amnesia recognized as an affection of discoordination or incoordination between the engram preamble and the motor reaction to current sense perceptions has been defined by such terms as consciousness disaggregation, dissociation, etc., which are not very elucidative as to fundamentals, causation or conditions.

Defective and inhibited functions of tissues of defective integrity, both motor and mental, must be studied as such, not as separate non-physical entities, but by determinations of faults of the underlying physical mechanism responsible for them, just as a mechanician looks to disorder in a motor when its mechanical action goes wrong.

Speculation as to how violent concussive force disrupts the vital integrity of living tissues, has not proved very productive of noteworthy solutions. However, electricity of high voltage and low frequency readily produces somatic death, whereas the same voltage of high frequency is tolerated with impunity. Whatever the wave frequency of high explosive detonations, the extreme violence with which they occur proves so destructive to the more delicate tissues, that in the more severe cases the cerebrospinal fluid becomes blood tinged, hemorrhages into the retina and conjunctiva occur, and bleeding from the ears, the lungs, the stomach, the bladder, and bowels, indicating tissue ruptures, may be induced. Later, for months after the disappearance of blood in extreme cases, leucocytes and globulines are found in the cerebrospinal fluid, indicating meningeal damage. From these ultra-serious cases one may discern the nature of the lesser ones as differing in degree but not in kind. Some degree of disorganization obtains, and restoration depends upon the minimum of damage done and the promptness with which circulatory compensation is reestablished and the progressive acidosis is arrested and neutralized with hyperdermatic injections of solutions of sodium bicarb. Adequate provision for the proper treatment of these shock cases directly behind the lines will accomplish much in the direction of a successful outcome.

The importance of prompt intervention following the experience of shock, and the unfortunate outcome of permitting time to elapse, even in the milder cases, before measures are taken to counteract the effect produced, is emphasized in artificially produced aphonia, such as by hypnotism. The restoration of these cases becomes increasingly more difficult in proportion to deferment of the same measures for its abolishment. The explanation is to be found in the fact that the tetanically contractured tissues are in a state of disintegration as a chemical sequence of physiologic tetanus. Whatever the neurotic predisposition of the patient, this result is the same in kind.

Some Physical Factors of the Pathogenesis and

Pathology of War Neuroses.—Since the war neuroses, so-called, have come to occupy so prominent a position in the catalogue of war-wrought injuries to the man on the fighting line, it seems to me that more regard should be paid to the underlying pathology, to physical conditions which predispose to the morphologic states and give expression to the typical symptoms. First of all let us recognize that the variation in susceptibility to hysterical manifestations, to shock and other typical features, between one man and another, finds expression in the more susceptible one succumbing to a correspondingly less violent perturbation. The consideration of the prime physical factor of such susceptibility carries us back to the fundamentals of the reactions of the living substance (or protoplasm) to external perturbation. No discoveries or theories concerning the nervous system have given us illumination on this subject equal to the long-accepted knowledge of the behavior of protoplasm in its reaction to environmental perturbation on the basis of its innate irritability.

When we appreciate that the degree of irritability, *i.e.* of *esthesia* and reaction energy expenditure, corresponds to the state of density of the involved living substance, we have elicited an explanation why it is that youth, the female sex, depletion by illness, inanition, starvation, chronic fatigue, suboxygenation, anemia, local and general, respiratory, cardiac, and circulatory insufficiencies, and allied conditions, produce coincidently a lowering of dependent tissue density and a corresponding precocity and overt intensity of reaction to environmental perturbations.

However great our regard for our present advanced knowledge of the nervous system, and of its physiologic function, both ganglionic and transmissional, we are in these cases gaining nothing by vaguely attributing to functional irregularities of the nervous system reactional abnormalities which *per se* account for the functional perversions when the nervous system exhibits no inherent variation from the normal, either organic or functional. Obscurantism and obfuscation have no place in scientific pursuits. Let us in time of war no longer cling to occult mysticisms however time honored are their passive acceptance. Even though the laity continue to allude to *nervous* phenomena, let us call them *irritability* phenomena.

Anesthetic and hyperesthetic phenomena exactly correspond with the etiological and pathological features of our knowledge of the characters of tissue reaction, according to the known laws of their status of irritability, and have no relationship with any known laws of any independent nervous function. All theories of etiology and prophylaxis must bear the test of exhibition of unmistakable relations of cause and effect. Unfortunately for medicine some unchallenged hypotheses that have come down to us are quite as occult and nebulous as if attributed to the supernatural. They entirely lack a scientific substratum and the superstructure is no less ethereal. Like the research man who attributes his failure to supernatural agency instead of his own incapacity, many unsolved problems of apparent functional origin have been attributed to some obscure malfunction of the nervous system, of which there exists no foundation in fact.

A development of irritable weakness is usually denominated nervous prostration, neurasthenia, an attack of nerves, etc., while the yet more obscure term *nervousness* is in almost universal use as expressive of lesser degrees of the same thing. In some mysterious manner the relationship of "nervous weakness," chorea, hysteria, hysterical paralysis, hysterical convulsions, epilepsy, hysterical tetanies and contractures migraine, asthma, neuralgia, and many paroxysmal diseases are quite generally recognized. Perhaps less intimately connected with them may be recognized Raynaud's disease, diabetes, railway spine, and war shock.

These subjects have been greatly obscured by the exhibited inability to recognize how such conditions could be caused by such immaterial causes as the emotions of fear, fright, terror, grief, intense anxiety, great depression of disappointed love, sudden loss of property, business reverses, military defeat, etc. Even characterizing them as vasomotor phenomena does not explain them. It is insufficient owing to the exclusiveness of its applicability to contraction of the muscular coats of the arterial system, mostly of the arterioles and its effect upon non-striped muscle fiber. Raynaud's disease is probably its nearest approach, but even that involves far more than arterial reflexes. It must also involve the capillary system which possesses no muscular coats yet has a capacity of five to eight hundred times that of the entire arterial system. Raynaud's disease is more typically a spasm of capillary contained striped muscle of the periphery and extremities than any other. It commences as a spasmodic exsanguination and more or less obliteration of the lumen of the capillaries. The ensuing peripheral anemia, the blanching, numbness and coldness are exhibited long in advance of the ultimate gangrene of the extremities.[26] Observers of all nations are practically unanimous in characterizing the predisposing factors by names that are now known to refer to the same underlying condition. Raynaud characterizes the disease that bears his name as a neurosis. He observes that young nervous women, hysterical individuals and children are most affected by it, and that sexual debility, fatigue, cold, venous stasis, circulatory retardations, intensive emotions, etc., are among the exciting causes.[26]

In an analysis of Raynaud's cases, it is observed as not a unity of causative agencies, but of the nature of the ultimate underlying composite causative influence. In one case a chilling produces peripheral anemia, another factor is an intense emotion, another is ergotism, etc. In still another class of cases the same causes may produce diabetes instead of Raynaud's disease or yet other diseases which exhibit the same characters of hyperesthesia as the prime predisposing factor, and of precocious and excessive reaction phenomena. In the case of diabetes we observe in one case chill produces hyperglycemia, boils and carbuncles, and another in which, following a sudden loss of fortune on the Stock Exchange, a man abruptly develops typical symptoms and becomes permanently diabetic.

Raynaud's disease, occurring as a spasmodic affection, is quite different from that resulting from ergotism. Both may exhibit the typical characters of symmetrical gangrene of the extremities, but in respect to their pathogenesis, one is the antithesis

of the other. Ergot would prove the most potent remedy for the spasmodic type. This, however, is not an example of *similia similibus curantur*, for the pathology is not the same, notwithstanding an identity of name. What, however, is true of Raynaud's disease, is equally true of other diseases, wherein the classification and name are determined by the pathological anatomy rather than by the pathogenic process involved. Ergotism is not a neurosis, notwithstanding that neurotic paroxysms may as effectually asphyxiate the extremities as ergot. Anesthetic leprosy may yet be found due in some cases to spasmodic, and in others to toxic phenomena. Bacterial infections, even with marked susceptibility, may remain atypical.

It should be stated here that an immediate effect of completely depriving a tissue of a constant supply of oxygenated blood is *anesthesia*, while the ultimate effect of a period of suspension of circulation is loss of tissue integrity (loss of density), the effect of which is *hyperesthesia* and exaggerated reaction. The unstable condition known as hysteria exhibits variable areas of both anesthesia and hyperesthesia.

When from shock, fright, terror, and other depressing emotions, the blood is determined from the superficial to the deep circulation, the entailed exsanguination of the superficial tissues necessarily involves a condition of peripheral tissue anemia, which may attain any degree, ranging from one of insignificant degree, to one sufficient to produce diabetes or even Raynaud's disease, as well as war shock. Graves' disease may result from the same effect, and lesser goiter and exophthalmos obtains in case of war shock. Chill, as well as fright, not infrequently, by exsanguinating the periphery, causes hyperglycemia and more or less acidosis, resulting in a series of boil and carbuncle developments. The blood deflections of chill of the extremities in the cold and wet trenches of certain seasons, result in trench fever and trench feet, as well as predispose to shock when shell detonations occur in too immediate proximity. In this respect privates are more exposed than officers, thus accounting for their greater proclivity to shell shock, while officers are more subject to the anxiety form.

The integrity of living tissue is dependent upon an incessant supply of blood carrying oxygen and nutritive substances. The highest integrity as expressed by the highest density, is that of the most perfect supply of the most perfectly oxygenated blood. Conversely, however, the density-integrity falls corresponding to the degree of anemia attained. The flaccid paralysis is the immediate resultant of the tetanic contraction which runs a definite progressive course, followed by exhaustion relaxation. The recuperation from this condition finds a state of lowered tissue density which remains with its ecstatic hyperesthesia of considerable anemia, and hyperemia of reestablished circulation. The alternation in these states is due to the circulatory fluctuations.

The Physical Basis of Emotion.—I know of no better way to present clearly to the reader the physical aspects of morbid emotions than to begin with a survey of the anatomical and physiological fundamentals underlying the conditions produced, and then to follow it with the clinical picture and final sequence. Let us first understand that the visceral venous system, especially the great venous trunks, by far the largest veins in the body, which constitute the so-called splanchnic venous columns of the thoracic and abdominal cavities of the torso, largely follow the spinal column. When completely dilated, the capacity of these great venous trunks is sufficient to contain nearly all the blood of the body, and in death they do contain approximately the entire volume of the blood then remaining in the body.

Under normal conditions of life, these trunks are so maintained in a state of tonic contraction that they act simply as channels of conduction of the return blood circuit rising back to the lungs and heart. When the walls of these veins are in a normal state of tone (tonic contraction) they act as the resistance box of the entire circulation of the body. When the tonicity of this vascular area is intact, the body is in possession of considerable recoil elasticity and of its maximum capacity for absorption of shock, whereas in its absence we are at the mercy of the thousand and one vicissitudes of everyday life, which otherwise are taken care of by these shock absorbers. Therefore the loss of tone constitutes susceptibility to shock, and conversely, shock, *per se*, involves lowered or loss of blood pressure.[25]

Without depreciating the importance of the above described dilatation of the splanchnic venous trunks in the great deflection of the blood volume of the body which takes place in the more violent emotions, we are inclined to recognize the more positive action of the spasmodic contraction, the recoil tetanus, of the superficial and extremity tissues which occur simultaneously with the splanchnic venous dilatation and thus serve to vacate these surface and extremity tissue areas of their capillary blood content which is, according to Flint,[26] five to eight hundred times the capacity of the entire arterial system of the body. That alone entails corresponding weakness and incapacity.

The loss of heat and normal color of the surfaces and extremities of the body, and the simultaneously occurring muscular tetany and rigidity, and more or less loss of motor functional capacity involved, are more directly related to the peripheral anemia than the splanchnic engorgement, which by its involved venous stasis exerts its major effect upon the heart, circulatory and respiratory functions. Somatic heat and motor capacity are dependent upon the superficial circulation and peripheral combustion, which in these cases is curtailed or abolished.

Whether in the last analysis the superficial circulatory system is found to be more affected by fatigue-wrought tetanies, and the dilatation of the splanchnics is more largely produced by concussion shocks such as the explosion of large shells or the most abrupt mental or moral shocks, frights, or the most intense emotions, is of less consequence. The essential effect is a dual one representing the places of departure and arrival of the deflected blood. This loss of tone is characterized by extension or elongation of the circular fiber walls of the veins. The dilation is evidence of that condition. The general relaxed state of the body is accompanied by a feeble state of the venous walls, and through it, is vulnerable to all the factors of trau-

matism. The flaccid dilatation of the venous walls is incident to the induced blood stasis within, at least in time relation.

When a person is toneless and relaxed, he is said to be in a state of irritable weakness. He is super-irritable, super-sensitive, super-excitable, super-impressionable, super-suggestible and super-credulous. His powers of resistance, of recoil, his stamina and his self-control are gone. What formerly was withstood with poise now becomes an unbalancer, an undoer. Trivial factors which formerly were of the most trifling import become factors of perturbation, disturbers of peace and of rest, and agents of excitation. That which the individual was oblivious of or proof against, now proves overwhelming of his weakened resistance.

If for any reason a person is weak and toneless from hereditary or acquired causes, from lack or absence of physical (motor) activity, from congenital defect, from depletion of illness or vicious indulgences, overwork, chronic fatigue, bad nutrition, etc., he loses in general tissue density and through it his tone, and he becomes soft and weak. With the loss of tissue density the tissue reactions become correspondingly spasmodic and paroxysmal in character. The former manifestation of that calm stability and enduring strength of sustained effort is now replaced by instability and by jerky, spasmodic, and paroxysmal movements which are so characteristic of loss of motor integrity and of coordination. They are often violent but unenduring, for the accrued energy is quickly expended.

We encounter all degrees and stages of deflective determination of the blood of the body from the superficial circulation to the internal, and of a corresponding vacating of the superficial vessels, together with a congestion of blood, in the splanchnic trunks in inverse proportion. The vacated superficial vessels are responsible for the livid blanched hue of the skin and membranes and the general coldness of the surfaces of the body. The emptying of the blood vessels in the brain is responsible for the coincident incapacity for reason, and for the loss of consciousness. The aggregate anemia of the superficial circulation, extending from the brain to the extremities, is the cause of the incident loss of sensation. Dizziness comes with anemia of the brain, and fainting with a more complete asphyxia. Both are incident to some degree of deflection of the blood of the body into the splanchnic veins, and the degree of collapse depends upon the degree of splanchnic venous engorgement. This peripheral asphyxia is most marked when the body is erect, and is relieved by recumbence.

The maintenance of normal mentality requires the circulation of at least one-fifth of the blood of the entire body exclusively in the brain. This large proportion falls below normal under many conditions, but in none so much as in those of splanchnic venous engorgement and congestion, in which event the rising column of blood returning to the heart and lungs stagnates in this great reservoir, producing volumetric anemia of the brain, even in advance of that of the other arterial and capillary circulation.

With the above fundamentals we are prepared to understand the nature of the process which is involved, when, by excited emotions and by shocks, the victim experiences superficial and extremity contraction and tetanic rigidity. Then the surfaces of the body become livid white and cold; the circulation and heart laboriously struggle with their burden of engorgement and congestion of the doubled volume of the rising column of venous blood, and the heart's function fails for the dual reason that its cavities do not fill and its muscles themselves languish for oxygen and nutrition. The vascular system of the lungs fails to adequately receive or oxygenate the blood and the individual in his air hunger yawns and the breathing assumes a sobbing and stammering character, the labored inspiration trebles the time duration of the expiration. Vague discomfort is followed by respiratory distress, the sensation of anguish succeeds to a distressing faintness, a sense of sickness eventually comes to a crisis, a change in the tide, and all the senses become blunted and vague; a sort of drunkenness, incident to the bloodless brain, is manifest. Swallowing movements, hiccough, or other convulsive manifestations supervene, then consciousness is lost.

In general, the loss of tissue density is the predisposing cause of human wrecking, and the disruption of the body's resistance box occurs secondarily, as an exciting factor of a final collapse. These are well recognized facts, and our Government is now engaged on a wholesale scale in eliminating from the embryonic elements of our army all those too unstable for the test, and in strengthening the tissue integrity and vital capacity of those who can be hardened sufficiently for the fray in the minimum time available.

The active belligerents of the world war have found that the weakling and the unhardened recruit soon falls a prey to what has been variously termed traumatic or war neurosis or psychosis, shell shock, etc., which may not only disqualify him for service, but invalid him home a human wreck. He suffers a breaking down of his splanchnic venous tone. His powers of recoil and resistance are gone. His great venous trunks have dilated, his blood sags in its rising column and fails to reach the heart and lungs in sufficient quantity to attain re-aeration, and collapse and incapacity to live in the erect posture are inevitable. When this *extreme* condition is once attained, resuscitation is attainable only to be invalided home, never to be useful as a soldier again, and perhaps incapacitated by unfitness in civil life in rare extremes.

The war neuroses are classified into the purely *mental* types and the *physical* or convulsive (hysterical) types. The abrupt and violent reactions to sensorial traumata of concussive force, and the excessive recoils which they entail, range in physical changes from none at all of visible differentiation to those terminating fatally, in which are exhibited extreme congestion and ecchymoses on each side of every superficial vessel of the brain. Numbers of punctiform hemorrhages appear at the terminations of the smallest vessels on the surface, together with a general softening and partial edema of the brain. It is interesting that in surgical shock, war neuroses, and spontaneous and revival conversions, fatigue is an important exciting cause. Also, that men predominate in the so-called spontaneous conversions and officers predominate in the analogous mental form of the war neuroses, while the subordinate privates and the weaker sex predominate in

the opposite forms. Women are also more disposed to hysteria than men. The hysterical forms of both war and civil-life neuroses are more amenable to hypnotic treatment than the others. The best prophylactic measure against the underlying fear of both war and religion is education against it; while conversely the religious inculcation of fear of death, post-mortem torments, etc., fosters war neuroses in troops. Cultivation of depressive mental emotions constitutes an unfortunate preparation for modern warfare.

A sensorial impression which is sufficiently abrupt and violent to produce a shock effect, a tetanic recoil, and a rigidity or contracture, in place of a normal reaction, is not to be differentiated between its occurrence in war and civil life, except in degree and violence of effect. Both appear in ultimate form as sterile emotions. In both cases, the fatigue factor is largely produced by the effects of prolonged recoil producing a succession of bombardments or single concussions of great force.

The war neuroses, or as the French term them: *cerebral commotions*, which are now elucidated and treated as never before by Dr. Paul Sollier, the eminent neurologist now of Lyons, are defined by Dr. Sollier as *hysterias in the raw*—elementary hysterias, in which the physical, as distinguished from the psychical, element is absolutely preponderant; whereas in the ordinary traumatic hysteria these two elements are almost on the same level. In the words of Dr. Sollier: "When we envisage the similarity of the pictures presented by ordinary hysteria and the nervous phenomena that result from shell shock, we are forced to conclude that their nature is identical. Shell shock thus demonstrates to us that hysteria may be provoked by causes purely physical, and we are led to conclude that the purely psychological theories are inexact, since they do not apply to all the cases. Since it is undeniable, on the other hand, that hysteria can be provoked by emotional and moral causes, we must conclude that there exists an entire gamut of forces—physical, mechanical, organic, and psychic—that may lead to the same clinical results."

Dr. Sollier's identification (1) of war neuroses (shell shocks, etc.) with civil life hysteria, which is mostly observed in women, in the absence of the more violent shocks, and (2) its recognition as an essentially physical affection, and best treated by physical measures, is a great stride in the proper classification of the fundamental emotional element. This final attainment in neurology is a complete substantiation of a position taken by Professor Angelo Mosso of the University of Turin, who wrote many years ago:[10] "The vivid impression of a strong emotion may produce the same effects as a blow on the head or some physical shock. There are men who, through fear, have lost consciousness, sight, or speech; others, still more sensitive, have remained for a long time paralytic, unable to move legs or arms, and have lost all sensibility. Some remain for a long time sleepless, others fall into a sort of exaltation resembling the outbreak of mental disease, many lose their appetite, or are afflicted with articular diseases, and in some the nervous system suffers such a shock as to cause violent fever." The siege of Strasburg in 1870 is cited as producing from fright, paralysis agitans, convulsions, etc. In the present war, all the above and yet greater injuries of this type abound. A painful sensation of having been beaten on the head, which is not infrequent, conforms to Mosso's classical description.

Whether from faulty synthesis or from later experience incompatible with its normal sustenance, when the vital integrity of a tissue is lowered, it is primarily and most conspicuously exhibited by a corresponding lowering of its density; and its functional performances are typically related to the phase of its coincident density, both in reaction time and in expenditure of energy. Tissue density is thus a common factor in both physical and mental cases. A lowered somatic tissue density constitutes a predisposition to the superimposed traumatic concussion of war as well as of civil life. Habitual emotionalism, the overwrought depression of distressing anxiety, and fear of religious origin, exhibit the same type of neurotic symptoms as those developed under fire. In fact, the former group may predispose to the latter. The wet-brained alcoholic exhibits psychical peculiarities not unlike victims of cerebral injury. Periodical or constant hyperesthesia is a symptom typical to both. Emotionalism and hysteria are but expression phases of hyperesthesia. The various transition phases existing between hyperesthesia and anesthesia include the wide range exhibited between the manifestation of exaltation and melancholia, and between the extremes of mania and dementia. The normal balance belongs to an intermediate phase. Typical characters of behavior: impetuosity, impulsiveness, impatience, intolerance, discontent, unrestraint, lack of self-control, etc., of hyperesthesia, thus contrast with stolidity, apathy, obtuseness, and the clouded and stupid minds of the dullard, the sluggard, and the pronounced stages of feeblemindedness and general paralysis.

Secondary Stasis in Visceral Organs.—The existence, as an initial event, of a pronounced venous engorgement and congestion, especially of the splanchnic venous trunks, must of necessity cause serious circulatory stagnations in the important visceral organs which are directly dependent. One cannot ignore the fact that the several ductless glands, notably the thyroid, thymus and adrenal, are thus seriously disturbed in their functions, while the occurrence of war nephritis, incidental to chill, shell shock and other events of the trenches, adds to our observations of chill and the greater depressing emotions, in times of peace, as etiologic factors of nephritis in general. In Graves' disease the circulatory disturbance is the most marked and constant symptom, and in nephritis also it is pronounced, though regarded more as a result than as a cause. Edemas occur in both, but in the former they are fleeting in character. Vascularity occurs in the thyroid in the former, but only in the more acute types of the latter. It is a matter of common observation that acute manifestations of thyroid swelling and exophthalmos occur in varying degrees in individuals, not affected by Graves' disease, during periods of great emotional stress and spasm, in cases of shock and other manifestations which are consequent upon the factors typical of emotion and shock conditions.

Apart from the major casualties of war rendering

men defective, there are several obscure types of pathological manifestation which render the victim vocationally unfit. Emotion sterilizes the motor reaction sequences of sense impression stimuli, by dissipation of the energy that otherwise would be focussed, differentiated, and directed to specific purposes. Inhibition, whether due to tetanic contraction or flaccid paralysis, invalidates all applied effort. Incoordination and discoordination involve defeats of those unities of collective physical and mental expression which are necessary to singleness of purpose and action of individual thought and effort. Flustration frustrates design and purpose because of rendering the individual impotent to act at the right time, or until the psychologic moment has passed.

All of the above elements of vocational unfitness are affections of physical instability. They are fundamentally expressions of hyperesthetic conditions with which the psychiatrist is called upon to deal as first in importance in connection with the rehabilitation of the war shock cases. The release of the victim from hyperesthesia must precede any efforts to train him in any useful vocational pursuits. Until that can be attained any technical training will prove an unfortunate expenditure of time and money. In many cases, out-of-door exercise and occupations of simple form should precede indoor trade trainings.

The mental pathology of inculcating (1) intense excitement and emotional stress which has no focused outcome, (2) a highly wrought tension, aborted short of its motor sequence, (3) a state ending in muscular tetany and rigidity, instead of activity, (4) a preamble of a motor reaction excited to a high degree and yet deprived of its normal sequence and thus rendered sterile, is as damaging to those organs involved in the *mental* function, as are those recognized *physical* organs which are engorged and congested, without release or alleviation, by artificial stimulations and inflammations of the states of war neuroses. In all sterile emotions, whether instigated by religious excitement and emotionalism, by alcoholic intoxicants, or unrequited love, the result is practically the same, namely, a reaction, which is made up of a combination of sense impressions and perceptions, with or without deliberation and physical (motor) expression, including speech.

Under *normal* conditions, when a sense impression is not attended by some kind of physical expression, it is because its impulses are too weak. It may be so feeble as to create no other than a subconscious impression (short of eliciting the attention). A yet stronger one may elicit a focus of the conscious attention, yet not evoke motor expression. With sterile emotions we observe a bestowal of sufficient stimulus, or impetus, to excite motor impulses, yet which are in these cases repressed. We thus have for our consideration a general physical disequilibrium which is due to an unbalanced reaction (an aborted reaction).

Sterile Emotion.—There are many causes which would create in a weak man the emotion of fear, in a weaker one that of terror, yet in a strong man anger or rage. There is often exhibited a motor stress which excites one to escape and another to combat—unless it be that it is so excessive that it is sterilized in tetanic contraction. According to the observations of Cannon[5] of Boston, the disability of one or the capacity of the other, are dependent upon the capacity of the suprarenal and thyroid glands to secrete substances called *epinephrin* and *thyroid secretion*, which, as internal secretions, play a dual role in reestablishing the equilibrium of the general circulation. It appears that a profound *normal* emotion is attended with the secretion of epinephrin and thyroid secretion, by virtue of which motor reaction is assured with circulatory compensation. Conversely, in the event of the sterile emoton, we observe the determination of blood to the venous trunks, muscular collapse, fear, capitulation, etc. But also in such cases we may find glycosuria, albuminuria, air hunger, etc., which are also symptoms of adrenal insufficiency; while muscular twitchings, tremors, spasms, and even tetanic convulsions occur from derangements of, and disequilibrium between, these glandular organs.

It is to be observed that wholly *normal* individuals exhibit an elasticity of recoil which is indicative of a certain capacity for shock absorption which is only shattered by concussive shocks of such violence that the integrity of the involved tissues is disrupted or destroyed, which may be to such a degree that it would be attended with fatal sequence.

The unstable individual exhibits a conspicuous absence of such a margin of safety, of elasticity and capacity for absorption, and in perhaps what Dr. John J. B. Morgan[6] terms "potential neurosis," there is a disposition to react to potential perturbations by tetanic recoils, recoils that simply serve to develop a state of biologic tetanus, in which state the involved tissues remain, and thus causing contractures of the extremities instead of the *normal* reaction, *i.e.* constituting a contraction of normal intensity, followed by relaxation.

The inhibition of normal motor response in the face of powerful artificial incitement of such a reaction, is responsible for the cumulated dynamic stress that finds expression in the exhibited state of tension, and eventually when the resistance powers of the organism are overwhelmed, finds vicarious outlet, and the normal exit being closed, it finds escape in a diffuse tetany or an impulse wave which pervades the entire motor organism. This we term emotion. It is a sterile substitute for utilitarian action.

Having thus once forced such a false passage, as it were, of subsequent vicarious energy escape, which by this channel is facilitated; and as multitudinous repetitions not infrequently widely open this path, the victim correspondingly finds his endurance for resistance so lowered that trivial vicissitudes of daily life attain to emotional reaction and energy escape. We say the individual is unstable, restless, unenduring, impatient, intolerant, and moreover *irritably weak*, because he lacks the strength which stability involves, because he lacks control of the emotional responses to factors of irritability, and is hysterical because of the typical emotional and spasmodic character of the expressed physical phenomena.

This condition may be regarded as analogous to a steam boiler with a safety valve which has been regulated to blow off steam at so low a pressure that no accrued power is accumulated, and all machinery

requiring other than the lowest ebb of kinetic energy is unmoved by it. The vicarious discharge which is abnormal in sterile emotions, is quite identical with that diffuse wave, so typical of what we also call emotion, which accompanies the orgasmal discharge of the connubial function, and I attribute to this fact the explanation why sterile emotions, originally of religious character, so often recur as typical sex or pervert sex emotions and later reappear repeatedly with all their characteristics and accompaniments, as such.

Under normal conditions the current impression impulses accelerate allied past impressions to a repetition of their past reactions and into an associative reaction with the current one, culminating in a unified motor expression. If conversely the individual be emotional, the motor reaction is manifested as a diffuse wave-like flow that lacks definition and unified direction.

An emotion of terror may fail to focus into a definite act of defence or flight, and thus be expressed as a general muscular contraction, a tetany or rigor, or as a general muscular flaccidity. In either case, paralysis of action supervenes. An emotional wave in the form of a thrill is equally diffuse and sterile as a motor expression. The inability to hold the impulses to the normal paths is obviously a manifestation of physical weakness.

In an hour of peril, a person of physical strength and high integrity of animal efficiency will experience a reaction characterized by focus, direction, and definition of action. The weakling under the same circumstances will be overcome and frustrated, he will in common parlance lose his head. We say his will is paralyzed, but in truth the elementary factors that go to make up the will fail to materialize, and the volition in turn is absent. The accrued energy which might have taken form as a voluntary act flows away as a diffuse wave, or is exhibited in a general muscular contracture. It is therefore in the form of either a diffuse emission of kinetic energy or of a muscular contracture, a sterile and defeated (abortion of a) voluntary act.

Present space will not permit going more fully into their elucidation, but it is not infrequently the case that functional abnormalities are in reality perversions, wherein the abnormal function, while a perversion of the function which is disordered, is or would be normal to some other function. An action which is in harmony and equilibrium with one organ, office, or function, would usually be in disequilibrium with another, and thus its action, in the vicarious capacity, constitutes a derangement which is basically a disequilibrium. When functional abnormalities occur in connection with the mental function, we term them unbalanced states, which they are in truth.

Kennedy[47] characterizes as *flabby* the typical physical feature that bears strain badly, as distinguished from the *robust type*. These are most misleading terms. Hyperesthesia is the type which is especially vulnerable, whereas there are asthenic types which are more anesthetic than hyperesthetic, which are decidedly flabby. Conversely, many men who might be well characterized as robust, in the usual acceptance of that term, are without recoil endurance or resistance. A type of man exhibiting supertensity or tenseness of attitude, together with considerable degree of so-called robustness, generally makes a poor showing of toleration of the vicissitudes and perturbations of anything like modern warfare. As deaf mutes are determined good material for aviators, so may men of blunted sensibilities be found to best withstand the violence of concussive commotions. When the requisite physical status is not procurable in sufficient numbers of physically hardened sound men, the safer increment must come from the unsound of *bluntcd* rather than *exaggerated* sensation.

Peripheral and Somatic Acidosis.—Peripheral and general acidoses are observed both locally and somatically in the type of cases under consideration. Instances wherein tetanic states, spasmodically acquired and tetanically perpetuated, are productive of superacid generation, are now readily recognized, not only by the biochemist but by the chemical pathologist and the well informed physician in general practice. Not only is sustained tetanic contraction attended by disengagement of sarcolactic acid as a cleavage product, but when wide areas of peripheral and extremity tissues are involved, the incidental exsanguination of the capillaries and the entailed asphyxia produce a degree of multiple acid formation which indicates arrested tissue synthesis.

Approximately universal peripheral exsanguination involves pathogenic conditions which, however, extend far from the periphery. Whenever any large vascular area is approximately vacated, we may be sure that the visceral venous system is in inverse ratio over-engorged and congested, and such a condition of stasis is of little if of any less importance as a factor of retardation and inhibition of the general circulation. The over-distended and over-weighted splanchnic venous trunks then constitute a serious menace to the ascending flow of blood when the body is in the upright position.

The rises of blood pressure occurring in contrast with the general circulatory failure of these cases, are probably related to the coincident acidosis. Stefani[28] ascertained that dyspnoic blood produced local vascular dilation and central constriction, which in general would raise blood pressure. Bradford and Dean[43] have shown that on producing asphyxia in a curarized animal, a great rise in arterial tension occurred, followed by a more gradual fall. The relation of vascular tone to the alkalinity of the blood seems to be established by Leonard Hill's findings that the vascular tone is increased by raising the alkalescence of the blood.[16] In general, conditions exhibiting asphyxia are productive of a fall in the alkaline reserve (acidosis).

Oertel and Grawitz[40] have been largely instrumental in showing that a marked polycythemia form of concentration of the blood is found in conditions characterized by chronic stasis, cyanosis, and edema, and that this is more marked in the capillaries than in either the veins or arteries. Lazarus Barlow[42] has given us at this point a most explicit illumination by determining that the withdrawal of the blood from one part of the body, in the course of a deflection to another part, is accompanied by a rise in specific gravity in the tissues which thus become anemic. Taken collectively, many important points are elucidated by these investigators.

The physiological course of reaction events followed by tissues subjected to devitalizing conditions, appears to be governed by the degree and abruptness of the effect. When sufficiently severe and abrupt, cell death occurs in the phase of contraction. When conversely the effect is insufficient to produce cell death, following a varying period of exhaustion flaccidity, vital recuperation follows. When the devitalizing factor is a peripheral and extremity spasmodic exsanguination, there is observed an alternate succession of contrasting events. The antecedent and predisposing low tissue density, often attended with hydremia, is primarily succeeded by a sudden ejection, especially of the watery elements into the deep venous trunks, leaving a marked inspissation of the blood remaining in the capillaries, which in turn, as a compensatory process, takes up water from the tissues. When, as in Raynaud's disease, the asphyxia is sufficient to produce extremity tissue death in this phase, its form would be predestined to be dry gangrene. Conversely, however, when instead, it is followed by exhaustion flaccidity and a passive hyperemia, low tissue density reappears in increased degree, and perhaps hydremia or edema, or both. Intermediate between tissue death in contraction and flaccid paralysis, we observe the more common forms of rigidities, contractures or clonic contractions of the so-called hysterical events, and between vascular exsanguinations and passive hyperaemias we have fluctuating variations in the specific gravity of the blood.

Collateral Susceptibility.—Over thirteen years ago[56] and lately[57] I directed the attention of the profession to the coincidence of susceptibility to bacterial infection with hyperesthetic neurotic manifestations, as due to the common cause of the lowered tissue density, the infection occurring as a direct result to the incidental lowered surface tension and osmotic pressure of the involved cells and coexisting lowered vital reaction. Among the many factors of reduced tissue density, none are more rapid and pronounced in their causative action than those exsanguinating reactions which have so long been grouped under the caption of vasomotor reflex actions.

The present war has afforded us remarkable instances of coincident extreme spasmodic exsanguinations of the tissues, especially of the lower extremities, which are attended with those typical characters which have come to be known by the general term *war neuroses*, in relation with a virulent infection recognized as *trench fever*. Furthermore, it has been a remarkable general observation that conscripts in an abrupt transition from civil to military life with its rigorous discipline, strenuous drilling and other intensive training, its fatigues, weather exposures, etc., before general hardening has been attained, and in some cases owing to belated supplies of proper clothing for experienced cold weather, have been affected with pronounced super-susceptibility to virulent infections.

It is not without interest that recorded observations of the effects upon hardening of men in the first, second, and third years respectively, of service in the German Army, for the period from 1867, following the Austro-Prussian war, to 1874, excluding one year of the Franco-Prussian war, of 1870-1, exhibit the attained extent of hardening in terms of specific gravity of tissues, and show clearly the relation of same to their experienced reaction to surface cold, and susceptibility to the then prevailing infectious diseases.[46] The second year of service exhibits degrees of tissue hardening greatly beyond those of the first year, and those of the third year are well in advance of those of the second year. The then most prevalent infectious disease, typhoid, showed only a half to one-third in third-year men what was exhibited by first-year men. A similar decrease was shown in the derangements due to exposures to cold—chill. Since the German Army counts on the first year of service to weed out the weak men who pass the examining physicians, it is not surprising that its officers have deprecated the physical efficiency of the American Army made up largely of first-year men.

Gustave Jaeger,[46] who presented the above-mentioned statistics, quotes some most interesting tables from Beneke exhibiting the relative percentages of water, salts, organic solids and fats of the arm bones respectively of a soldier, a woman affected with tuberculosis, and a boy dead of caries, and from Ranke, of percentages of solids of muscles, brain, spinal marrow, and blood, of a decapitated young healthy criminal and of an old man dead of marasmus. These two tables show the remarkable loss of solids, or inversely, increase in proportion of water, in diseases which involve a loss of tissue density. In the latter case, the loss of solids incident to disease much more than offsets the usual loss of tissue water incident to old age.

The value of hydrogogue catharsis, diuresis, and perspiration as artificial and natural measures for the active elimination of water from the blood, is recognized as essential for the maintenance of high degrees of tissue integrity, and incidentally immunity from both infection and pathologic chill reactions. The same might be said of emotional reactions, the proclivity to which would be greatly lessened by all measures which lessen the proportion of tissue-contained water.

Relation of Manifestation to Severity of Case.—In considering symptoms in relation to the severity of morbid causes, it may be accepted that *hyperesthetic* manifestations are significant of lesser degrees of disorganization than the *anesthetic* type. All progressive mental declines exhibit mania in early and dementia in late stages. Traumatic neuroses exhibiting amnesia, apathy approaching dementia, accompanied by deafness minus central labyrinthine disturbance, are far more serious than those exhibiting hyperesthetic symptoms. Exhaustion *anesthesia* is to be recognized also as the transient end result of processes attended with *hyperesthesia*, emotion, and their exhausting trains of manifestations.

In some cases the severity of manifestation appears out of proportion to apparent causative factors. In these cases the physician must look to the predisposing factors, both remote and recent. Even emotional experiences, either violent or repeated, religious as well as profane, serve to predispose to excessive and precocious emotional spasms of pathogenic import. Alcoholic indulgence, fatigue, chill, and many distressing and depressing experiences predispose to excessive emotions. The

etiological factors of emotion and of spasmodic and paroxysmal diseases in general, are practically identical. Individuals exhibiting proclivities to emotion, generally also exhibit the spasmodic as well.

An individual exhibiting that diathesis which we identify as a proclivity to fluctuating abnormal extremes of motor reaction, and as characterized by instability, emotion, hysteria, etc., is correspondingly lacking in motor control, and aggravations of the primary condition from any cause, correspondingly increase the existing motor incapacity, which is fundamentally volitional, and is thus truly an organic disease of the will. We observe a disruption of continuity between the physical preamble of the individual's reaction to sense impressions and the normally resulting motor sequence, and moreover, that correction of the defect must compass a reestablishment of coordination between the two. In bad cases a more or less complete reeducation must be considered.

Education in its wider sense involves experience, and general experience further involves the exercise of all of those physical functions which participate in that somatic attainment. The disruption of reactional motor coordination involves a corresponding destruction of the underlying physical mechanism which is responsible for all animal automatism, habit and memory, such as the accrued sequence of all past experience. Just as the original coordination, both motor and physical, was developed under the law of repetition, so all reestablishment of the same must be attained by a systematic and methodical exercise of the fundamental vital reactions to rebuild that complex superstructure which is so essential to the self-sustaining man.

What we term voluntary action is differential and discriminatory, corresponding to its volitional attributes. Volitional incapacity is not necessarily characterized by a weakness of motor expression, but by an incapacity to differentiate, focus, direct and control it. It is rather a problem of conservation than expenditure of energy. The unstable and the unfit individual is characterized by precocity of and excessive motor expression, by impulsive and immaturely reasoned acts, and by lack of restraint and control of same. The lower the grade of voluntary motor expression, the less differentiated and focused, and the more diffuse it is. The lowest and most sterile form of motor reaction is that diffuse wave which we term emotion. In a sense, it is a vicarious escape of potential energy, an emission of what might have, in a person of higher tissue integrity, been conserved and accrued until capable of motive power, whereas as an emotion it is characterized by sterility in the economic sense.

All factors that inhibit the development, or accomplish the disruption of tissue integrity, correspondingly lower its capacity for utilitarian functionation. Anæmia, local and general, cardiac insufficiencies, circulatory impediments, etc., are common causative factors, but those events, spasmodic and paroxysmal, which asphyxiate the extremities and the periphery to a sufficient degree to engorge and congest the visceral venous system, are the most notable.

Mental Deficiency and Motor Incapacity of Hyperesthesia.—The present form of estimation of mental capacity by various mental tests on the basis of age equivalents, fails adequately to differentiate the imbecile from the temporarily disqualified hyperesthetic. The former type is one of maldevelopment; the latter is, on the other hand, a disability dependent upon abnormal function affecting mentation. The former is a sluggish, subsensuous condition, while the latter is a hyperirritable and hyperexcitable (hyperesthetic) one. The former is attended with functional deficiency, the latter by precocious and excessive functional reactions. It is obvious that these two diverse states should not be diagnosed by the same test as a unit condition.

The hyperesthetic individual, in any effort to focus and sustain the attention, may experience a cramp-like reaction, an emotional or spasmodic rigor or tetany of the involved organal tissues which effectually precludes adaptation of mental activity. The greater the stress of the occasion, the greater is the inability to exercise the mind with proper direction and definition. During a test or examination, these cases will in vain strain to think, to reason, or to remember, yet as soon as the paroxysm passes off and relaxation supervenes, the much sought mental goal is attained with ease. We therefore have exhibited in this class of cases, in one respect, the very antithesis of the actual feebleminded ones; yet in another respect the end result is the same. With regard to the biologic over-reaction status the antithetical processes thus prevail. On the other hand, the enfeebled effort to perceive, to discern, and to discriminate does not *mature* in the *first* case, and conversely it is inhibited in the *second* one. The ultimate result of the test is the same; the mental goal is equally minus. The application of a mental test to a recruit might in either type be attended with the same result, namely, with failure to pass on tests which it is deemed he should in accordance with his actual age. In the first case it is through permanent mental incapacity, and in the second it is through spasmodic onset of tetany which effectually precludes the exercise of the requisite mental activity.

Human documents afford us abundant illustration of the instances wherein even approximately normal persons, in the anxious moments and stress of educational and military examination, are utterly unable to recall answers to questions and solutions to problems with which they are perfectly familiar, and recall them with celerity as soon as relaxation supervenes, when the examination is over and it is too late to make it available on the test. This same experience is observed in progressively greater degrees corresponding to the exhibited degree of hyperesthesia.

As the degrees of hyperesthesia mount higher and higher, the stress of *anxiety neurosis* increases correspondingly. Unit degrees of stress are produced with correspondingly decreasing causative factors. An overwhelming fear of not being able to think of correct answers to questions, accomplishes the inhibition necessary to make such recollection impossible, in much the same manner that stage fright incapacitates an inexperienced public speaker.

The inability of an individual to summon and utilize his faculties of discernment and of discrimination, involving the interaction of current with past performance impressions, relegates his mental level to the normal equivalent of earlier years when the total impressions received corresponded with those of their present utility. This also corresponds with the comparison of the equivalent mental levels of immature minds in adults which measure to those of childhood.

Flustration and Frustration.—Prior to our consideration of volition or exercise of will, there should be preceded a concept of its underlying antecedents, which may be traced backward, beginning with the individual's completed resolution or will to do. Underlying all volition is the *decision*, underlying decision is *discrimination*, and underlying discrimination are many originally competing factors, the predominant one of which has become the dominant factor in the ultimate volition which is attained by a species of natural selection, *i. e.*, by virtue of the exclusion of the minority factors. Volition is thus the more or less definite outcome of a complex process; it constitutes the ultimate goal of the collective mental process. Its expression may be emotional or a matured motor act. The will is not always perfect or normal as a unit first cause of voluntary acts. The mechanism of its complex process is subject to many misarticulations and disequilibriums of its constituent factors. The concert of reaction of its constituent factors may be unbalanced in both energy and time relation, with an exhibited ultimate sequence varying from one extreme of explosive violence to another of paralysis; which may be alternately manifested in an unstable person as reaction expressions of divers degrees of perturbations. The paralytic or inhibitory process which we observe in the cases of flustration and frustration, in which the antecedent psycho-physical process fails to come to a focus, leaves the individual in a state of mental confusion and distraction minus the normal crystallization into volition.

Definiteness of orientation, of direction, and of focus of expressed volition depends upon a clean-cut singleness of goal. Conversely, to the extent that thought is confused and disconcerted it is diffuse, ill-defined, and correspondingly weak. The most perfect expression of individual volition is that of highest definition and most exclusive direction. These elements involve the final focus.

The typical hyperesthetic individual is characterized, not only by indecision, irresolution, vaccillation, inconstancy, fickleness, caprice, unreliability, irresponsibility, disloyalty, and treachery, but by imperfections of the mechanism of volition synthesis. This, however, is as unstable as is the individual's character in general. Excessive motility on one occasion and complete inhibition on another is the expression of the instability.

A typical feature in the hyperesthetic is the inability to mature an elaborated reaction when disconcerted even by trivial perturbations. Such an individual is characterized as fussed or panic-stricken whenever anything occurs that might excite activity, as flight or a combative response in a normal person; and they exhibit flustration or a mental confusion, which involves frustration, or perhaps a physical inhibition of all motor initiation, and thus the defeat of the voluntary acts.

Such types of physical and mental incapacity are serious obstacles in the way of all hyperesthetics, as soldiers. They are especially incapacitating at times of surprise and under the usual stress of emergency. Incapacity to endure the strain, stresses, and concussive shocks of warfare may cause the mentioned incapacities to be increased to such degrees, and coordinate volition may as a consequence be so deficient that delinquency may result. Presence of mind in emergency is indispensible in the army and navy, and in after civil life it is a most valuable asset. It is antithetical to those discoordinations, disaggregations, and dissociations of mental unity which spell incapacity to the individual.

Individuals rendered hyperesthetic from all causes, are more or less prone to experience superstress on all occasions demanding emergency resourcefulness. Each effort is thwarted by a spasmodic reaction which may be succeeded by a tetanic or rigid contractile state. The greater the exigency making demands upon the memory, or upon the mental capacity involving sustained attention and application, solving more or less difficult problems, etc., and the greater the effort made to comply, the greater is the exhibited proclivity to be attended by spasmodic response phenomena and by a tetanic state continuing with the incidental stress. When these cases are permitted to continue uncorrected for a length of time, they become habitual, and chronicity supervenes under the law of repetition. These individuals become confirmed victims of flustration.

Flustration is of interest and importance to the army medical service owing to its victims being disqualified for aircraft and other military service in general requiring either morale or capacity for emergency resourcefulness. A man who is overcome with sterile emotion, or is, as it were, frozen stiff and immobile during periods of sudden emergency stress, is much better off well in the rear of army fighting lines. The production of flustration states, as part and parcel of war neuroses, is a subject of prime importance. The incurrence of shell shock may, in the milder cases, leave the victim apparently little the worse for the experience, yet on the first occasion of its repetition or in the stress of an urgent emergency, he may fail at the crucial moment to signal, defend or retire, as the occasion demands.

Apparently the term *war shock*, in its broader sense, is made to cover a wide field of mental and physical manifestations resulting from the violent factors of war. By some writers it is caused to cover practically all of the resultant manifestations covered by the more general term *war psychoneuroses* of other writers. It is, however, true that concussive forces of lesser import, but of the same general order, produce obscure injuries which are not closely allied to those of major importance, and that lines of demarcation between the two are difficult to draw.

The production of a complete flaccid paralysis in one part or case, a state of painful cramp rigidity or contracture in another, of hyperesthesia or anesthesia, of exaggerated or lost reflexes, and

tremors, according to their location, are indicative of the degree of affectation. In general, the distal extremities are most profoundly affected, and the fingers or toes are the parts which become cyanotic, when a case exhibits it other than as of *general* circulatory failure. Anesthesia is also most exhibited in the distal extremities and in cases where it is not universally peripheral. The degree of its extension toward the torso bears an approximate relation to the extent of the affectation. In this connection it is of interest and importance that Dr. Sollier explores his cases for anesthesia in the direction extending from the distal extremities toward the torso and begins his treatment on the sensitive side of the line of demarcation, extending it from that point toward the extremity.

Treatment.—A distinct and most noteworthy advance has been made by Dr. Sollier in this therapeutic procedure, which we can best appreciate when we recall how much time has been lost in past years in subjecting completely anesthetic tissues to stimuli of all the five forms of physical energy, namely, mechanical, electrical, thermal, photic, and chemical, they necessarily exhibiting no reaction and therefore attaining no therapeutic result. By his wise procedure of beginning his physical stimuli above the anesthetic area where reaction is attainable, the influence upon the more distal contiguous anesthetic areas is rendered potent. Progressive extension of the resanguinification toward the distal ends of the extremities carries with it restoration of sensation, and motor capacity gradually follows with the application of massage, manipulations, and exercises which are rapidly followed regardless of the hyperesthetic and even painful reactions that are thus produced.

The best results in these cases are obtained in those in which anesthetic paralysis of an extremity has existed for a minimum period of time. It is therefore important that provisions be maintained to treat these cases properly in the shortest possible time after incurring the shock complex. Especially those cases which can never safely be returned to the trenches obtain the best results from the earliest possible treatment. This, I understand, is already generally recognized and provisions are under way to carry out the promptest treatment possible.

Hypnotic suggestion is of value only in the milder cases of war neuroses, as anything like an *exclusive* treatment. For the re-establishment of circulatory equilibrium, it is less prompt and efficacious than the physical measures. It is, however, in all cases a valuable accessory treatment for the control of hysterical phenomena, as symptomatically treated.

It should be emphasized that the circulatory failure of shock is least exhibited immediately following the primary deflection of the blood from the superficial and capillary to the deep and venous system. Following this initial event, supervenes progressive circulatory failure and acidosis as a sequence of superficial tissue asphyxia and splanchnic venous stasis. These events should be intercepted at the earliest possible moment. To accomplish that end, not only should brisk frictional rubbing or brushing of the surfaces of the body be promptly resorted to, but hypodermic injections of adrenalin or ergotin should be administered repeatedly until contraction of the dilated splanchnics is attained sufficient to reestablish circulatory compensation. Following this a progressive system of exercises, first passive and resistant, and secondly active and gymnastic in character, may be carried out to surprising advantage. Machine massage and gymnastics are contraindicated.

The shorter the period and the less the extent of circulatory discompensation obtaining in individual cases the less will be later losses of motor coordination. These cases are, however, best treated by a series of reeducation drills of those movements which appear most difficult of volition after the acquirement of the so-called shock neurosis. Those cases in general that are not amenable to a happy treatment outcome will be those unsuccessfully treated in their earlier stages, and those in which vital tissue integrity is damaged beyond repair.

For recondensation and retoning of dilated venous walls adrenalin will be found more powerful and prompt, but more transient in action than ergotin, which will be found more reliable, safer, and more enduring in its action. The latter is especially preferable for repeated use. By the use of ergotin, wisely administered, many of the symptoms typical of war shock, including the tachycardia, will disappear early and thus greatly simplify the after-treatment. Cardiac and circulatory failure will in most cases be averted by *early* restoration of general tissue condensation and tonicity, in which the heart as well as the vascular walls participate.

Hyperesthesia, emotional instability, tachycardia, insomnia, passionate outbursts, epileptoid attacks, spasmodic and tetanic proclivities, contractures, functional paralyses, etc., are more or less benefited or eliminated by the hypodermic administration or ergotin in a series of daily or more frequent doses, as introduced by Livingston a number of years ago. Separate treatment for the nausea, sense of precordial griping and oppression, gaseous distention and dilatation of the stomach, etc., is not usually required.

Cold baths, wisely administered, will prove valuable in these cases; and on occasions when the patients do not exhibit reaction glows to warm towel drying and brisk rubbing of the body surfaces, they can be accelerated by carbonizing the bath water, or adding pine needles or mustard sufficient to produce mild rubescence. Thermatic hot-air, vapor, steam, and water baths are distinctly harmful in ultimate results, and should be resorted to only in emergencies and in the absence of better methods.

We would emphasize the importance of the earliest possible attention to the newly experienced cases of war shock by prompt rectification of the induced disequilibrium of the general circulation and followed by such other corrections of exhibited derangements as may be indicated in individual cases. These fundamental disorders may be adjusted without explaining to the patient possible consequences of deficiency of the treatment, or neglect, other than on his own part, and

without relaxation of military discipline. In those cases where a radical rehabilitation of the normal circulation is promptly attained, the case may, after more or less treatment by cold baths and exercises, be returned to duty, while those suffering actual structural injury, and who remain incapacitated after circulatory restoration, should be sent to the rear for repair and rehabilitation of tissue integrity. The most serious cases should be invalided home. The latter class are not infrequently so shattered physically that they are quite incapacitated for ever again withstanding the intense anxiety, stress and shock of battle. Their recovery demands prompt and complete removal from the war zone, but not release to independent civil life. These cases should now be entered upon the new phase of rehabilitation which is at once to save them from social delinquency, and prepare them by a combined physical and industrial reeducation for future usefulness and self-support.

Prophylaxis.—A proper regard for prophylaxis against the war-wrought neuroses as a class must begin at the cantonment, in exercising discrimination in the determination of the time duration of the period of training and physical hardening necessary, preparatory to the production of a stable and well-poised soldier, who can be depended upon in the presence of the perturbing and discoordinating exigencies of the battlefront. It is obvious that from the viewpoint of the physiologist, the custom of giving all men the same time duration of training is a mistake. Not only do men differ greatly in their aptitude for the manual of arms and field maneuvers, but even more greatly do they differ in their condition of physical hardness or softness. The ultra-soft recruit may require from one to two years to become as hardened as another at the end of six months. The soft recruit may, however, at a later period, be made as hard, enduring and efficient as his originally hardy comrade, by a corresponding prolongation of his training. With that greater hardihood also, he would thus become correspondingly more tolerant and resistant of the exhausting contingencies and vigils, chills and infections, commotions and shocks to which he may be subjected. If the war long continues, time will permit selection of men for short and prolonged adaptive periods of training, which will insure their more uniform hardening, and thus by compensating the softness of a certain proportion of recruits we will correspondingly lessen the number vulnerable to the experienced incapacitating factors, which all must face on the field of battle. Men rejected for early service may be hardened for later service by simple prolongation of their training. Such training should be more carefully gauged in intensiveness.

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TREATMENT OF EMPYEMA BY THE CARREL-DAKIN METHOD AT THE WAR DEMONSTRATION HOSPITAL, THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH.*

(PRELIMINARY REPORT.)

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MAJOR M. R. C., U. S. ARMY.

In the War Demonstration Hospital at the Rockefeller Institute for Medical Research we have treated a number of cases of empyema following pneumonia. As many of these cases have been of a peculiar type an entirely new problem has been presented. All have been treated with the Carrel-Dakin method. These cases had first been admitted to the Rockefeller Hospital as pneumonia cases and then transferred to the War Demonstration Hospital after the development of empyema.

As this is to be a discussion on treatment, I will merely mention that the usual physical examinations, *x*-ray, thoracic punctures, and cultures of the pleural fluid, were employed in all cases for diagnostic purposes. The case was considered one of empyema if on thoracic puncture macroscopic pus was found, or if pus cells and organisms were demonstrated by the microscope.

This evidence was considered sufficient for operation, and some cases were operated on as early as the third day after the onset of the pneumonia. The longest period which elapsed before operation was 120 days. This patient has been aspirated in another hospital seven times. Our operations were performed under local anesthesia, novocaine 1:400. The operation of choice has been rib resection, opening into the pleural cavity and exploration with the gloved finger or instrument, opening all pockets. The site of operation in those cases where the fluid seemed to be evenly distributed has been at the lowest point posteriorly, and in most cases over the eighth or ninth rib in the posterior axillary or scapular line. In those cases where a definite localized pocket was found the opening was made over the region of the pus.

In the early cases the pleural cavity was not flushed out at operation. Three to five Carrel perforated tubes were placed in the cavity extending to all points, and two large short tubes inserted in order to have a free outflow of secretion and chlorinated material. With our later cases the pleural cavity has been flushed with Dakin solution at the time of operation, the large tubes have been omitted and four Carrel tubes stiffened with fine silver wire have been placed, endeavoring to reach all parts of the cavity. Compresses wet with Dakin solution, replaced the large tubes originally used, in order to prevent a too rapid interchange of air. After placing the tubes and compresses, *x*-ray examination showed that the tubes reached all parts of the cavity.

In the early cases instillations of 30 to 60 cc. of 0.2 per cent. sodium hypochlorite solution were given every two hours for forty-eight hours, and as no contraindications arose in the use of this solution the strength was increased to 0.5 per cent. sodium hypochlorite, or full-strength Dakin solution. In our later cases instillations have been given every hour during the day and every two hours during the night, and the amount has been increased to from 80 to 100 c.c. Dakin solution. This has been done to follow more closely the necessary principles of time, concentration, and contact in the use of an antiseptic.

Dressings are made daily. A smear from the inside of the pleural cavity is taken to be examined microscopically, the cavity is flushed out, the individual tubes are tested, and fresh tubes inserted when necessary. Compresses wet with Dakin solution are then placed in the external wound as at operation, the skin is protected with vaseline compresses or zinc oxide ointment, and a cotton pad and chest binder applied. The external dressings are changed by the nurse when necessary.

In our first cases closure took place spontaneously in from three to seven weeks, no attempt being made to suture the wounds. In the later cases, however, we have made secondary closure with suture when sterilization was obtained as shown by the bacteriological curve, and in some cases by culture as well. Cultures taken at the time of dressing have been found sterile at the end of five to nine days. In this way we were able to close cases in from five to twelve days or more, the average time being about fourteen days. Primary union was obtained in about 70 per cent. of the cases. When secondary sterilization was necessary this was readily obtained in all cases in a week or less, and complete closure was the final result. The secondary infections were always found to be of a low virulence.

After operation the patients were comfortable and were, in general, free from the toxic symptoms present in most empyema cases. The secretions have been small in amount and free from odor. The temperature has dropped, as a rule, after operation, and in a few cases where it has remained elevated this has been due to the pneumonic process which was still active, or else to complications, since practically all of our

*Read at a meeting of the American Association for Thoracic Surgery, June 10, 1918.

cases were operated upon before a crisis or lysis.

We have treated up to the present time forty-five cases. With the exception of five of these cases the entire treatment was carried out in our hospital. These five cases were sent to us from other hospitals with sinuses that had been discharging from three days to three months. The ages of the patients have varied from fifteen to sixty-eight years. We have had thirty-two cases of streptococcus infection, nine cases of pneumococcus infection, and four cases in which it was impossible to isolate any one type of organism.

At operation we have found in the great majority of cases the fluid to be perfectly free in the pleural cavity. The character of the fluid was usually thin and watery, of a greenish, yellowish, or brownish color, and in some few cases thick, creamy pus. In a number of cases a large amount of fibrin was present, covering the pleural surfaces, and with irrigation large shreds were washed away.

Complications other than those to be mentioned in autopsy findings have been three cases of abscess of the buttocks, three cases of acute tonsillitis, and one case of scarlet fever. We have had twelve deaths in this series, nine of which have been of the streptococcus groups. At autopsy we have found pericarditis in five cases, together with one or more of the following lesions: cervical adenitis, mediastinitis, miliary tuberculosis, intestinal ulcerations, peritonitis, numerous small lung abscesses, and small kidney abscesses; one case of general tuberculosis, three cases with pneumonia involving the opposite lung, and a beginning fibrinous pleurisy. In three cases we were unable to obtain autopsies and cannot state the exact condition present.

No case has been discharged from the hospital with a sinus. All wounds have healed clean and solid. Chest examination has shown the lung to be practically normal, judging from physical and *x*-ray examinations. We have been able to return cases to duty in twenty-one days after operation. One case had pneumonia, empyema, operation, sterilization, closure, and was ready for duty in twenty-six days. The average length of time in the hospital after operation has been fifty days. This seems rather long, but we have often kept cases saveral weeks for demonstrative purposes. Not a case, to our knowledge, has been discharged from the Army or Navy for physical disability. All have gained in weight—one as high as 36 pounds. We have discharged in all twenty-two cases and some of our soldiers are now in France.

In this small series of cases, summarized in a brief preliminary report, we have found it possible to use the Carrel-Dakin method of treatment of empyemas with very satisfactory results when careful attention has been paid to all the details of its application. The series of cases has not been large, but the ultimate results obtained—forty-five cases treated, twelve deaths, eleven still in the hospital under treatment (five of which are about ready for discharge), and twenty-two cases discharged, the comparatively short stay of patients in the hospital, and their ability to return to active duty—well demonstrate the value of the method in the treatment of empyema cases.

FEDERAL EFFORT TO PROMOTE THE SCIENCE OF VETERINARY MEDICINE.

BY MAJOR R. W. SHUFELDT,

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MED. CORPS, U. S. A.

NOTWITHSTANDING all its horrors, all its costs, and all of its privations, a great war often stimulates an industry here, a science or an activity there, in one people or another, that, had it not been for the application of so severe a cautery such pursuits would have lain latent for generations to come.

This is precisely what is to be seen to-day in this country of ours; for, while the unprecedented world-struggle proceeds—a struggle that has no parallel in history, and which has already destroyed half a dozen nations and shaken the affairs and the equilibrium of the world's races from pole to pole—when it is all at an end, and the affairs of men settle down to normal conditions once more, we shall find, notwithstanding that we have

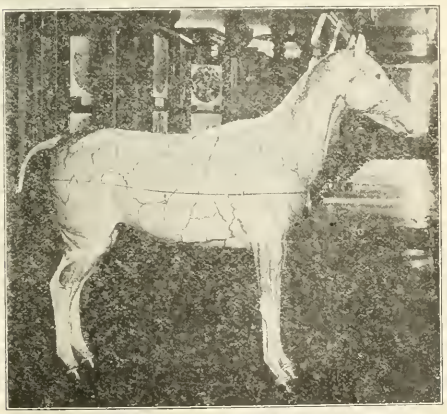

FIG. 1.—Right lateral view of the horse, skin removed and showing the superficial circulation beneath. Auzoux model (Paris); natural size. Coll. Army Med. Mus.; reduced.

poured out our life-blood and our billions in unmeasured quantities, that the years of bloodshed and losses have not been altogether barren, with respect to forcing forwards many activities that make for the advancement of true civilization and enlightenment.

It is not the purpose of the present article, however, to demonstrate this fact, or to flashlight the places and institutions where the proof of it is already in evidence; any intelligent and observing person will be able to verify what is meant.

As has elsewhere been pointed out, the old Army Medical Museum, of the Surgeon General's Office at Washington, represents at least one of our famous centers of learning and instruction which had passed into a state of almost total inactivity and slumber, through the too long continued and mellow notes of the pipes of peace. These had induced the aforesaid somnolency, and consequently further checked its advancement, until a war or an earthquake should once more arouse it to action and to a state of normal activity. This has now come to

pass. One has but to visit the building to become most thoroughly convinced of the fact. I have already, in previous articles, dwelt upon these aroused activities, and the manner in which they were manifesting themselves, while, up to the present time, the matter of the establishment of a museum and school of veterinary science has scarcely been touched upon. What is meant here by veterinary science includes the teaching and exhibition of all such material as will, in a way, demonstrate what is included in the modern, up-to-date literature on the anatomy, physiology, and treatment of all those animals usually designated as domesticated ones. Special reference, however, is made to the horse, the cow, sheep, dog, swine, and some dozen or more

Fig. 3.—Right lateral view of the skull of a colt (*Equus caballus*). 2510, Comp. Anat. Sect. Fine example of cyclocephalus. Photo by the author; reduced.

others, as well as quite a number of various species of fowls and other feathered forms.

A great many works on such subjects are already to be found on the shelves of the vast library of the Army Medical Museum, though not nearly as many as there should be. Then, too, in the museum section of the institution, upwards of two hundred specimens are met with which illustrate the anatomy of the ordinary quadrupeds which

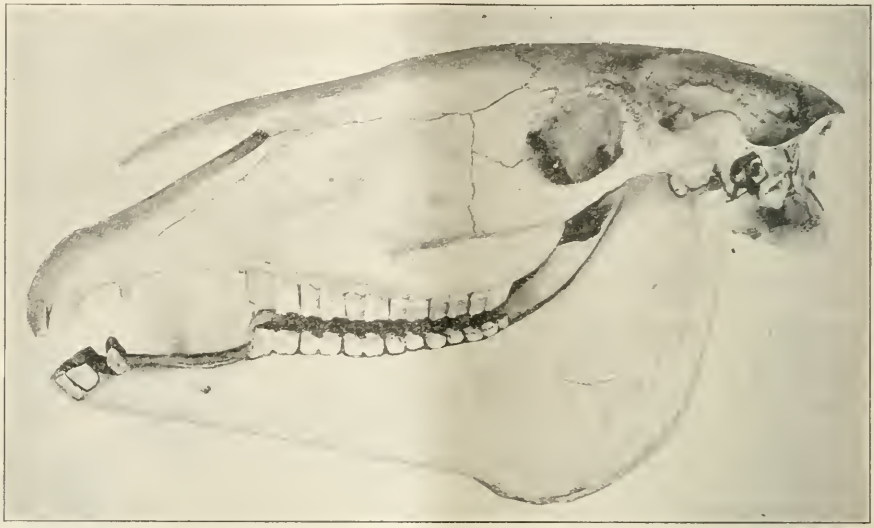

Fig. 2.—Left lateral view of the skull of a horse (*Equus caballus*); No. 34. Vet. sect. Army Med. Mus.; reduced.

man has had for ages under domestication and employed to meet certain of his ends in life. Formerly, these specimens drifted into the collection in a meaningless sort of way; while at this time it is intended to segregate them, with the view of founding a distinct department of veterinary science, building it up along the lines suggested in a previous paragraph.

Already there are to be seen in the halls and cases of this museum a number of superb models illustrating the anatomy of the horse and other domestic animals, and several of these are of the most expensive and elaborate character. For example, the horse shown in Fig. 1 is an Auzoux from Paris; it is of natural size, and may be taken entirely apart, so that separate muscles, structures, and organs can be handled separately. In the cut the superficial circulation is shown, while the model opens along the longitudinal line extending from chest to flank. For class-work and the teaching of the gross anatomy of the horse, this Auzoux model certainly constitutes very fine material.

There are models of many separate organs of the horse and other domestic animals in this collection, as well as various wet preparations. In teratology many equine monstrosities may be found for study, as well as those of the list of animals mentioned above. Very perfect examples of bones, though few in number, are upon exhibition, giving normal skulls and long bones of the limbs. (Figs. 2 and 3.) This part of the veterinary collection stands much in need of extension; for example, we need complete, mounted skeletons of the horse, cow, sheep, pig, and so on, as well as

serial disarticulated sets of the same. This offers opportunity to veterinarians all over the country to send in such specimens; they are greatly needed and will be much appreciated. The museum aims to offer, within its rooms, every possible facility for study to the members of the veterinary profession the world over. It will include for the purpose material of all kinds, and, in addition to what is mentioned above, microscopic slides (normal and pathological tissues); operations in the projecting room; therapeutics; instruments; parasites; diseases of all the organs and structures; surgical injuries—indeed, every department to which veterinarians give their attention.

Owing to lack of room, this collection cannot be made very extensive at the present time—in so far as exhibition goes; on the other hand, it is hoped that Congress will soon appropriate the necessary means to build the New Army Medical Museum, and when that is an accomplished fact there will be ample space at hand to make the exhibition what it should be—and coequal with some of the fine veterinary collections of Europe.

In that the members of the Veterinary Corps of the Army may now have before them the necessary material to study the anatomy and the diseases of the horse for war purposes—which is an extremely important matter—the collection of pathological specimens could be increased to great advantage. Such material as is shown in Fig. 4 of the present article is especially instructive, it being a case of *Laminitis*, wherein there is excessive thickening of the hoof. A medium, longitudinal section was made, showing the lengthening of the hoof and ankylosis of the navicular bone to the coffin bone.

Veterinarians of the American school, both military and civil, are already much interested in this new enterprise which the Army Medical Museum has put on foot, and it is an interest which will rapidly increase when the practical side of the movement is appreciated and the opportunity for teaching is fully developed.

ARMY MEDICAL MUSEUM.

FIG. 4.—Longitudinally bisected specimen of foot of horse, digital portion, showing excessive thickening of hoof and ankylosis of navicular and coffin bones, as the result of laminitis. No further history. No. 12157.

A TORN CERVIX VERSUS UTERINE INERTIA.*

BY EUGENE R. CORSON, B.S., M.D.,
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THE history of medicine has many chapters devoted to myths and myth-makers. Man loves the play of the imagination, and while we can trace many will-of-the-wisps to imagination run riot, we can also trace the beginning of many a great discovery to this same wonderful faculty. The scientific use of the imagination is a right royal gift, but its users are few and far between. Man in his quest after the causes of things has followed many a lost trail, and often failed to get back even to his starting point.

It is interesting to study the wonderful influence of mere figments of the brain, as evanescent and delusive as Virgil's phantom of Anchises, *"Par levibus ventis, volucrique simillima somno,"* until someone calls a halt and looks for something tangible and visible, and the phantom vanishes into thin air. How long malaria was but a miasm hanging over a marsh, until Laveran picked out the material thing under the microscope. How long ty-

*Paper read before the Georgia Medical Society, March, 1918.

phoid fever was also a miasm, a sewer gas escaping from defective plumbing. Their number is legion.

When I first studied obstetrics we were taught to press down firmly the uterus after the birth of the child until it felt hard like a baseball behind the pubic. There was no sewing-up of the perineum if torn, and the cervix was not even mentioned. The dangers of post-partum hemorrhage were long and graphically dwelt upon, and so was that grim monster, uterine inertia. The remedies were legion. There was always the dose of ergot. I have heard a physician dilate eloquently on the wonderful effects of vinegar over the abdomen and as a douche. The great Robert Barnes, whose truly great work on "Obstetric Operations" always seemed to me to be the last word on the subject, vaunted the great value of perchloride of iron in the uterus for post-partum hemorrhage. Think of it, and not fifty years ago! My copy of his work is dated 1876, and I find on the fly leaf that I reread it in 1878 and for the third time in 1879, and I can still recall the pleasure it gave me. And yet he mentions the dangers from hemorrhage from the torn cervix, and the advisability of suturing the torn perineum. But uterine inertia was the phantom which blocked the road and obscured the vision. The real cause of uterine hemorrhage was uterine inertia and the open uterine sinuses of the placental site. I must acknowledge that I long labored under the spell of this same myth, and as I look back I can recall many hours of dread and anxiety and sleepless nights while hypnotized by this spell. So few of us stop and think, and so few of us stop and look.

Some years ago I had a simple labor case where there was no perineal tear but a bad hemorrhage which kept up in spite of pressure and ergot, until I brought down the cervix with a sponge-holder and found a deep bilateral tear with the branches of the uterine arteries spurting an inch or more. That case dispelled for me the bogey of uterine inertia. I sewed up that cervix with catgut and went home without any thought of my patient but one of absolute security. The spell was broken.

Let us stop and look at the subject in a rational way. The uterus is a muscular bag with a good strong draw-string. And not only that, its longitudinal, transverse, and oblique muscular fibers all tend to meet their lines of force at the apex of the cone. Tear this draw-string and focus of contractions and you not only tear open the branches of the uterine arteries but your uterine contractions have lost their *point d'appui;* the lever has lost its fulcrum. A normal uterus without any cervical tear, contracting firmly after expelling the child, compresses the uterine arteries and practically stops hemorrhage from the placental site. But the torn uterus contracts but half heartedly and you get a double hemorrhage, one from the torn vessels and one from the placental site, although hemorrhage from the placental site I cannot believe to be serious, except under most unusual conditions.

Now I am not pretending that there is no such thing as uterine inertia pure and simple, and hemophilia, too, to cause post-partum hemorrhage, and even death, if you please, but I believe these conditions to be very rare, perhaps one-tenth of one per cent., just to give you a figure.

The literature is full of cases of late secondary hemorrhage, often severe and sometimes fatal. I beg you, before you make a diagnosis of uterine inertia or hemorrhage from the placental site, to inspect the cervix and look for a tear, in this case probably deep, and where an ulcerative process has opened up the uterine artery itself. You will probably find the uterus soft and boggy from trauma and from infection, conditions which could have been obviated by a little simple surgery after delivery.

And furthermore, I would state with emphasis that if you sew up the torn cervix you can omit ergot, pituitrin, and whatnot, and firm pressure over the tender uterus, and save your patient's stomach and much pain besides, and that you will have another example of plain ordinary surgery taking the place of drugs. The day for the routine use of ergot is passed.

But more important still, this minor surgery will have reduced your raw surfaces open to infection, and there will be less charting of temperature for the nurse, and more comfort for the patient. By this simple precaution you will have prevented the exposure of the parametric tissues to the external infections, tissues so rich in lymphatics. This means a shorter convalescence and perhaps the prevention of chronic invalidism and further more serious operations. If I have learned anything in my obstetric work it is that the proper sewing-up of torn tissues reduces or wholly eliminates the complications of the puerperium.

As I close this short paper you may say, "But this is all very evident and well known to us." I ask you, do you practise what you know? The great Italian monk of the fifteenth century, Savonarola, had for his motto: *"Tanto sa ciasenno quanto opera,"* which may be translated, "So much one's real vital knowledge, so much one's work." It seems that the mere abstract knowing of a thing is not all that is necessary to make that knowledge productive, it has to be vitalized by a certain depth of penetration, so to speak, a certain moral conviction of its truth, a certain emotional reaction, to drive that conviction home and make the knower a doer. When you have had some bad cases of post-partum hemorrhage and have pulled down and exposed the cervix and have seen the free hemorrhage from the torn tissues you will then have become a real knower and doer, and when, after you have sewed up snugly and firmly the torn parts, and the hemorrhage stops completely and you go home without an anxious thought or feeling, your experience, that much abused word, has made you a knower and a doer, at least when it comes to the proper treatment of the patient after delivery.

As I write this paper I pick out of the MEDICAL RECORD for January 12, 1918, the following excerpt from a Norwegian Journal.

Case of Atonic (?) Placental Hemorrhage.—Arnesen relates a case of a primipara, aged 26, who up to gestation had been strong and healthy, while gestation had been normal save for initial severe vomiting. Labor was normal and the placenta was expressed by Crede's method. Blood and blood clots followed the placenta, and there were absolutely no uterine contractions, death seemingly impending from acute anemia. The author was forced to compress the abdominal aorta. Massage accomplished nothing, and pituitrin was not available. At the risk of infecting the woman the author inserted his

hand into the uterus and, having found no retained placental debris, resorted to bimanual compression as recommended by Brandt. After fifteen minutes benefit was apparent. The patient also received supporting injections of camphor and gave no further trouble. She had lost from 1.5 to 2 liters of blood. The puerperium was afebrile.

In this case of post-partum hemorrhage the writer himself was in doubt of the origin of the hemorrhage, for his diagnosis of atonic placental hemorrhage is guarded by an interrogation point. This shows that the cervix was not inspected. Had the cervix been examined the origin of the hemorrhage could have been determined, for an intact cervix would have shown definitely that the blood came from within the uterus.

He omits the one thing needful for a diagnosis, and, more important still, for the proper treatment of the case. He, too, is under the spell of the phantom. He goes in "on all fours" and the patient gets well by the grace of God. To me, clinically, the case was one of torn cervix, the proper sewing-up of which would have controlled the hemorrhage and saved the patient all the risk and possible future complications.

The case teaches a great lesson and supports, I believe, the contention I make in this paper.

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THE IMPORTANCE OF REST AFTER MEALS.

By PHILIP GETSON, M.D.,

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Life is composed of a chain of processes, of rings of functions, its continuity depending upon the harmonious correlation of all the factors concerned, making the rings firm and the chain complete. If a factor becomes deficient a weak point forms, a link dissolves, the chain breaks, life ceases. To live, to be well, we must breathe, eat, work, rest, sleep, play. Not only must the sleeping, the breathing, the eating, be of the right kind and proper amount, but they must also undergo subsequent changes in proper directions or their utility becomes incomplete, their object imperfect, their ends unaccomplished. Certain processes in the human physiology, such as respiration and heart action, are automatic, self-adjusting, self-controlling, and can not be neglected or interfered with to any rapidly injurious extent, while others, such as sleeping, resting, eating, are voluntary, under one's own control, and are to be wisely regulated, or harm to health and life will inevitably come.

Just as the action of the mechanical engine depends upon its coal fuel, which is eventually transformed into energy, so the human machine similarly depends upon its food-fuel for energy and action. To have the living apparatus act properly, to maintain the various processes of life symmetrically, to obtain a maximum of vital efficiency, certain conditions must go with the intake of food and its transformation into material available for body purposes. It must be of the right quantity, quality, and proportion. It must be well cooked, masticated, swallowed, digested, absorbed, assimilated—transformed into living tissue of one kind or another. It then becomes ready to furnish body nutrition, heat and energy.

Briefly, the organs concerned in the transformation of food into tissues—metabolism—are the mouth, pharynx, esophagus, stomach, small and large intestines, collectively making up the alimentary canal, and the alimentary appendages or accessory organs of digestion, such as the teeth, tongue, salivary glands, stomach, and intestinal glands, and liver and pancreas.

The food is ground by the teeth, softened by the saliva, passed through the pharynx and esophagus into the stomach. There it is retained, according to the amount and character of the food, for one, two, or more hours for the action of the gastric juices, the fluid secreted within the stomach. This transforms it into liquid chyme, a substance ready to go into the duodenum, where it undergoes further and more important changes.

Passing rapidly from above downward, the food current slackens as it descends, the metabolic processes increasing in importance until when it reaches the lower end of the small intestine digestion and absorption, especially the former, are practically complete.

The salivary glands in the mouth, the mucous elements in the esophagus, the hydrochloric glands in the cardiac portion of the stomach, the pepsin factors in the pyloric portion of this organ, the multitudes of glandular bodies imbedded within the walls of the intestines, the pancreas, the liver, all the millions and billions of the secreting cells situated in the mucous membrane, the inner covering of the entire food apparatus, from the mouth downward, become remarkably active when alimentation—mastication, digestion, absorption—is assumed. The many enzymes, the chemical—water—decomposers; the various ferments, the biologic exciters; the mysterious hormones, the chemical messengers; the numerous highly complex, imperfectly understood substances variously termed "biologic," "physiologic," "anabolic," "catabolic," begin to work incessantly. One cell stimulates the other, one substance actuates the next one, one factor hurries its neighbor, rushes its fellow. Each helps the other to act, to create, to filter, to secrete, to manufacture the various essentials out of the blood until the organs concerned in metabolism become one widely engorged, injected, swollen, red, weeping mass, pouring its fluids into the various portions of the food apparatus, where it is most needed, in a most economical way, so that the progress of the vital phenomena of metabolism may continue successfully, and plenty of available material for nutrition, construction, and repair of the body may be present. Not only the parts directly concerned in metabolism, but those indirectly and remotely assisting it also display great activity. Organs such as the ductless glands—the adrenals, the thyroid, the parathyroids, the pituitary body—undergo important changes, and participate intimately in the processes of metabolism. And all these energetic executions, enhanced functions, augmented phenomena, are performed at the expense of the blood. In response to a series of highly complex, minutely complicated nervous stimulations, through vasoconstriction and vasodilatation in the different portions, parts, and particles of the body, streams of energy-laden blood are directed toward the digestive organs carrying "raw" material from which the various digestive substances are produced, as

well as bringing kinetic—acting—energy for their own indispensable work. This, and such phenomena in general, namely, the propulsion of blood whither it is most needed, occurs automatically, unconsciously, involuntarily, without our knowledge or direct control. It constitutes one of nature's laws destined to preserve health and prolong life in as economic and efficient a form as possible. The importance of not interfering with such laws, with physiological functions that have for their object the maintenance of health and prolongation of life needs no emphasis. Surely the source whence heat, energy, nutrition, repair, and construction of body tissues come should command our utmost care and attention. The alimentary organs must be kept in a healthy, robust condition, so that they may be capable of performing their essential work in as perfect a mode as possible. The richness and fullness of the blood stream that is so vital a factor in enabling these organs to perform their functions adequately enables them also to keep well. Consequently, the abundance, the ease and freedom of the flow of blood-current toward the food apparatus and its associates; its strength, momentum and velocity, its force and rapidity of motion, must not in any manner be deviated from its course or in any way be interfered with.

There are various factors within or without the limitation of human control that do not permit a careful adherence to these axioms, these self-evident truths. The body, as a whole, may be anemic, poor in blood quantity or quality, the blood that is to be utilized for digestive purposes will be correspondingly poor. Metabolism, as a result, will be inefficient. The blood may be distinctly diseased. It may be loaded with excesses of normal waste products, or it may contain abnormal wastes—poisons formed as a result of disease or perverted body functions. The organs concerned in metabolism will then be poisoned by the toxins brought to them by the blood, their functions will naturally become imperfect. The mucous covering of the gastrointestinal tract may be injured by animal parasites, vegetable bacteria, and their poisonous products. It may be eroded or ulcerated through food irritants, alcoholic excesses, fermentative or putrefactive processes. The glandular elements situated within that apparatus become involved in the degenerative processes and cannot do their work effectively. The body may at some points be firmly constricted by tight bands or improper dress. It may, through faulty posture, be badly twisted or sharply bent, the blood vessels form acute angles which impede the flow of blood toward the gastrointestinal canal and its appendages and accessory aids. Digestion is thus impoverished. Other organs, those not concerned in metabolism, may, at the height of digestion, be kept active or overactive, and as tissues at work require more blood than tissues at rest, the blood that is essential for purposes of digestion may be detained in the parts that are at work, not enough being left to supply the needs of the instruments of metabolism. Furthermore, as every body action is always followed by an equal and opposite reaction resulting in the formation of poisons of quantity and strength corresponding to the intensity and prolongation of the action, the activities of one's voluntary organs occurring simultaneously with those of the organs of digestion must necessarily result in an overloading of the system doubly with the by-products of work and by-products of metabolism, both as similar as detrimental in their influence upon health and life. Hence the frequently encountered autointoxication, self-poisoning, the economy, producing more waste than it can eliminate, becomes overloaded with it, oversaturated, becomes self-intoxicated.* (See my paper on "Food and Drug Idiosyncrasy," published in the *Interstate Medical Journal*, Vol. XXIII, No. 7.)

The importance, then, of complete and sufficient rest after meals is self-evident, and needs neither argument nor emphasis. It is simply a question of health's progression or retrogression, a problem which may finally resolve itself into "to be or not to be." The entire body must either rest during active digestion, so that enough blood, enough energy remain unoccupied and go toward the metabolic engine, enabling it to do its work properly, maintaining health, prolonging life and body efficiency in general; or the voluntary factors—the hands, feet, brains, eyes—work in conjunction with the alimentary machine, withdraw the blood from where it is most needed, deprove digestion and assimilation, lay the foundation for morbidity by starting a vicious circle where poor metabolism promotes disease and disease encourages poor metabolism. That the picture just portrayed is not a product of imagination, but a condition existing wide and broad throughout the numerous avenues of life where the nation's masses work, is a fact too evident to be doubted. The time allowed the laborer, the clerk, the teacher, the office man, for a meal is usually one-half, occasionally one hour. This is consumed either in going to and from the place where the meal is had and in actual eating, or "bolting" the cold lunch at the place of employment, swallowing it without adequate mastication, while the time necessary for stomach digestion of an average meal is about three hours. The result of such imperfect equilibrium of body activity, metabolic work on one hand, and voluntary work on the other hand, is the wide spread of alimentary disorders, so prominently encountered in this country. In European industrial centers an equal amount of rest is allowed, but the work in itself is slower, easier, not so rushed, less intense. The proportion of "stomach catarrhs" among the laboring classes is there correspondingly less, while among the rural population of the Old World, where the conditions of rest are good, these "catarrhs" are hardly present at all. The same is more or less true of the American inhabitant of the country district, while among school children chronic gastroenteric diseases are, with an occasional exception, absent altogether. (I have in this respect studied about four thousand children under my care in four Philadel-

*The blood in health is alkaline in reaction. This enables its hemoglobin to carry oxygen throughout the body tissues, which is of prime importance to all forms of animal life. Activity, voluntary or involuntary, causes an oxidation of the essential constituents of the blood, resulting in formation of poisonous complex acid by-products which decrease the alkalinity and increase the acidity of this fluid. Rest enables the liver, kidneys, lungs, and skin to neutralize, break down, and eliminate the formed acid substances and thus restore the normal alkalinity of the blood and therefore its capacity for carrying oxygen.

phia public schools, and found this an absolute fact.) The number of metabolic disorders among a particular class of people is inversely proportional to the amount of rest after meals and directly proportional to the intensity of the work in general. The more the rest and the less intense the work after the intake of food the better the digestion and absorption and the fewer the gastrointestinal disorders are found. Referring again to my observations in Philadelphia public schools, the number of the disorders in question is almost nil, their number increasing as the pupil advances in years and studies, and apparently progressing in leaps and bounds as the pupil leaves school and enters the field of life's vocation, the insufficient postalimentary rest then producing its morbid consequences promptly. The topics dwelt upon are facts the observer cannot help noticing everywhere—in the urban centers of Europe, among the laboring masses of the United States, in the hospital dispensaries or in the public schools.* The improper cold lunch and the rapid mastication play their role in the production of these troubles, but they themselves are products of haste and inefficient rest.

And not only has nothing been done throughout the centuries of progress and civilization to combat and counteract this abnormal state of work, food and rest, but conditions, as I pointed out several times, are actually constantly getting worse. The one-day-a-week rest established thousands of years ago by founders of religions and patriarchs of nations was good enough in the days of yore for the ancient man, worry free, unmarred by problems of turbulent civilization, but certainly not for the modern man, burdened by uncertainty, anxiety, competition, rapid locomotion, machinery with its rush, dangers, incidents, and accidents, a life full of nervous stress and strain. Under these circumstances the old one-day-in-a-week, the ancient form of rest, steadily increases its morbid influences on the overworked, exhausted apparatus of digestion and assimilation. Surely, something ought to be done in the direction of ameliorating this neglected, deplorable state of affairs.

The economic value of such a measure is beyond dispute. It will render both better health and better work, and "health is wealth" says an old proverb. The pungency of the epigram is not only proverbial, but can actually be measured in dollars and cents. The food that is more expensive is of better quality, renders more nutrition, heat, and energy, and conversely the more nutrition, heat and energy it renders the higher its pecuniary value. But in order that the food may yield these desirable results it must undergo a series of changes within the gastrointestinal tract. The more perfect these changes are the more nutrition, heat and energy the food furnishes the better the object for which food is highly prized is accomplished. In other words, the longer the rest the individual is allowed after meals the more perfect the digestion and the more abundant its final products are the higher the worth in dollars and cents of the food utilized.* But is it necessary to argue on bases of economy where a question of public health is concerned?

The problem is a serious one, and is assuming constantly growing proportions. A point has been reached where this regrettable condition is beginning to jeopardize public health, aye, national health. Something ought to be done to give our children prophylactically, and our toilers actively, more rest and less study, less work after meals to insure rectification and perfection of the vital processes of digestion, absorption, and assimilation.

Epitome.—1. Life depends upon the proper correlation of all the physiological processes of the body.

2. Metabolism is a complex physiological process of utmost importance, furnishing the body with nutrition, material for repair and construction of tissues, heat, and energy.

3. The organs concerned in the metabolic functions depend upon the blood for energy and "raw material" from which they produce the various substances essential for digestion.

4. In response to that need, the system, through a series of nervous stimuli, directs a rich stream of blood toward the alimentary organs, so that their work may progress uninterruptedly.

5. Any tissue at work requires an increased quantity of blood for its increased activity. If, then, tissues not concerned in metabolism are at work during active digestion the blood is drawn away from the gastrointestinal tract and the food apparatus does not get sufficient blood for efficient work, the result is necessarily unsatisfactory.

6. In order that the blood may flow freely toward the organs in question it is essential that the rest of the body remain quiescent during active digestion.

7. Any action in the body, voluntary or involuntary, is followed by a corresponding production of wastes which are poisonous in nature. If the work is moderate, and followed by sufficient rest, the waste is removed by the diverse organs of elimination. If one works during active digestion the system becomes overloaded doubly with the products of metabolism and those of work. The body thus becomes autointoxicated—poisoned with its own toxins.

8. Impaired digestion causes anemia, and anemia handicaps digestion. A vicious circle is thus formed which often leads to fatal results.

9. The amount of after-meal rest of the modern worker is practically nil. The sequence is the numerous broad and widespread disorders of the gastrointestinal tract and its associates, as well as numerous diseases stimulated indirectly by bad digestion.

10. The condition described has about reached a stage where the health of the nation is becoming endangered, and unless the growing evil is remedied promptly it threatens to assume such proportions as to become beyond control.

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*In the study of hundreds of cases in the neurological clinic of the Mt. Sinai Hospital I have found almost without exception all patients suffering from chronic gastrointestinal disturbance of one kind or another. Figures which I intended to collect became superfluous after I found these conditions practically "universal."

*The body takes in a certain food material, retains some of it for body needs and gives the rest of it off as excreta. This is termed the balance of matter. Sufficient rest after meals enables the body to retain more food material, eliminate a more perfectly broken-down waste, absorb a purer final digestive product, obtain better nutrition, more heat and energy—secure a more profitable "balance of energy."

Military Medicine.

Hookworm Infection in the Army.—In certain of the Southern States, perhaps in Georgia and Florida notably, hookworm infestation is of frequent occurrence. It follows that among the enlisted men drawn from these States, there may be expected a considerable number of cases of this debilitating and troublesome form of infestation In order to arrive at an approximate estimate of the prevalence of the disease Captain Robert A. Kielty, M. R. C., and Major C. W. Havercamph, M. C., U. S. Army, conducted a survey for uncinari Americana among 8,277 soldiers, who had resided in Southern States. The findings resulting from this survey, published in *The Military Surgeon*, March, 1918, were valuable and instructive. Georgia led in the number of cases with the large percentage of 23.3, while West Virginia was low with 0.5 per cent. Several interesting points were brought out. For example, the influence of uncinariasis on the incidence of typhoid fever was suggested by the following figures. The positive cases gave a history of typhoid in 227, or 15.0 per cent., while the negative cases gave 705, or 11.4 per cent. This indicates a slight predisposition to this disease. The incidence, 932, or 15.1 per cent. of the total, gives the figure for potential typhoid carriers in the entire camp. Comparing this with the present incidence of typhoid at the camp in which the investigation took place, suggests the value of antityphoid prophylaxis and what might be expected if this procedure were not carried out.

Parasites other than hookworm were not especially sought for, but when found were noted. The eggs of taenia and tricocephalus dispar were the commonest. In discussing the investigations the authors point out that the importance of this survey lies not in the interesting data obtained but in the final results attained by treatment. Every aid given to the physical welfare of the fighting man will make the percentage of the fighting units efficiency that much greater. In the insidious nature of the infestation with hookworm, which takes the stamina out of the individual, which makes him a thin, stoop-shouldered, anemic skeleton, ready to receive any infection coming along, and once infected leaves him without combative resistance, lies the importance of a survey for its eradication.

The following conclusions were drawn from the survey: (1) 6,159 examinations of feces for uncinaria eggs were completed; 4,504, or 24.4 per cent., were found positive; (2) the work was accomplished in less than a month by a detail of fifteen enlisted men with the cooperation of regimental surgeons in the collecting of specimens and the administration of treatment; (3) oil of chenopodium was used in approximately 5,000 doses without untoward manifestations; (4) reexamination of all the positive cases, three weeks after treatment, is now in progress and indicates that good results are to be looked for; (5) a second treatment has been given in a few cases and a third and fourth is contemplated, until all cases are cleared up as nearly as possible; (6) the outcome of such a survey should result in a more efficient fighting force, a diminished susceptibility to contagious disease among the men and an increase in resistance, should infection be contracted.

Treatment of Open Wounds.—With regard to treatment by pastes Capt. W. Bernard Secretau, writing in the *Clinical Journal* for June, 1918, says the best known and by far the most used paste is bipp, which is applied according to the following technique. The wound is explored with the finger and cleaned by means of dry sterile gauze, which is thoroughly rubbed into every recess. Gentle curettage may be required. The cavity is then mopped out with methylated spirit and dried with gauze. A good coating of bipp is next applied to the whole surface of the wound by means of the finger on gauze. The wound may then be plugged with gauze impregnated with bipp, which is left in for six or seven days, or, better, partially or wholly sewn up at once. In wounds of a chronic nature, which although septic have not produced pyrexia or other signs of toxemia, Secretau always endeavors to suture. He admits that he does this, such is his faith in bipp, without having recourse to a pathological investigation, as is usual in the Carrel-Dakin method. The outer dressing, whether the wound be plugged or sutured, is of dry sterilized gauze.

As for treatment by infection with the Reading bacillus, Secretau says that the discovery of the method arose in rather a romantic manner through the salt pack treatment. Major Joyée noticed that certain cases which had been salt packed failed to acquire the characteristic foul odor, and, strange to say, these very cases usually did badly. On talking over the matter with Dr. Donaldson, it occurred to them that in the evil smelling and successful cases a bacterium was present which was absent from those which did not smell. Eventually Dr. Donaldson succeeded in isolating from these foul-smelling wounds an anaerobic bacillus which in cultures produced the characteristic odor noted above. This bacillus possesses active protolytic properties, at once suggesting its function in the wound, viz., the digestion of dead tissue; or, in other words, the destruction of the breeding ground of the pyogenic bacteria. Experiments on animals having proved that the anaerobe was nonpathogenic, at least to the animals employed, a wound which had been unsuccessfully treated with salt packs was inoculated with a living culture of the bacillus and again packed. The result was an entire success. In a short time the temperature fell, the foul odor developed, and a day or two after the removal of the packs the wound was clean. A number of further cases were tried, also with good results. In these it was found that the salt was an unnecessary part of the treatment. Wounds sewn up with the organism and packed tightly with sphagnum moss did equally well, suggesting that the salt bags merely acted by plugging tightly the wound and thus keeping it anaerobic. Dr. Donaldson has named his bacterium the Reading bacillus. Secretau looks upon secondary suture as one of the greatest advances made in wound treatment during the present war. It often shortens a man's convalescence by months, it perhaps allows us to convert a compound frac-

ture into a simple one—a thing of joy—and by diminishing scarring, it greatly simplifies any subsequent orthopedic operation that may be necessary.

Uniform Physical Standard to Govern All Examinations.—Uniform standards of physical examination governing the entrance to all branches of the armies of the United States for the use of all medical officers of the Army and of local and medical advisory boards under the selective service regulations have been published. It is believed that adherence to these new rules and regulations by the local boards will result in uniform examinations in all parts of the country and should prevent men physically disqualified for military service from being sent to camps. At the same time the new standards will enable local physicians to make examinations with a better understanding of the needs of the Army. These new standards are applicable to the Regular Army, National Army, and the National Guard. Explicit instructions are given as to what classes of men may be accepted pending treatment for remediable defects. Hitherto the standards of the three armies have differed and instances have been noted where men who have been rejected for service by the recruiting officer of the Regular Army have been accepted for military service by draft board physicians. Under the new standards this will not be possible unless the disqualifying defect be subsequently removed. The rule for all three armies is that to make a good soldier a man must be able to see well, have comparatively good hearing, his heart must be able to stand the stress of physical exertion, he must be intelligent enough to understand and execute military maneuvers, obey commands, and protect himself, and must be able to transport himself by walking as the exigencies of military life may demand. The exceptions made to this rule are in the case of men accepted for special and limited service.

Addition to Fox Hills Clearing Hospital.—The War Department has issued a statement showing that, under the Construction Division of the Army, a forty bed hospital ward was recently erected and ready for occupancy in 10 hours and 38 minutes. This building is an addition to the Fox Hills Clearing Hospital, known as General Hospital No. 10. The structure completed in this brief time is 156 feet in length, 24 feet wide, and has a porch running along one side of the building. During the course of the day nearly one thousand men worked on the building and by night the finished building was completely wired, the lights ready to be switched on, water running in the pipes, the radiators set, and fire extinguishers were hanging on the wall. The Construction Division of the Army is prepared for similar work in all the cantonments should the necessity for increased hospital facilities arise.

Safeguarding Health of Soldiers at Sea.—The Bureau of Medicine and Surgery of the Navy has a set of regulations for protecting the health of American soldiers on the transports going to France. Before embarking a thorough examination of troops is made by Army medical officers to eliminate the sick. Within five days of sailing the commanding officer of the troops submits to the senior naval surgeon a statement that all of his men have received protective vaccinations; if any have not those men are vaccinated. After embarkation all troops must spend at least an hour and a half daily on deck, each man bringing his blanket to be aired. Commanding officers must see that their men receive thirty minutes of physical exercise during this period. The men are expected to stay in the open as much as possible. All men and their effects must be inspected twice weekly by medical and commanding officers to detect the sick and make sure that the men are obeying the rules of hygiene. The men sleep "head and points" to prevent as far as possible the spread of infection by coughing. Every man has to take a shower bath daily and change his underclothing at least once during the voyage. Guards are stationed day and night at drinking fountains and other points to enforce cleanliness.

To Train College Students for Medical Corps Officers.—The Medical Department of the Army, through the National Research Council, expects shortly to issue an appeal to American Colleges and Universities urging them to alter their curriculum so that third and fourth year students may receive special training which will qualify them as officers and for other work in the Medical Department. The heads of all such institutions are requested to write to Dr. Richard M. Pearce of the National Research Council, Washington, or to the Division of Laboratories, office of the Surgeon General, for details of the proposed plan. The course proposed by the Medical Department should appeal to men who are specializing in biology, zoology, plant pathology, and agricultural bacteriology. After completing such courses arrangements for enlistment can be made through the Surgeon General's office if the applicant is under draft age, and if of draft age he can be inducted into the service and assigned where his special training will be of value. This plan has already been tried in two colleges and has been attended with such success that the Medical Department desires it applied to as many colleges as possible.

The National Association of Military Surgeons has received authority to hold its annual convention at Camp Greenleaf, on October 13, 14 and 15, 1918. An even more enthusiastic meeting is expected than that held at Fort Benjamin Harrison last year.

Surgeon-General Calls for More Nurses.—Surgeon-General Gorgas, on August 3, issued an urgent call to the American Red Cross to enroll 1,000 nurses a week for the next two months for immediate duty with the Army Nurse Corps. With the American armies entering more and more actively into the fighting overseas, Surgeon-General Gorgas says the need for more nurses has become imperative.

Campaign to Enroll Nurses.—The two weeks' campaign for the purpose of enrolling 25,000 volunteer nurses began on July 29. Surgeon-General Gorgas has written a letter to the heads of state committees on National Defense urging women between the ages of 19 and 35 to enlist before the campaign closes on August 11. He points out that the Army alone will require 25,000 nurses before January 1, 1919, and that about 13,000 of that number have been enrolled.

Dr. **William J. Condon** of New Brunswick, N. J., serving with the American Army in France, is reported wounded in action and undergoing treatment in a French hospital.

Technical Students Exempt from Draft.—Martin Conboy, Director of the Draft of New York City, has sent a notice to the local boards here announcing that students taking medical and technical courses in subjects considered essential to the conduct of the war be immediately placed in Class 5. These registrants must be attending a school recognized by the War Department's Educational Division. The order includes medical, engineering, chemical, physics, and certain technical students.

Massachusetts Doctors Get Special Call.—All physicians and surgeons in Massachusetts who are within the draft age and are in Class 1 have been ordered into military service. The registrants are to be inducted on August 11 and are to report at Fort Slocum, N. Y., where they will receive special training. These men are to be inducted regardless of whether they are physically fit for general or special service.

Influenza Among German Reserves.—A report from The Hague states that a special German correspondent writes that the pandemic influenza has attacked the troops held in reserve in Berlin and is having a very bad effect. It is said that underfeeding causes many attacks of the disease to end fatally that otherwise would have no such ill effect.

New Red Cross Hospitals.—Four new tuberculosis hospitals have been installed in Europe by the American Red Cross at a cost of $100,000. One of these is for the National Railway Union of France and another is for Serbian tuberculosis cases. A suggestion from the Army Medical Corps that a half-way hospital would be desirable close to the battle front in a certain section of France recently met with a ready response from the American Red Cross, which twenty-five days after the selection of a site had a 600 bed hospital ready for occupancy. The hospital is called a tent hospital, but is much more substantial than the name would indicate and has the advantage of being easily movable to meet the needs of the troops as they advance or retreat. The report of the American Red Cross for the month of July shows that, working in conjunction with many civil welfare agencies in France, 412,566 civilians have been aided during the month. During June seventeen civilian hospitals, having a total capacity of 1,698 beds, were opened in France. The society has also established 61 dispensaries in or near the war zone, where 45,028 women and children were cared for. The report shows that 45,000 refugees passing through Paris were aided during the month, immense quantities of food and clothing being distributed. There was a total increase, in June, of 85,000 civilians aided over the highest number for any previous month during the war.

Hospitals Ask the Government to Cooperate.—A special meeting of the War Committee of the American Hospital Association was held in the New York Academy on June 3, to consider ways and means of meeting the shortage of physicians and nurses in the civilian hospitals. After the serious situation confronting the hospitals was set forth, the following resolutions were adopted: "Resolved, That under the direction of the Federal Health Administrator or other suitable Federal authorities, a program should be prepared for maintaining an adequate supply of medical students and properly trained physicians during the war. In so far as the extension of the existing facilities for training may become necessary the means for such extension should be provided by the Government. Surveys in medical and nursing fields which have already been undertaken by the Governmental and private agencies should be extended, coordinated and completed. A program should be prepared and carried out in cooperation with the military authorities for the most effective disposition of students of medicine who are of draft age and for the modification of their training to meet war requirements. Medical institutions, physicians and nurses should be brought under the direction of the Government whenever necessary to secure adequate attention to the needs of the civilian population. A resolution was also passed asking the Red Cross Relief Commission to investigate the shortage of hospital personnel and to report what could be done to help institutions compelled to compete with the Government in the matter of salaries.

New United States Ambulance Ship.—The former Ward liner *Saratoga* has been fitted up to serve as an ambulance ship between this country and the American naval base abroad. The ship has been renamed the *Comfort*. It is the first American hospital ship to enter the war zone. The present plans are to send the ship unconvoyed, notifying the German Government of the ship's intended voyage and its purpose. The vessel will bear all the distinguishing marks prescribed by the Geneva convention. It seems like a foolhardy undertaking to trust to the honor of Germany, for that country has shown by its sinking of English hospital ships and its bombing of our hospitals and those of our Allies that it has forgotten, if it ever knew, the meaning of that word.

Hospital Provisions for American Soldiers in Paris.—The American Red Cross has provided 3,000 beds for American soldiers in the Paris district and 1,000 more will soon be ready.

Red Cross Supplies Stolen.—An organized syndicate has been systematically stealing goods from the Red Cross in Boston for some time past. It is said that thousands of dollars' worth of goods have been taken from trucks during the driver's absence. Huge stocks of supplies have been found in the shops and homes of three cobblers, who were recently arraigned in the Dorchester District Court on the charge of stealing these supplies.

Army Dentists.—Speaking at the annual meeting of the National Dental Association in Chicago on August 6, Surgeon-General Gorgas said that the work of the army dentists was of double value. "In the first place, they help to keep the general health of the army up to a high standard, and, in addition, the dentists are doing wonderful work in reconstructing the faces of soldiers who have received head wounds from shrapnel."

Lieutenant-Colonel Mortimer Sanderson, Medical Corps, U. S. Army, died at Camp Cody, Deming, N. M., from mastoiditis, on August 1, aged 32 years. He saw service in the Philippines and on the Mexican border.

MEDICAL RECORD.

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THE INFANTILE PARALYSIS CONTROVERSY.

THE rational prophylaxis and therapeusis of an infectious disease rest chiefly on the identification of its specific etiology. In this connection one only has to cite the wonderful results obtained from prophylactic inoculation against typhoid fever and the antitoxin treatment of diphtheria. Without knowledge of the microbic causes of these two diseases, preventive measures in the first-named infection and curative measures in the second could never have been developed to the high degree of efficiency which they have attained. The infantile paralysis situation has not yet reached this desirable level, due probably to the technical difficulties encountered in working with the etiological factor, which is believed to be in the nature of a filterable virus, a far more intangible agent to handle than the readily demonstrable typhoid or diphtheria bacillus. The globoid bodies originally described by Flexner and Noguchi are now regarded by the majority of investigators as the cause of the infection. Some students of the disease, notably Rosenow, claim that certain forms of streptococci play an etiological role. In fact, he and his coworkers go so far as to state that the streptococci which they isolated from the cerebrospinal fluid and tissues of poliomyelitic cases are biologically related to the globoid bodies. This statement has been disputed by Amoss and Eberson, who positively affirm that streptococci are in no way akin to the globoid bodies, and, what is more important, that they are of no etiological significance.

As a result of this difference of opinion in respect to causation of the disease, it is evident that the problem of specific therapy and prophylaxis offers two contingent means of attack based on immunological grounds. One group has employed serum from convalescent and recovered cases of infantile paralysis in the treatment of the infection, with favorable results. On the other hand, Rosenow, working on the basis of a streptococcus etiology, claimed considerable success from the use of a serum prepared by immunizing horses against streptococci isolated from poliomyelitic cases. Amoss and Eberson point out (*Jour. Exper. Med.*, Feb., 1918) the well-known fallacy of drawing conclusions from a small group of cases, and assert, in order to arrive at a decision from the treatment of human patients, a large and varied series of observations would be required extending over a long period of time and embracing epidemics of wide magnitude and various degrees of severity. These workers were able to demonstrate experimentally that Rosenow's conclusions are based on incorrect premises. In the first place, they tested the ability of the immune streptococcus serum to prevent a poliomyelitic infection arising in a monkey after an intravenous injection of the virus. Secondly, they compared this serum with the serum of immune monkeys as regards the antibody content. They were able to show conclusively that Rosenow's serum is ineffective therapeutically in monkeys, and does not possess antibodies of the same nature as those present in the blood of animals which have recovered from poliomyelitis. Since the antibodies in man and the monkey are identical, it follows that any antibodies in the immune horse serum do not conform to those occurring in convalescent human patients. The logical deduction to be drawn from this reasoning is that streptococci are not the cause of infantile paralysis. The weight of evidence is certainly against the possibility of any such pleomorphism of the organism as contended by Rosenow. It is therefore safe to say that the relation of the globoid bodies to the etiology of the infection remains unimpeached. Beneficial results purporting to be derived from the injection of antistreptococcic horse serum cannot be attributed to any specific action on the part of the serum. It is highly probable that the streptococci which have been found in cases of poliomyelitis by various investigators are secondary invaders of a host already infected with the true virus of the disease.

THE SUPERSTITIOUS SURGEON.

SOME say that the all-around practitioner who treated typhoid, set broken bones, operated on hernias, prescribed glasses, and even in a pinch pulled teeth, is becoming a tradition only. Except in the most sparsely settled regions of our country his place has been taken by the internist, the surgeon, the ophthalmologist, the dentist, the orthopedist, *et id omne genus*. And of all these specialists the surgeon is the most superstitious. Let us inquire into this. The family physician usually knows his patient from his grandfather down to his children. He is aware of the family tendency towards stoutness, their idiosyncrasies for cabbage or quinine. When called upon to treat them he does so with one eye on their symptoms and the other on the family chart. He can predict almost exactly how long and how severely they will be ill and how quickly they will convalesce.

But the surgeon of to-day has no such special knowledge. He is summoned, we will say, to see a patient with appendicitis. He arranges for an operation that afternoon at four and hurries away.

He operates, perhaps he dresses the wound once or twice and it may be removes some stitches and then never sees the patient again. Nowadays, of course, infections are rare. But occasionally one does occur inexplicably. Then the surgeon is blamed, the patient and his friends are alarmed, and a little ripple of disrepute goes out to do who knows what harm to the operator's standing. The surgeon prepares himself in the same way for every operation, neglecting no detail. But when he steps into the operating room and takes his scalpel and forceps he is in the realm of chance. A mistake by his assistant, a slip by the clean nurse, one little germ wiggling through the circumambient atmosphere may nullify all his labor and skill. One little deviation of his knife and an artery or gut is cut, doubling the labor and prejudicing the result. Too much handling of the intestines and shock follows; too little and some important condition is overlooked. A drop of pus escapes from the protecting gauze: peritonitis and death; the assistant makes a mistake of one in counting the sponges: a law-suit and heavy damages. And with it all, beyond all the eventualities which can be traced as attributable to human fallibility, there are those cases which do badly for no discernible reason. The big, healthy looking man comes to the surgeon for an interval appendectomy; it is a clean operation and everything goes smoothly for two or three days. Then his pulse goes up, he begins to sink, and dies. Or ether pneumonia supervenes in spite of the expert anesthetist and perfect post-operative care.

Small wonder then that the surgeon gets to believe in the Goddess of Chance. He has his lucky and unlucky days. He does his part with the unerring skill of which he is master. The rest is on the knees of the gods. We know surgeons who will not operate on Friday, who must wear a certain gown, who will not let a red-headed nurse assist them, who will postpone an operation until the next day because they have spilled salt, who must be the last one in the operating room and so on. We all know these and many others. It is no reflection on their skill, but rather an indication of the immense complication and subtleties of the human organism.

During the Civil War out of every 100 wounds 99 became infected and one inexplicably remained free from "laudable pus." Now 99 wounds are clean and one becomes mysteriously infected. In 1950 perhaps infection following any kind of operation will be so rare as to be reported at length. Thus the domain of the unknown is shrinking and medicine may one day take its place among the exact sciences, with no place for chance or superstition.

ANTHRAX FROM SHAVING BRUSHES.

Few diseases are more deadly than anthrax of the malignant pustular type. Fortunately, the infection has been almost as rare as it was fatal owing in part to the low human susceptibility to anthrax and in part to the extreme care taken to disinfect any material in which the germs of the disease might lurk. The most common form of anthrax is the pulmonary or woolsorter's disease; an internal type, to which, as its name amplies, woolsorters are prone when engaged in sorting infected wool. This form is contracted by inhalation of dust containing *Bacillus anthracis*. The most fatal type of the infection is the malignant pustular or malignant edematous, the cutaneous form of anthrax. Recently in this country, several cases of anthrax, apparently due to infected shaving brushes, have been reported to the Public Health Service by the Surgeon General of the Army, and were commented upon in Public Health Reports, July 12, 1918. In Great Britain, during the past three years rather numerous cases, considering the rarity of the disease, have occurred, and a proportion of these have been directly traced to the use of infected shaving brushes. Some of these cases were in civilians, but more among soldiers. Among the British troops in France, there were 28 cases of anthrax from January, 1915, to February, 1917, but although the circumstances strongly pointed to infected shaving brushes as the cause conclusive proof was lacking. From the beginning of the war up to February, 1917, 18 infections with anthrax occurred among the troops in Great Britain, 12 of which were on the shaving area, while four were almost certainly due to shaving brushes.

The British experience is contained in Local Government Board Reports. There were 33 cases of which the outcome was known; 21 of these died, a mortality of 64 per cent. According to the report of R. G. H. Coutts, the case mortality probably appears higher, because it is likely that many mild cases recover without diagnosis. However, there is little doubt that this form of anthrax gives a high mortality; an explanation of this possibly rests in the site, infections of the neck being more serious than those on other parts of the body. It may be said that meningitis due to the anthrax bacillus has been reported from Holland and Great Britain, and one of the recent American cases has been of this type.

As for the kind of brushes to which infection was traced, it is stated in Public Health Reports that 15 of the civilian cases were due to 12 different kinds of brush, 6 of them from one manufacturer. It is, moreover, stated that some of the infected brushes were made from hair which had presumably been disinfected in accordance with requirements. Horsehair from China and Siberia seemed to be that principally involved, and the use of such hair, in ordinary circumstances regarded with suspicion by manufacturers, was owing to the letting down of the bars on the part of the older manufacturers and carelessness on the part of new manufacturers who knew little of the danger of horsehair. With regard to disinfection it appears that black or thoroughly dyed hair was disinfected satisfactorily,

but that there is a tendency to avoid high temperatures in the disinfection of the white hair and of that colored to imitate badger hair.

Now that it is known that shaving brushes infected with the *Bacillus anthracis* are in this country, it is obvious that greater care must be displayed in the selection, inspection, and disinfection of cheap brushes. Possibly, it would be in the best interests of the public health if brushes made from Siberian or Chinese horsehair were not allowed entry into the country and, in any event, such hair should be thoroughly disinfected.

Effects of Shell Explosions.

In the *Archives médicales belges* for June, Hoven gives a summary of our knowledge of this subject as gleaned from a number of first hand reporters. The type of injury considered is limited to commotion of the nerve centres. The proximity is an essential factor, and experience shows that explosions at any distance from one to ten meters may give rise to the same symptoms. The projectiles are of the type commonly spoken of as large, but no exact dimensions are given. The results of commotion are extremely complex. As a rule there is a neuropathic predisposition, but this is not necessarily inherited; it may be acquired as a result of various experiences, especially depression and weakness as a result of military life and hardships. Immediately after the explosion and consequently on the battlefield the commotion may be expressed as coma, or as confusion attended by amnesia. Other subjects show emotional behavior. The more remote disturbances may be nervous or mental. Under the former we may encounter organic manifestations such as paraplegia, the cord showing the greater predisposition. Under mental manifestations we may see acute stuporous or hallucinatory confusion. The prognosis of affections having an organic basis is bad for recovery. In all of the other results of commotion the outlook is favorable. That is to say, the immediate results are good, but sequelæ may supervene after apparent recovery. These sequelæ may be nervous or mental. We may see a hyperemotive syndrome or intellectual disturbances. These late phenomena are of great importance. In certain cases the mental troubles go on to form a psychosis with terminal dementia. The pathogeny of these affections is not understood and at present we have only theories to offer. Only in certain cases do we see organic alterations such as hemorrhage and areas of softening.

Treatment of Epithelioma.

The success which has recently attended the treatment of cutaneous leishmaniosis and other disfiguring processes in tropical regions with antimony appears to have stimulated a research into the subject of the amenability of epithelioma to the same principles of management. Some remarkable cures of noncancerous maladies with a combination of arsenic, antimony, methylene blue, and other substances have influenced De Rezende to test the same formula in epithelioma of the skin. In the *Brazil-Medico* for May 11 he relates that a patient aged 58 years applied to him with a destructive lesion of the left ala nasi. The duration of the malady was 6 years, and after a partial operation the mixture was applied and the ulcerated area promptly cicatrized. In 8 or 10 months a local recurrence was in evidence. The mixture was again applied with the same good result. In the past three years the author has treated in all five cases of epithelioma of the face with his mixture, and in all of the cases has obtained complete recoveries. He seems to have made no effort as yet to simplify his formula, which is somewhat unwieldly, since it contains 10 active substances which are supposed to behave as synergists. These comprise arsenous acid, copper sulphate, methylene blue, methylene violet, quinine bichloride, tartar emetic, camphor, menthol, phenol, and antipyrin. The four last named, in addition to other properties, are all analgesic.

News of the Week.

Big Mills Establish Day Nurseries.—Day nurseries for the care of the younger children of the women employees will be established at the Washington and Wood mills of the American Woolen Company at Lawrence, Mass. The nurseries will be conducted on the group system, one group for the care of very small babies, the next for children from one and one-half to three years, and the third for children from three to five years of age.

Mosquitos Exterminated from Hog Island.—Officials of the United States Shipping Board state that they believe that Hog Island, now the center of a vast ship building industry, is effectually rid of mosquitos. The work involved the draining of a marsh twenty-five miles long at a cost of $250,000. New Jersey has been reluctant to take such steps, but since witnessing this achievement it has been decided to expend $150,000 to drain the Newark meadows near the Submarine Boat Corporation Plant and has instituted work at the Camden yards across the river from Hog Island.

Bacillary Dysentery in Poughkeepsie.—A few cases of bacillary dysentery have again appeared in Poughkeepsie, where the disease has been epidemic during the past two summers. In each instance it has been found that the cases occurring this summer are in families which had the disease last summer. Two persons who were ill with the disease last summer have been found to be carriers.

Hookworm Disease Diagnosed by State Laboratory.—Among the unusual diagnoses recently made by the laboratory of the State Department of Health is a case of hookworm disease in a patient who recently came to this State from the South.

Lake George Health District.—The shores of Lake George have been converted into one health district by an act of the Legislature. This district takes in all the territory bordering on the lake and includes practically the entire watershed, comprising nine towns situated in three different counties. Prior to the creation of the district it was possible for one municipality to nullify to a large extent any attempt at improved sanitary conditions on the part of its neighbors. This difficulty will now

be overcome. The act of the Legislature provides for a full time health officer and a sufficient appropriation to carry on the work in an efficient manner. It is believed that the results obtained under these conditions will justify the creation of similar health districts in other parts of the State. Dr. Minna R. Rohn has been given charge of the district.

Memorial to Dr. Edward A. Trudeau.—A statue, the gift of former patients of the Adirondack Cottage Sanatorium, at Saranac, in memory of Dr. Edward A. Trudeau, will be unveiled on August 10. The memorial address will be made by the Rev. Philemon F. Sturgis.

Dr. William C. Woodward, formerly of the United States Public Health Service, assumed his duties as health officer of Boston on August 1. One of his first tasks is an investigation in conjunction with the mayor's tenement house commission having as its aim the betterment of living conditions in Boston.

Dr. Samuel T. Darling of the International Health Board has been appointed professor of hygiene and director of the laboratories of the Faculdade de Medicina e Cirurgia of Sao Paulo, Brazil.

Dr. Benjamin Mann has been appointed assistant medical inspector in the Philadelphia Bureau of Health.

Dr. J. Torrance Rugh has been elected professor of orthopedic surgery in Jefferson Medical College.

Dr. Elliott Dorn, formerly resident physician and roentgenologist at the New York City Municipal Sanatorium at Otisville, has been appointed superintendent of the "Pleasant Valley Sanatorium," the new Steuben County Tuberculosis Hospital.

Dr. Ernest I. Werber, a German student who has been engaged in research work at Yale University, has been interned in a camp in Utah for the period of the war. The authorities of Yale University have issued a statement saying that the laboratories will for the duration of the war be closed to all but those engaged in work for this Government.

Donations of East River Home Foundation.—The East River Home Foundation of New York City makes the following donations from its net income from the past year: tuberculosis work of the Vanderbilt Clinic and Presbyterian Hospital tuberculosis clinic, each $9,000; civilian tuberculosis relief work in France, under the direction of the American Red Cross, $8,000; the Trudeau Sanatorium, Saranac Lake, and the Loomis Sanatorium, each $3,000; the New York Association for Improving the Condition of the Poor, $2,500; the Stony Wold Sanatorium for the tuberculosis league work, Lake Kushaqua, N. Y., $1,000; the Hospital and House of Rest for Consumptives, Inwood, N. Y., $1,000, and the Henry Street Settlement for tuberculosis nursing, New York City, $500.

The National Medical Association will hold its twentieth annual convention in Richmond, Va., on August 27, 28 and 29, 1918. Surgical clinics will be held at the Richmond Hospital; medical clinics will be held in conjunction with the regular program; motion picture clinics will be held in practical dentistry, and pharmaceutical demonstrations have been arranged. For further information address, Dr. W. G. Alexander, 14 Webster Place, Orange, N. J.

The Montana Medical Association, at its annual meeting held in Butte, on July 11 and 12, elected the following officers: *President,* Dr. E. W. Spottswood of Missoula; *Vice-Presidents,* Dr. C. C. Wallin of Lewistown, Dr. A. R. Varco of Miles City, Dr. A. Karsted of Butte; *Secretary-Treasurer,* Dr. E. G. Balsam of Billings.

Charitable Bequests.—By the will of the late Samuel B. Vrooman of Philadelphia a memorial trust fund of $3,000 is bequeathed to the Lankenau Hospital.

By the will of the late Clara B. Miles of Philadelphia bequests are made as follows: Children's Aid Society and Samaritan Hospital each $2,500; and residuary bequests of $5,000 each to the Home of Our Merciful Saviour for Crippled Children and the Protestant Episcopal City Mission, for the Hospital for Diseases of the Lungs at Chestnut Hill.

By the will of the late Sarah A. C. Lloyd bequests of $25,000 each are made to the Children's Country Week Association, the Children's Aid Society, the Children's Homeopathic Hospital and the Women's Homeopathic Association of Pennsylvania.

Obituary Notes.—Dr. FORBES J. MUNSON died at his home in Brooklyn, N. Y., on July 27, aged 49 years. He was a graduate of the Long Island College Hospital, in 1897, and for more than twenty years a diagnostician of the Department of Health.

CAPTAIN HENRY BURT HERRICK, M.R.C., of Cleveland, Ohio, died suddenly at Brest, France, on June 16, where he was buried with military honors. He was a graduate of the Western Reserve Medical Department in 1891 and was 55 years of age.

Dr. CHARLES WALTON SANDERS, a graduate of the College of Physicians and Surgeons, New York, in 1878, died at his home in New York City, on July 22, aged 72 years.

Dr. WILLIAM A. GILLEN, a graduate of the College of Physicians and Surgeons, New York, in 1906, died of typhoid fever at his home in Brooklyn, on July 29, aged 35 years. He was assistant attending surgeon of St. Mary's Hospital.

Dr. JOSEPH M. CREAMER of New York died at his summer home at Deal, N. J., on July 28, aged 48 years. He was a graduate of the Long Island College Hospital, in 1897.

Dr. HENRY M. LEWIS of New York, a graduate of the Hahnemann Medical College, New York, in 1870, died on July 28, aged 69 years.

Dr. JOHN J. A. DOYLE died at Philadelphia, on July 6, at the age of 43 years. He was graduated from Jefferson Medical College in the class of 1897.

Dr. CHARLES R. F. GREENE, a graduate of the New York Homeopathic Hospital, in 1892, died suddenly at his home in Peekskill, N. Y., on August 1, aged 50 years.

Dr. THADDEUS M. ROHRER died at Quarryville, Pa., on July 30, at the age of 64 years. He was graduated from Jefferson Medical College in the class of 1881. He was for four terms Burgess. He was a member of the Lancaster County Medical Society, the Medical Society of the State of Pennsylvania, and of the American Medical Association.

Correspondence.

THE UNEXPIRED LEASE AND THE UNPATRIOTIC LANDLORD.

To the Editor of the Medical Record:

Sir:—Let me call attention to the following extract from a letter received recently from a captain in the Medical Reserve Corps, U. S. Army, a former practitioner in New York City, now stationed at one of the remote Southern training camps. He says: "They talk about how grand it is for the doctors to give up their practices, but no one seems to think of making things easier for them at home. For instance, I am held for the lease of my office and as far as I can ascertain they intend to hold me to it. By the time I have paid rent, storage, and insurance I have thirty dollars a month left, which is more than taken up by the thirty-five dollars a month for mess, laundry, etc." The writer of the above has given up safety, comfort, and an excellent practice for motives of highest patriotism. Doubtless his case is not unusual, for it appears that many landlords are holding to their contracts men called from civil life to active military and naval service.

The distressing nature of this hardship is evident. I understand that the question has recently been brought before Congress. Is it not possible to devise some method of relief?

D. Bryson Delavan, M.D.

New York.

OUR LONDON LETTER.

(From Our Own Correspondent.)

NOTIFIABLE INFECTIOUS DISEASE DURING 1917—DEATH OF SIR JAMES MACCULLAGH—THE PHYSIQUE OF AMERICAN SOLDIERS—THE GALLANTRY OF THE R. A. M. C.—THE EPIDEMIC OF INFLUENZA—THE LONDON FOOD SUPPLY—MEDICAL CORONERS AND CORONERS' JURIES.

London, July 11, 1918.

The principal medical officer of the Local Government Board has issued a report on the local incidence of notifiable infectious disease in England and Wales during 1917, and the ten months which have elapsed since the completion of this period were fully wanted for the proper preparation of a document dealing with such a multiplicity of figures. One remarkable statement deserves particular comment—only seven cases of smallpox were reported during the year, whereas the average number of cases reported in the previous six years was twenty times as high, namely 140. The immunity of these islands from smallpox is becoming a very gratifying feature of local medical administration. When in April last a smart little epidemic of smallpox broke out in the East and riverine districts of London, there was considerable apprehension of a rapid spread. The localities affected were crowded, and were also the favorite target of enemy air-raids, with the result that the populations were constantly intermixed in the closest manner in bomb-shelters and tube-railways. But those who knew how effectively the sanitary organization of the local government board did its work did not share these anxieties and their optimistic outlook was justified, for "the plague was stayed" in a few days. These cases, however, will restore the smallpox figure in these reports to its average. The only diseases which showed an increased prevalence during 1917 were pulmonary tuberculosis and cerebrospinal fever, but the tuberculosis figure has not gone up by any horrifying amount, being 73,654, as against 72,479 last year. The increase is not so high as was expected, having regard to the possibility of the spread of infection by returned troops. The cases of cerebrospinal fever notified to the health authorities amounted to 1,465 against an average of 1,123 in the previous four years—earlier than that date the cases were not notified. Scarlet fever showed a drop of over 50 per cent., with 45,000 cases notified, while substantial reduction in cases is recorded with regard to typhoid fever and diphtheria. The report is the seventh in succession to be issued from the Local Government Board, and as the series grows longer the more obvious does its utility become as a record of the past from which the sanitary and health policies of the future can be constructed.

The death of Sir James Acheson Maccullagh of the medical staff of the Local Government Board for Ireland, took place last week at Roscommon with tragic suddenness. He was conducting an inspection in his very trying district of Western Ireland when he fell down dead while engaged in conversation. Sir James Maccullagh was a very competent official and sound epidemiologist, but he obtained his knighthood rather for his political services as mayor of Derry than for his scientific achievements.

For some weeks now the streets and railway stations and general places of resort of London in particular, but also of all the other large cities directly connected with the organization for war, have been regularly thronged with American soldiers; for although the bulk of the American Expeditionary Force has been placed upon French soil direct in the extraordinarily gratifying circumstances which were the subject of a recent official pronouncement, a large number in the aggregate have visited England. The common verdict upon the physique of these American soldiers is one that must be highly satisfactory and gratifying to our great English-speaking ally. Medical man after medical man has commented with approval and even admiration on the appearance of the American soldier, his alertness, activity, adaptability, and cheerfulness. To the eye of the medical man with large military experience the American soldier does not conform to the type of the highly finished material which fills the Guards regiments, the Royal Marine Light Infantry, or the Rifle Brigade, for example; but on the one hand the absence of this high finish and demeanor can be no possible drawback for actual service, and on the other, a certain proportion of the American troops whom we see on our streets are receiving the last stages of their training, although so many thousands are now in the fighting line. The medical views on the material of the American Army are extremely cheering, for there is a notable absence among the American soldiers of the kind of defects which are aggravated by the exigencies of war, and there seems no doubt

that the ordinary life of the industrial and commercial population of the United States is carried on under more hygienic conditions than it is carried on in this country. This is a very important matter at the juncture of the war which we have now reached, for time is becoming a factor of the first importance. Thousands upon thousands of English soldiers have gradually been toughened by their experiences and present now a physical makeup which renders them impervious to many ills which at the time of their recruiting would have laid them up. While this is very comforting knowledge—especially comforting as it may be taken in some measure to counterbalance the knowledge that the wastage from disease has been high, it has to be remembered that this "salting" of the British Army is a process which has taken two or three years to develop. It would be an anxious situation if the American Army had to wait so long before it was fighting at top strength, and it is therefore particularly cheering to think that in medical opinion our Western Allies have arrived in Europe ready for the great struggle in which they have already begun to cooperate with conspicuous success.

The latest list of honors and decorations awarded for gallant behavior in the field includes a large number of medical names, and should effectively prove to the public mind that the division of the troops into two categories—combatant and non-combatant—and the relegation of the Royal Army Medical Corps to the latter division is a wholly artificial arrangement. Nowadays, on the immense fighting fronts there are no "non-combatants." Every one in an active zone is under fire from far-ranging guns or aerial machines, and at any moment a particular sector of the line, by concentration of enemy activity, may be involved for miles back in the fiercest forms of combat. It is only two months since I commented upon the fact that the latest official Gazette contained the details of the heroic actions performed by no less than 96 medical officers serving with the British Navy and Army. The accounts are now published of the gallant behavior which has led to the decoration of 53 officers, all members of the Royal Army Medical Corps, of whom 44 have received the Military Cross, 6 the bar to the Military Cross, 2 the Distinguished Service Order, and 1 the bar to the Distinguished Service Order. The exploits of Colonel Arthur Carr Osburn, the winner of the last-named and very rare distinction, are thus officially set out: For conspicuous gallantry and devotion to duty. On seeing the enemy approaching close to his dressing station, he carried out the evacuation of the wounded under heavy shell and rifle-fire in the coolest and most gallant manner. Having cleared away all cases by ambulance train and cars, he restablished his dressing station further in the rear. As officer commanding a bearer division he constantly inspected his line of bearer-posts and forward dressing stations under heavy fire. The successful evacuation of the wounded from the divisional front was due to his careful organization and fearless supervision under the most trying conditions. His was an example of gallantry, courage, and resource worthy of the highest praise.

There is clearly nothing "non-combatant" about services of this kind; on the contrary, military routine and resourcefulness were alike employed by Colonel Osburn in circumstances of the greatest possible difficulty and danger.

The epidemic which has fallen with considerable rapidity on all classes of our population, civil and military, shows as yet little signs of dying out. It has now been apparently promoted to a name and is definitely termed "influenza," although a good many cautious authorities consider that there is no proof that many of the cases are influenza. The clinical features, as they have appeared in England, match very well with those of the first cases in Spain and the South of France, and also resemble the cases which we know to have broken out in the Bavarian army. Headache, pain in the back, nasal and pharyngeal catarrh, and a high temperature for 48 hours are the usual symptoms. Invasion of the respiratory tract is not common, though a certain number of deaths from pneumonia have been recorded; but in addition to the pulmonary type of the disease there is a malignant type, where the onset is sudden, where coma and delirium supervene rapidly and where death takes place within 24 hours. One reason why the widely spread epidemic is not universally accepted as influenza is the absence of the bacillus influenzæ from the exudate in the upper air passages. Attacks of so-called influenza are often due to other organisms than the *Bacillus influenzæ*, but on the other hand it is a little against the scientific grain to label the disease influenza when Pfeiffer's bacillus is frequently absent. Serious bacteriological study of the pandemic has however now begun, with the probability that its epidemiology may become clearer.

The starvation of England by the German submarines never for a moment looked like a possibility, but it is a curious thing that London, the capital of the Empire, should have suffered from the restricted food supply more than any other city or district. At any rate, this is a proof that rationing was conducted on democratic lines, for it was the wealthiest center that was the worst served. London was the only great city where medical men had difficulty in obtaining those extras which certain patients require when fighting against injury or disease. And even now, with the U-boat menace a thing of the past, it is in London where the excessive prices, produced by the dread of scarcity, rose to the highest point and where these prices have most conspicuously failed to descend. National restaurants and national kitchens are selling meals at half the prices demanded in restaurants and by caterers, and medical men, whose patients are going short in their homes and in nursing institutions, are beginning to think that there should be a limitation to the profits of purveyors.

A generation ago it was a perpetual subject of discussion in medical and legal circles as to whether the coroner should be a lawyer or a medical man. There is nothing in any British Act of Parliament which makes it necessary that a coroner should be of either profession, but from the sixteenth century onward the office fell regularly into the hands of the legal profession. The in-

quiries might, in many instances, be of great criminal importance and it was considered to be safer for the community that such inquiries should be conducted by lawyers rather than by those unfamiliar with legal formalities.

This view was rudely challenged in London nearly 100 years ago, where a strong feeling became manifested, owing to the conduct of certain coroners' inquests, that the right person to preside over an inquiry into the causes of sudden death was a doctor and not a lawyer. One of the chief champions of this view was Thomas Wakley, Member of Parliament for Finsbury and editor and founder of *The Lancet*, who became one of the coroners for the metropolis, and in many large towns the precedent was followed, medical men being elected to preside over these courts of first instance. A reaction against the tendency in the important centers to appoint doctors as coroners was caused by the celebrated Bravo case in 1876. Bravo, a wealthy barrister, died of a dose of tartar emetic, how and when administered never being discovered. There were two inquests at which an enormous amount of irrelevant evidence was admitted and at which the real problems were never elucidated. The coroner was not a lawyer, and it was wrongfully assumed that he was therefore a medical man, but he seems to have belonged to neither profession. The impression left on the public mind, however, was that the coroner's inquest was a legal inquiry, and that the ends of justice might be defeated if a lawyer did not preside over the court. This view has gradually waned, and a reaction in the big cities toward the appointment of medical men has taken place, but most medical men consider the coroner's jury to be to-day a complete anachronism. Of what use can it be to explain pathological details to a tribunal of so low a standard of education? Medical men would probably prefer that the post of coroner should be held by a lawyer, with whom there should sit, as medical assessor, a physician to advise the court as the bearing of the medical evidence given; the court delivering the verdict without the hampering assistance of an ignorant jury.

OUR LETTER FROM PARIS

(From Our Own Correspondent.)

AMERICAN HOME FOR SOLDIERS IN PARIS—CIVIL WORK OF THE RED CROSS FOR MARCH—PROFITABLE WORK FOR THE BLIND.

PARIS, June 25, 1918.

THE American Home Service for soldiers and sailors abroad is increasing its activities daily, and Mrs. Weeks is taking a new Paris home for them and also a beautiful big villa at Aix-les-Bains, where they are to have every comfort. The new Paris home is located at 21 Avenue des Champs Elysées. The apartment is more spacious than the present quarters and being near the new Headquarters of the army, the soldiers will probably find it more convenient. In the new, as in the present quarters, tea will be served every afternoon free of charge. There will be lounging and writing rooms and a few bedrooms, where those who come to Paris for a night or two can have accommodations for a few francs. There will also be a complete library containing good books and magazines, and above all there will be that personal touch about the place that only a mother can give, and especially a mother who once administered to the wants of a son who gave his life for France. The branch which has been opened at Aix-les-Bains will serve the men on leave in the same way. Mrs. Harris has charge of the work there, and will be assisted by some of the American girls who have helped Mrs. Weeks in Paris.

The Home Service is becoming widely known among the soldiers, and Mrs. Weeks says that recently the results of the work are beginning to show in the letters which she has been receiving from the men. The name of each man is put on file and all of the details about him, even down to his personal experiences at the front about which he has written, so that any information can be communicated to his relatives in America in case the soldier himself is unable to write. After May 15 American soldiers in Paris are invited to make themselves at home in the new quarters at 21 Avenue des Champs Elysées.

The March report of the Civil Affairs Department of the American Red Cross contains highly interesting facts and figures regarding the aid given to refugees and soldiers in the first phases of the present German offensive. The number of persons aided is shown to be surprisingly great. Food, clothing, transportation, or shelter was given to 23,479 refugees during the offensive in March, while food was given to 83,000 French and American soldiers served in emergency canteens. The remainder of the report shows a vast increase in the work of the Civil Affairs Department throughout France. Work is being carried on in 121 cities and villages, without counting nine temporary emergency stations for refugees' work in the war zone and two temporary emergency hospitals. There are eight civilian hospitals, with a total of 1,051 beds, and forty dispensaries giving medical care to tuberculous refugee children, and 1,500 children refugees from the war zone are being housed and given medical care in three refugee homes. The refugee work has been extended to twelve new departments, so that seventy-one delegates and associates are now covering fifty-eight departments in France in the care of repatriated and refugees outside of the war zone. During March, 16,956 persons, of whom 12,000 were children, received medical care in hospitals and dispensaries. Medical relief was given altogether to 106,480 persons, of whom 51,000 were children, and 4,849 refugees were housed. These figures do not include the refugees and soldiers who received aid in the recent German offensive.

The farm for the re-education yearly of 300 French war cripples was organized in March. Thirty thousand Paris school children received supplementary food for déjeuner during March. Employment in other services was found for 5,554 refugees, making a total of 168,318 civilians aided during the month. Sixty-six thousand of these were children, 10,141 tuberculous, and 84,777 refugees, including children and residents of the war zone, and 8,500 French war cripples. The increase over February in the number of civilians aided is 65,344, or 63 per cent.

The money donations to outside organizations during March totaled 391,802 francs, of which 57,915 francs went to the tuberculous, 222,209 francs to refugees, 27,850 francs to reconstruction and relief of the devastated area, 31,503 francs to children, and 52,802 francs to war cripples. The goods distributed by all bureaus through delegates included 119,149 garments, 11,998 pairs of shoes, 79,716 articles of furniture and household utensils, 67,326 articles of bedding and household linen, 35,100 yards of cloth, 362,463 pounds of food, 3,420 articles of hospital equipment and supply, 955 tons of coal, 2,947 agricultural implements, and 11,471 miscellaneous articles. The staff of the Civil Affairs Department on April 1st numbered 738, of whom 75 were physicians and 121 nurses.

Soldiers of France blinded in the war are to be given an opportunity of earning their living in the electrical industry through the generosity of the Thomson-Houston Company, whose president, M. Charles Laurent, yesterday notified all interested organizations of the scheme. In his letter, which was sent to all the societies and hospitals associated with the reeducation and care of blinded soldiers, M. Laurent says, in part: Desirous of assisting our country by providing employment for the soldiers of France who have been blinded in battle we have decided to establish workrooms for them, where they will be able to earn a good living winding armatures for motors after the system introduced by Dr. Schuyler S. Wheeler of New York, who has successfully employed a large number of American blind in this work. It has been demonstrated that the blind are especially adapted to this work, owing to their sensitive and skilful fingers. The work is not arduous and is easily learned. There is also plenty of it, and the blinded soldier can rest assured that he can work at it when and as long as he likes. The work is paid for by the piece; that is, according to the amount of work done, so as to leave the soldier complete freedom of action. In its first stages this work consists of insulating the coils used in building up the armatures for motors and dynamos. The primary insulation is done by winding the bare coils with various kinds of tapes. Dr. Wheeler yesterday gave a brief description of his experience with the blind in this work, which was started by him less than a year ago, at the electrical factory of the Crocker Wheeler Company in Ampère, N. J., of which he is president.

The blind learn easily and quickly and after a few weeks are very little slower than the others. In this work the blinded soldiers of France will be able to become independent and earn their own living without the help of charity. The demand for their product will always exceed the supply, and they will always find a ready market for their coils. It is proposed to start this work for the English blinded soldiers, and Dr. Wheeler is going to England this week for the purpose. He has successfully demonstrated that it can be done by the French blinded soldiers. On his return to the United States, he will greatly enlarge the scope of the electrical work now done by the American blind. Dr. Wheeler's projects include close cooperation between France, England, and the United States, and every new development in this work that is perfected by any of the three Allies will immediately be demonstrated for the benefit of the blind soldiers of the other two, thus giving all the soldiers the greatest possible help in earning their living in the electrical industry.

146, Avenue des Champs Elysées.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

July 25, 1918.

1. The Massachusets Medical Society. Patriotic Addresses at the Annual Meeting of the Massachusetts Medical Society.
2. The Present Needs of the Tuberculosis Campaign in Massachusetts. John B. Hawes.
3. Epidemiology of Typhoid Fever in a New England City. D. M. Lewis.
4. A Clinical Method of Collecting Expired Air for the Determination of Alveolar CO_2 Tension. Paul Roth.

The New York Medical Journal.

July 27, 1918.

1. Modern Obstetric Technique. George L. Brodhead.
2. The Epileptic Attack in Dynamic Pathology. Smith Ely Jelliffe.
3. The Clinical Value of Pupillary Changes. Aaron Brav.
4. Ileocecal Insufficiency. M. A. Ramirez and J. P. Hoguet.
5. Surgical Diagnosis. W. Frank Fowler.
6. Diagnostic Hints in Gastrointestinal Diseases. Reuben Finkelstein.
7. Some Surgical Problems and Principles. Moses Behrend.
8. The Food Value of Meat. Edward H. Nies.
9. Diabetes Among the Troops. Charles Greene Cumston.
10. The Psychology of the War. James M. Beck.
11. Trench Fever. Major Alexander Lambert.

3. The Clinical Value of Pupillary Changes.—Aaron Brav points out that important information can be obtained as to the local condition of the eye and also in regard to general constitutional disease by a careful study of pupillary phenomena. The following should be noted: (1) the form and color of the pupil; (2) the size of the pupil; (3) the contents of the pupil; (4) asymmetry of the pupils; (5) reaction of the pupil; (6) associated ocular conditions. (1) *Form and color of pupil.* Changes in the form of the pupil may be congenital or acquired. The former are seen in coloboma of the iris, when a portion of the iris is missing. An irregular pupil is always significant of some inflammatory process, engorged iris, or multiple tears in the iris. The iris becomes adherent to the lens capsule in various places and the form of the pupil takes a clover leaf shape. This is of special diagnostic value in differentiating iritis from acute glaucoma. A pear-shaped pupil, not congenital in origin, is always indicative of trauma. In arteriosclerosis, increase of the intraocular pressure, and in ophthalmic migraine, the pupil is more or less oval and eccentrically situated. In iridodialysis the pupil may have the shape of a half moon. In glioma of the retina, the pupil is yellowish red in color. A whitish gray pupil is the result of a cataractous lens. A slightly greenish pupil indicates a glaumatous condition. A golden reflex around the pupiliary periphery is diagnostic of subluxation of the lens anteriorly. A red pupil indicates hemorrhage in the anterior chamber. (2) *Size of pupil.* Ordinarily the size of the pupil is about 3 mm. in diameter; hyperopes have a small pupil, while in myopes it is larger. The size varies a little according to age and, of course, is influenced by the degree of illumination. Changes in size may or may not be accompanied by inflammatory symptoms. When not accompanied by inflammatory symptoms and not the result of the use of eserine or pilocarpine, miosis points to some spinal lesion or disease in the cerebrospinal system. Resection of the cervical sympathetic or traumatic destruction of the same ganglion will give a small contracted pupil. It is also seen in syphilis of the cerebrospinal system, in tabes dorsalis. Small pupils which do not react to light are diagnostic of syphilis. Spastic miosis is seen in meningitis, especially in children. A contracted pupil is also found in opium and tobacco poisoning. A dilated pupil points to a paralytic condition of part of

the third nerve and can be produced by irritation of the sympathetic; this is seen in postdiphtheritic paralysis of the accommodation. Mydriasis is also seen in syphilitic conditions of the eye involving the oculo motor nerve. Syphilis, diabetes, nephritis, and general paresis are all constitutional conditions which produce paralysis of the oculo motor nerve. Tumors of the brain also give rise to dilated pupils as a result of changes in the optic nerve. (3) *Contents of the pupil.* The pupillary opening may be filled with blood and appear red instead of black; this always denotes trauma. Dislocation of the lens, evidenced by a circular golden rim around the lens, may be traumatic in origin, may be caused by a blepharospasm during an operation, or may occur spontaneously as a result of sudden strain. Pus may also be present in the opening, as in keratitis or iritis, when the color of the pupil appears yellowish. Occasionally there are brownish deposits as a result of iritic exudation. Presence of the pupillary membrane in the opening may be congenital or acquired as the result of iritic inflammation; in such cases the pupil appears grayish white, and it is necessary to differentiate from pupillary reflex due to lenticular sclerosis. A tumor or cyst, or a syphilitic gumma, a tubercle or a metastitic abscess encapsulated may be seen. In some cases resort must be had to surgery, but many of the conditions yield to medicinal treatment and rest. (4) *Anisocoria.* Slight degrees of anisocoria may be seen in healthy persons, but a marked degree of pupillary inequality is always pathognomonic of some local or general constitutional disease. It may be seen where there is marked difference in the visual acuity of the eyes, in unilateral chronic iritis or glaucoma, or in unilateral diseases of the retina and choroid. Of the constitutional diseases, syphilis, tabes, progressive paralysis, multiple sclerosis, diseases of the kidney, liver, and nervous conditions may give rise to this phenomenon. It is more often acquired than congenital. (5) *Pupillary reaction.* Absolute immobility of the pupil when not caused by a cycloplegia or by local inflammation is probably due to some constitutional condition, such as syphilis of the nervous system, nephritis, diabetes, etc. The term absolute immobility is used when the pupil does not react to light, accommodation, or convergence; relative or reflex immobility means an abrogation of the light reflex, reaction to convergence being present. The former points to syphilis, while the latter is diagnostic of tabes and general paralysis. Hemianopic pupillary reflex, in which only part of the optic nerve fibers are involved, may also be found; this serves to differentiate between cortical lesions and lesions in the optic tract. (6) *Associated ocular conditions.* The author points out the necessity of studying the pupil from the various angles indicated and gives a number of examples to show the significance of the various phenomena considered in conjunction with other findings.

The Journal of the American Medical Association.

July 27, 1918.

1. Conservation of Child Life a National Responsibility. L. R. DeBuys.
2. Protection of Infancy in France: What Has Been Done and What Remains to Be Done in the Fight Against Infant Mortality. Paul Armand-Delille.
3. The Children's Year Campaign. Grace L. Meigs.
4. Potency of Antimeningococcic Serum. G. W. McCoy, N. E. Wayson, and Hugh B. Corbitt.
5. Rationale of Treatment of Toxic and Infection Psychoses. Frank P. Norbury and Albert H. Dollear.
6. Some Suggestions for More Accurate Mental Therapy in Epilepsy. L. Pierce Clark.
7. Carbon Monoxid Poisoning: Its Nervous and Mental Symptoms: Report of Case. Charles W. Hitchcock.
8. Heat Stroke, with a Second Study of Cerebral Edema. Pierce McKenzie and E. R. LeCount.
9. Reaction Following Administration of Neo-Arsphenamin (Neodiarsenol Brand). K. M. Richardson.
10. Visual Requirements of the United States Navy. W. E. Carson.
11. Visual Standards of the United States Army. William H. Wilder.
12. The Neuropsychiatric Personnel: The Character and Make-up of the Members of the Neuropsychiatric Division of the Medical Reserve Corps. Walter Timme.
13. Base Hospital Amputations in War. Kellogg Speed.
14. The Treatment of Empyema by Frequent Aspiration and the Injection of Solution of Formaldehyde and Glycerin. S. M. Rinehart and Anton W. Oelgoetz.
15. Diphtheria and Diphtheria Carriers in Army Camps. Carey P. McCord, Alfred Friedlander, and Robert C. Walker.

1. Conservation of Child Life a National Responsibility.—L. R. DeBuys. See MEDICAL RECORD, June 22, 1918, p. 1104.

3. The Children's Year Campaign.—Grace L. Meigs. See MEDICAL RECORD, June 22, 1918, p. 1105.

8. Heat Stroke, with a Second Study of Cerebral Edema.—Pierce McKenzie and E. R. LeCount believe that the chief causative factor of heat stroke is the inability of the air about the body to receive more moisture since it is already saturated, together with the high temperature of the air. Other causes are tight and heavy clothing and a too small intake of water. The consumption of alcohol has been suggested as a factor, but further evidence of this is needed. There is no evidence that rays other than those of heat are productive of heat stroke. An infectious origin has also been suggested. In hot boiler rooms and similar places the attack may come on slowly, unconsciousness being preceded by dizziness, nausea, and weakness; there is profuse sweating, dryness of the mouth, a red or purple discoloration of the skin, shivering, and subnormal temperature or a temperature of 100° or 102° F., followed by death in coma. Heat stroke from insolation on the other hand may come on without warning. It is characterized by fibrillary twitching of muscles, vomiting, slow pulse, and temperature of from 105° to 117°. These forms may be classified as asphyxial and hyperpyrexial. The authors point out that the discussion which has arisen regarding the hyperemia of the brain and leptomeninges in such cases may have been due to the rapidity of the postmortem changes and the fact that observations were made at varying periods after death. One of the authors examined thirty-seven persons who died of heat stroke and the following alterations were found quite regularly: edema of the brain (in 22 cases) or leptomeninges (in 9 cases), or both (in 4 cases); marked generalized passive hyperemia, especially of the brain and lungs; edema of the lungs; hyperplasia of the spleen; cloudy swelling of the liver, kidneys, and myocardium, and petechial hemorrhages of the various mucous membranes and of the skin, with irregular and lessened yellow material of the suprarenal cortices. The edema of the brain tissue and splenic enlargement they consider of particular interest, adding that many standard text-books omit mention of any change in the spleen. The frequency of marked edema of the brain in these cases led the authors to attempt to estimate the amount of water present with more accuracy. At the time of the postmortem, pieces were therefore taken from the temporal lobes, and a separate estimate made for each. All the brains studied were from adults and control pieces were taken from brains of adults who had died by violence, and were examined in like manner. The average of water percentage for these controls was 79.7 per cent. Sixteen cases of heat stroke, which occurred in 1916, were all found to be of high water content and thirteen had a gross diagnosis of marked edema of the brain; the moisture percentages ranged from 81.16 to 83.78. In a series of six cases which occurred in 1917 the moisture content was rather less, the percentages being from 79.46 to 81.62. The authors state that the heat of 1917 was not so great as in 1916 and, as there were fewer cases in hospitals, patients may have received longer treatment which possibly lessened the moisture content of the brain. These results would seem to confirm the impression gained by finding, soon after death, the brain swollen with flat convolutions and tightly closed sulci, the arachnoid meshwork obliterated, and the parietal and visceral layers of the arachnoid in intimate contact. This condition is more marked on the vertex and sides of the cerebrum and is not invariably found with heat stroke. It is perhaps less constant than hyperplasia of the spleen, but deserves a place with the minute hemorrhages as one of the conspicuous alterations. McKenzie and LeCount also refer to the experiments of Woodyatt, who was able to produce high temperatures in dogs by dehydrating the animals by means of continuous injections of glucose; and to the observation by Maud Menton of an increased hydrogen-ion

concentration of the blood with low barometric pressure. As to prophylaxis and treatment of cases of heat stroke, these authors insist particularly upon the value of drinking water as a preventive, referring to Hunt's statement that three gallons of water are required by a man working on a hot day in the sun. With collapse and subnormal temperature, external heat and massage are advised. With hyperpyrexia, ice and ice-water are used in a variety of ways. Camphorated oil and other cardiac stimulants may be useful. Woolley advises solutions of sodium chloride and carbonate in water rectally and intravenously. Spinal puncture may give good results in cases where symptoms have continued for days with coma.

The Lancet.

July 6, 1918.

1. An Address on Some Aspects of Maternity and Child Welfare Work. Delivered before a Conference of County and Local Sanitary Authorities of the County of Durham on June 22, 1918. Arthur Newsholme.
2. Infant Mortality and the Education of the Mother: A Criticism of the Report of the Medical Research Committee. H. W. Pooler.
3. Epidemic Encephalitis. S. A. Kinnier Wilson.
4. The Operative Treatment of Trigeminal Neuralgia. J. Hutchinson.
5. A Case of Epidemic Lethargic Encephalitis. J. Rice-Oxley.
6. The Occurrence of Skin Lesions During Tuberculin Treatment. A. G. M. Grant.
7. Note on Hematemesis as a Complication of Appendicectomy. E. Drybrough-Smith.
8. A Note on Some Symptoms Following the Taking of Quinine. G. R. Footner.

3. Epidemic Encephalitis.—S. A. Kinnier Wilson discusses the occurrence in England of a number of cases which might be classified as acute encephalitis or polioencephalitis but which do not conform to any rigid type. He points out that the subject is of particular importance at the present time in view of the public interest in food questions, since polioencephalitis is essentially the product of a toxic or toxi-infective agent. The author describes the cases under consideration as a nervous disease presenting features sufficiently indicative of encephalitis and characterized by pathological drowsiness amounting not infrequently to stupor. He remarks that this latter symptom has not hitherto been observed to anything like the same extent in poliomyelitis, endemic or epidemic, as it occurs in England. A number of cases are given in detail, and from a study of these Kinnier Wilson tentatively puts forward the following conclusions: Epidemic encephalitis is an acute nervous disease characterized by general and localizing symptoms; it attacks both sexes, irrespective of age; its onset is acute and, occasionally, it is fulminant in type. The general symptoms are: apathy, lethargy, drowsiness, pathological sleepiness, stupor, absence of initiative. Restlessness and restless delirium with reduction of mental activity to the degree of automatism is common; catatonia or flexibilitas cerea is frequent; delusions and hallucinations may occur, also incontinence, headache, giddiness, and vomiting. Epileptiform changes do not occur. It is to be noted, however, that even at the height of the illness the patient's response to questions is in act and word surprisingly accurate and rational. Temperature is usually normal. In a certain percentage of cases meningeal symptoms are present, but as a rule these are not well marked. Localizing symptoms: the commonest grouping is of the polioencephalitis superior type, *i. e.* a peri-aqueductal grouping. Paralysis to accommodation and corresponding indistinctness of vision or diplopia is a frequent early symptom, and the patient may even have the appearance, from mere drowsiness, of bilateral ptosis. Involvement of the lower cranial nerves is present to a variable extent and the predilection for motor as opposed to sensory cranial nerve nuclei points to specificity of action of the postulated virus of the disease. The limbs are more rarely involved, and the author points out that where this occurs the indications point to cortical, subcortical, mesencephalic, or pontine invasion of the corticospinal paths and not to cord invasion. Sensory symptoms are insignificant or absent and the diversity of localization precludes the likelihood of any constant or characteristic change in cutaneous or deep reflexes. No organism has been detected by any observer in the cerebrospinal fluid or in the tissues, with exception of a diplostreptococcus recovered by von Wiesner from the brain of a *Macacus rhesus* inoculated subdurally with an emulsion of the brain and cord from one of Economo's patients. It is significant, however, that a filtrate from the original brain cord of the same patient inoculated into a second monkey produced no symptoms. In cases where meningeal symptoms occur there may be definite pleocytosis. The duration of the disease is variable; it may end fatally in a few days or it may last for months. It is not certain whether there is a complete restitutio ad integrum in recovered cases. The pathological findings show meningeal congestion of cranial surface, and, microscopically, diffuse thickening of the leptomeninges, with scattered cellular exudates or with vascular congestion and perivascular cellular infiltrates, together with minor changes in the cerebral substance and cord. Similar epidemics have been reported by Economo in Vienna in the beginning of 1917, in Paris by Netter in the spring of this year, and in Queensland and New South Wales by Breinl. Economo coined the name *Encephalitis lethargica* and Netter adopted the term *Encephalite léthargique épidémique*, lethargy being in all cases a prominent feature of the clinical picture. Kinnier Wilson, however, prefers the term *Epidemic encephalitis* and concludes that what is new is the occurrence, in epidemic form, of cases of encephalitis not to all appearance due to the action of a known infective or toxi-infective agent, but presenting clinical symptoms any or all of which have been noted in various kinds of encephalitis with which the neurologist has long been conversant. He adds that unquestionably there is now afforded an excellent opportunity of solving the problem of the affection and thereby clearing up much that has been obscure in our knowledge of encephalitis in general.

British Medical Journal.

June 29, 1918.

1. Gunshot Wounds of the Knee-joint: The Conservative Operation at the Casualty Clearing Station. Major Richard Charles.
2. The Knee-joint Capsule: A Radiographic Study. Captain F. Rupert Snell.
3. The Abuse of Drainage Tubes. Captain Frank Hathaway.
4. Anomalous Muscular Action in Nerve Injuries. Major D. M. Hughes.
5. Early Cardiac Breathlessness and "Buffer-salt" Deficiency in the Blood. Benjamin Moore.
6. Cardioptosis. W. Gordon.
7. Threshold Tests. George Young.
8. A Case of Tetanus Neonatorum. Harold F. Renton.
9. Ectopic Gestation: A Case of Twins in One Gestation Sac of Tubal Origin. Major Gordon Taylor

3. The Abuse of Drainage Tubes.—Captain Frank Hathaway points out that war surgery has taught us that the two main principles of civil surgery are: (1) early and complete operation; (2) that secondary or mixed infection is worse than primary infection. Largely as a result of the work of Colonel H. M. W. Gray and his followers, war surgery has become a very different thing from what it was at the beginning of the war. Now wounds of the head, chest, abdomen (even with fecal contamination), and knee and other joints, are sewn up after early and complete operation, with excellent results. The first and most important effect of the war on the surgical world will be the abandonment of the drainage tube. Captain Hathaway says: "It is incredible that we have for years deliberately placed into the soft and pliable tissues of the human body a more or less rigid drainage tube with an opening passage for secondary infection to creep down." This fundamental fact was grasped by Sir George Lenthal Cheatle when he introduced his solid drainage tube with flanges; but he still kept to the rigid design. The method advocated by Captain Hathaway, and now used in military surgery, is that generally applied in tuberculous infections, namely, free incision, evacuation of contents, cleansing by mechanical means, or by the use of an antiseptic, and primary suture. Fomentations and weak antiseptic baths in the treatment of wounds simply encourage the staphylococci to come out of the pores of the skin and second-

arily infect the wound. Hathaway concludes, therefore, that in order to avoid mixed infections surgeons must practise primary suture far more than in the past, and give up completely the use of rigid open drainage tubes. Instead of draining where there is infection, Hathaway advises going to the opposite extreme, and not leaving a "passage" open unless it is absolutely necessary. If a passage is required to be kept open, for instance in an appendix abscess, he puts in a piece of soft folded rubber. If a secondary abscess or leakage from bowel should occur it will be dealt with by the inherent resistance of the body to infection, or should an abscess form it can be treated by a second operation, after adhesions have formed. To the above communication Sir Bertrand Dawson adds that with regard to empyemata, the pneumococcal cases do well with immediate closure after evacuation, but not the streptococcal; the latter need to be drained for two or three days, with or without Carrel tubes, and then they can be sewn up. Hathaway points out that streptococcal infections require different treatment, but that in civil practice streptococcal empyema is rarely encountered.

British Medical Journal.

July 6, 1918.

1. Observations on the Nature and Symptoms of Cardiac Infection in Childhood. III. Rheumatic Endocarditis. F. J. Poynton.
2. Nephrotomy Combined with Cesarean Section in the Treatment of Eclampsia with Suppression of Urine. Clifford White.
3. Tinel's Sign in Peripheral Nerve Lesions. Lieut.-Col. W. M. Macdonald.
4. A Sporadic Case of Polioencephalitis. J. N. Marshall.
5. Primary Suture of Gunshot Wounds. Major John Everidge.
6. Double Rupture of the Urethra Due to Gunshot Injury. Major Gordon Taylor.
7. Tubal Twin Pregnancy. F. J. McCann.

1. Observations on the Nature and Symptoms of Cardiac Infection in Childhood. III. Rheumatic Endocarditis.—F. J. Poynton refers to the importance of valvular disease in childhood as evidence of organic disease. Its lack of symptoms is easily realized when one considers the minute lesions of early endocarditis. Mitral endocarditis is extremely common in rheumatism and in fatal cases is practically invariable. It is important to distinguish between the classical mitral incompetence and stenosis. The latter is often regarded by the student as an advanced stage of the former, but this is true only in a restricted sense and the ordinary lesion of mitral incompetence will never give rise to a classical stenosis. Mitral stenosis is a subacute process involving the entire structure of the valve—a form of chronic inflammation more frequent in the female. Incompetence may be of little importance, whereas stenosis constitutes one of the most formidable of cardiac affections. In mitral incompetence in childhood, if the myocardium is severely damaged the case will run a disastrous course, compensation will never be effective, and invalidism quickly follows. If the myocardium is sound, with patience and care complete recoveries are frequent. If such cases are followed for some years, it will be noticed that the systolic murmur becomes indistinguishable from a so-called functional murmur in its behavior to change of position and cardiorespiratory phenomena; it is possible that in the course of cure the vegetations gradually shrink and the slight thickening left becomes of no importance. Cases which run an unsatisfactory course are remarkably resistant to treatment, a fact which may be due to weakness of the myocardium, adherent pericardium, and destruction of the tone of the valve ring. In mitral stenosis, it is of the utmost importance that early developments be carefully studied. Medical treatment is most unsatisfactory and the progress of the inflammation is so insidious that the condition may escape recognition until it is too late to do more than ease the suffering. The valvular change is the essential factor, the myocardium often being remarkably healthy. The association of mitral stenosis and chorea is of clinical interest. Poynton cites three cases in which he was able to trace the gradual development of mitral stenosis over periods of five to six years. He points out that the child may never complain of cardiac symptoms although the chorea is a reminder of the presence of active rheumatic infection. The history of the child's health is sometimes of value in diagnosis. The presystolic thrill is local and limited to the region of the heart beat; a systolic murmur is often audible but in some cases is never heard. A to and fro murmur, blowing in character, is not infrequently met with; this does not point to mitral stenosis but is a valuable sign in disastrous cases of incompetence. Since symptoms are usually absent in early cases of mitral stenosis, the development of definite symptoms in young children should be viewed with concern. Tachycardia may occur in childhood from the earliest appearance of the stenosis, but is not dependent upon the stenosis and may even predate it. In aortic and mitral disease, the feature of interest lies with the infective process, for such cases may terminate in a malignant or progressive endocarditis in early adult life. These combined lesions represent the majority of cases of aortic regurgitation in early life and the systolic mitral murmur should not be attributed to a relative incompetence of the valve secondary to the aortic disease; the mitral lesion is the earlier, and the result of endocarditis. Cases of combined lesions in which the aortic predominates are to all intents and purposes cases of aortic regurgitation, unless the mitral lesion has developed into a stenosis. In that event we have another important valvular defect in the combination of aortic regurgitation and mitral stenosis. Poynton lays particular emphasis upon nervousness as a symptom of aortic regurgitation in children. In such cases compensation is remarkably effective and the child may be wonderfully active. As a rule such patients do not die suddenly, but may succumb to a renewed attack of carditis. Later in life they may overstrain the heart, develop malignant endocarditis, or suffer from mitral lesion and its consequences. Malignant endocarditis in childhood resembles the condition in adult life, rheumatic infection being a frequent and common cause. Both simple and malignant endocarditis may occur in the cardiac valves in the same case and both forms may be produced by experimental inoculation with rheumatic infection. Poynton looks upon simple endocarditis as evidence of destruction of the micrococci by the tissue resistance, and malignant endocarditis as proof of the failure of that resistance. He does not accept the view that septic micrococci have a predilection for damaged and sclerotic valvular tissues, but thinks it highly probable that in the necrotic areas of vegetations micrococci may remain latent and spring into virulence. He asks, how is it that in written answers we find examinees insisting upon the multiple abscesses found in the viscera in malignant endocarditis? The great feature is the usual absence of such abscesses and the term arterial pyemia as a rule is quite incorrect. He adds that of course rheumatism is not the only cause of this condition, which may be produced by various infections, and concludes by the statement that the three cardinal processes in endocarditis are:—(1) the simple; (2) the sclerosing; and (3) the malignant.

Berliner klinische Wochenschrift.

May 27, 1918.

The External Manifestations of Diabetes.—G. Rosenfeld recalls the fact often overlooked that the means of modern investigation frequently tend to place the older observations in the background, although these are excellent from the viewpoint of both diagnosis and prognosis. In the case of diabetes he refers to cutaneous desquamation resulting from a decrease of sebaceous excretion (this may be the cause of recurring furunculosis), the "purplish hectic" hue over the cheeks and upper border of the malar bone and the raw tongue which Rosenfeld regards as a bad sign. The often noted disproportion between the thin face and fat abdomen indicates disturbances of carbohydrate metabolism. It is to be distinguished from the obesity of alcoholics and that of true obesity.

Recovery from Changed Renal Functions in Chronic Kidney Affections.—F. Hirschfeld insists upon relieving the renal work in these cases as the basis of treatment. Diet, which should be aided by an air cure, should be poor in albumins and salt. This is in contradiction with

the modern tendency which only prescribes a restriction of those substances whose renal elimination has been shown to be insufficient. The writer has oliguria above all in view, which for the kidney represents a relative rest. The excretion of nitrogenous products and salt sets up an aqueous diuresis which is just what is to be avoided. The treatment finally ends in a re-establishment of the renal functions in the following order: function of dilution and later on the function of concentration. Hirschfeld has noted that after the cure, the ureo-secretory function may surpass a normal kidney in the rapidity of elimination. This property is slowly lost when more meat is added to the diet.

Münchener medizinische Wochenschrift.

May 14, 1918.

The Treatment of Wounds by Deep Antisepsis with Bichloride of Isoethylhydrocuprein.—O. Asinn brings forth a confirmation of Klapp's views published in the *Münchener medizinische Wochenschrift,* May 7. The excision of all necrosed tissue and extensive infiltration of the healthy tissues with the quinine derivative have given him excellent results. He attributes this favorable effect to the fact that the bactericidal value of the product is of the highest order while at the same time it does not coagulate the tissue albumin, so that its dispersion is not limited in extent as is the case with other antiseptics. Asinn has also made an improvement in the preparation recommended by Klapp, by introducing gum arabic in the formula. The rapid absorption of the drug is by this means delayed and its effect in consequence is prolonged. The writer particularly advises to infiltrate the area of traumatism in successive layers and after reporting a few cases treated with advantage, he points to the fact that the drug seems to act well when primary excision of the wound is not done. This goes to show that Klapp's procedure is not successful merely from excision of the wound but that the injections of ethylhydrocuprein are largely responsible for the good results.

Paratyphoidal Diseases, Particularly of the Biliary Tract.—E. Fraenkel has studied a case of paratyphoid A, having a particularly septic evolution. At autopsy, he was able to obtain cultures of paratyphoid A from the blood taken from the heart. There were lesions of angiocholitis which had clinically shown themselves by icterus. Injected into guinea pigs, the "race" of bacillus grown from the patient's blood quickly set up a fatal syndrome quite similar to the paratyphoid in the patient, including the same bepatic changes. The relation between the bacteriemia, the angiocholitis and cholecystitis is supposed by Fraenkel to arise as follows: Development of the bacilli in the intestine, their passage into the blood, and elimination by way of the biliary tract. The cholecystitis which then develops can, in its turn, set up farther dissemination through the circulation. This vicious circle may, in some cases, necessitate surgical interference (cholecystectomy).

Deutsche medizinische Wochenschrift.

May 16, 1918.

The Weil-Felix Bacillus Immunity Reaction and Its Pathogenic Significance in Typhus Fever.—E. Friedberger absolutely maintains his former opinion, which regards the Proteus X 19 as the pathogenic agent of typhus. He enters upon a long and tiresome controversy against Otto, who is of opinion that the agglutination of the Proteus X 19 is only a phenomenon of para-agglutination. The article does not offer anything new.

Milk Therapeutics.—R. Müller endeavors to legitimatize his treatment of infectious processes by the injection of sterile milk. Opposed by a number of surgeons, Müller maintains that this treatment has given excellent results in typhoid fever, gonorrheal complications, acute articular rheumatism, erysipelas, ocular and otic infections, etc. The theoretical reasons which led to a trial of this procedure are those drawn from the non-specificity of vaccines and sera in general, which appear to act as much by the general reaction which they provoke as by their directly antibacterial effect, for example: The effect of the deuteroalbuminoses in tuberculosis, pyocyanic vaccine in typhoid, etc. The increased action of intravenous injections as compared with intramuscular injections has led Müller to attribute the therapeutic action of the albumins to "a shock which gives full play to the inflammatory factors." The choice of milk rather than some other albumin is merely because of the facility of obtaining it. Finally, the writer records the happy evolution of sixty cases of epididymitis treated with milk injections. He particularly advises the procedure in cases of bubo to those who desire to get an idea as to what may be attained by this treatment.

Serious Anaphylactic Shock Following the Injection of Milk.—R. Lubliner reports a serious case of shock from milk injections which rather throws cold water on the opinion maintained by Müller in the above article.

Wiener medizinische Wochenschrift.

June 1, 1918.

Galician Dysentery.—F. C. Krasa finishes his examination of this question with the conception of a special ameba as the causal factor of the epidemic in question. Certain amebas are common in the intestinal tract and are not pathogenic, and on the other hand certain circumstances may reduce to a very low proportion the number of cases which can be verified bacteriologically. One should also be reserved in describing new agents of dysentery. As to treatment, Krasa prefers a polyvalent antidysenteric serum.

Surgery of War.—R. Bárány confines his article to a study of the evolution of surgical methods of warfare in the various belligerent countries. He particularly insists on the increasing adoption of primary excision of wounds and their immediate suture. This method gives excellent results even in brain and joint injuries.

Révue médicale de la Suisse romande.

March, 1918.

Relations Between Mitral Stenosis and Pulmonary Tuberculosis.—Burnand calls attention to three alleged relationships which appear to be more or less antagonistic among themselves. One is that the valvular lesion opposes the development of tuberculosis through setting up chronic pulmonary stasis. Another states that the cardiac lesion may itself be of tuberculous nature and that several types even of the latter exist. The third view is that when a clinical tuberculosis follows a mitral lesion it is not a true bacillosis but a pseudotuberculous syndrome. These three conceptions of relationship need not exclude one another and it may even be possible to coordinate them. There is no doubt that endocarditis involving the mitral orifice is sometimes a local tuberculosis of a benign type. In such a case it could be associated with other manifestations of tubercle, especially in the apices of the lungs, whether active or latent. A number of well known clinicians and pathologists have attested the relatively benign character of this association. The so-called pseudotuberculosis of mitral lesion is, in the author's opinion, also an example of benign tuberculosis without bacillary finds. Thus it is possible to bring all three associations under a single head. The author now relates a case in a young man, a poor physical specimen since his birth, who presented congestion of the right apex interpreted as incipient tuberculosis. There was neither fever nor cough. Examination of the heart showed classical mitral stenosis. There was also a history of syphilis, the seroreaction being positive. Mitral stenosis is of course very rare in the male and the author believes it to have been due to tubercle in this particular instance. The cardiac localization preceded the pulmonary lesion and doubtless went back to the patient's childhood, for at the age of 12 he had what would ordinarily be regarded as acute articular rheumatism but what the author prefers to regard as an example of Bucet's acute tuberculous pseudo-rheumatism. About 10 years elapsed before the appearance of the pulmonary lesion, which was at its outset of a febrile type but gradually became non-febrile.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Sixty-ninth Annual Meeting, Held in Chicago, June 10-14, 1918.

(Special Report to the MEDICAL RECORD.)

(*Concluded from page* 218.)

SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY.

Second Day—Friday, June 14.

DR. HENRY T. BYFORD OF CHICAGO IN THE CHAIR.

Avoidable Traumatic Abdomen.—Dr. JOHN B. DEAVER of Philadelphia presented this subject. The finding at operation of a pair of eight inch hemostatic forceps, which had been left in the abdominal cavity at an operation done twelve years previously by an unknown operator, led the speaker to discuss the unnecessary trauma which such an oversight might cause, and also to consider other avoidable abdominal injury, such as perforation and rupture of the uterus, which, with proper instruction, technique, and judgment could also be avoided in the vast majority of instances. In the case cited, the patient was a woman 49 years of age, the instrument had separated and found lodgment in different portions of the body. A spontaneous ileosigmoidostomy had occurred. After removal of the foreign body the patient made an uneventful recovery. Proper organization of the operating room would have prevented this mishap. Absolute quiet was essential, with well trained assistants each assigned to a particular task. Each instrument and piece of gauze should be accounted for. Some surgeons were apt to plead extenuating circumstances for having left foreign bodies in the abdomen, but this occurrence occasioned great suffering and a probable lawsuit. Nature tended to protect itself from the foreign body, and it might pass off through the rectum, but often a secondary operation was necessary. Another avoidable traumatism was perforation of the uterus which was apt to occur during curettage, if care was not exercised. The expert would recognize at once unusual tissue. Careful examination of the condition of the uterus by nature's best weapon (the finger of the expert surgeon) was the best safeguard. Perforations had been known to be caused by caustic solutions. Occasionally rupture of the uterus had occurred through the use of pituitrin. The only treatment was abdominal section at the first sign of rupture. Conservation had become the watchword of the present crisis, as it had always been in medicine. Nothing should be left undone now when this warning note against the wastage and demands of warfare made it more than ever imperative to bend all efforts toward conserving life, preventing suffering and the unnecessary drain on the service of the sadly depleted staffs of the civilian hospitals.

Dr. S. E. TRACY of Philadelphia said he had an experience with one patient who complained of pain in the left side of the abdomen. Upon examination he came to the conclusion that she had a malignancy. The abdomen was opened, the transverse colon was taken out and an anastomosis done. Examination of the specimen revealed a long piece of gauze with part of a gauze sponge. Seventeen years before this woman had had a hysterectomy done and she had shown no symptoms at all until she came under observation.

Dr. B. SALATICH of New Orleans said a surgeon was telling him of a wonderful operation he had done. He resected 3 feet of the bowel and the patient got well. In curetting a patient he did not see until the bowel was coming out of the vagina that he had made a perforation. He resected 3 feet of intestine and then boasted of the wonderful operation.

Dr. EMIL NOVAK of Baltimore said that Dr. Deaver was kinder to the gynecologists than he usually was. In connection with perforation of the uterus a striking case might be mentioned of a colored woman. The woman thought she was pregnant and introduced a large splinter of wood into the vagina. After a while she felt a desire to defecate. She noticed something hanging down from the vagina and cut it off with scissors. This was a loop of the intestine. She was brought to the hospital in a moribund condition and died of peritonitis. Dr. Deaver had done a service to gynecology in his warning about curetting. This was usually a simple operation and with proper precautions perforation ought not to occur. It usually occurred on the long stroke of the curet. The curet should be allowed to slide in gently and the sharp stroke could be made coming out. One case of rupture of the uterus could be mentioned which was not attended with the usual tragic conditions. A cesarean section was done 6 weeks after expected labor and a large macerated fetus was removed. It was well down in the pelvis. There was only moderate pain and no symptoms of collapse.

Dr. A. WALKER of Anthony, Kan., said that he knew a case where an inexperienced physician removed 40 inches of bowel through a perforation in the anterior wall. The uterus was retroflected.

Dr. A. B. BUTT of Davis, West Va., said that some day this accident would occur to Dr. Deaver, as it had occurred to many of them. Interest should be directed toward the prevention of accidents. At Dr. Murphy's clinic sponges were counted and instruments looked for. The impression should not be allowed to get about that accidents were entirely avoidable. This was not always so.

Dr. DEAVER in conclusion said that his case was unique. The adjoining bowel was perforated and yet the patient had survived for a number of years without symptoms.

How Surgeons Can Help Win the War.—Dr. FRANKLIN H. MARTIN of Chicago made this address, which was not given in the form of a paper, but as an informal talk. It was thought that the place of the obstetrician was to remain home and take care of the women. Those who were abdominal surgeons and who were eligible for the Reserve Corps should immediately enroll in the Reserve Corps. There was no man or woman who was more needed in the service at present than the abdominal surgeon. The point to be impressed upon the members of the Section was the real, serious need of their enrolling in the service. No class of officers was needed more than doctors. One doctor was equal to a great many fighting men; estimated by the official tables of the enemy, every doctor was equal to 500 to 1000 fighting men. If every man eligible for the Medical Reserve Corps were to go, still there would be 50 per cent of the men left to carry on the work, and all of the women. The medical schools might not be run as efficiently as they had been, but still they could go on, and some of their teachers were needed far more at the front. They never were needed more than now, and the need would go on becoming greater. Dr. Martin said that if any man came to him after the meeting and said, "Doctor, I want to help my country," he would be told it was the simplest thing in the world. He had merely to fill in the papers for the Surgeon General saying when it would be convenient to come. The man might then say, "Well, doctor, that is all right, but——" Then reasons would be given—the man had an expensive family; he had a private hospital on his hands; he could do better if he stayed at home to teach. He would not. The man who made that statement was a conceited ass. He was not needed so much here as over there, no matter who he was. If the man was not eligible for the Reserve Corps, there was another course open. A letter should be written to the Council on National Defense, Medical Department, asking for papers to the Volunteer Reserve Corps, which was open to all men and women not eligible to active service. After having made the application and being made eligible for the Volunteer Corps, the insignia would be sent, and the man would be accepted as a Volunteer. There was a place in the Government for everyone. The Government must make the choice, not the man himself, and he should be willing to accept the decision of the Government unless he wished to be classed with the pacifists and the disloyal. A man should enroll in the Medical Reserve Corps or with the Volunteer Reserve Corps.

Dr. ALFRED A. STRAUSS of Chicago said he knew a number of cases, and he was in this class himself, where a young man, because of the fact that he happened to

be born in Germany, was considered ineligible. He had been brought over to this country as a very young child. All his interests and associations were with America, and there was no more loyal citizen, yet he was prevented from giving his services in this crisis. Some men he knew, similarly placed, were giving their services as cooks and orderlies, rather than be left out. He felt that if the need were so great for abdominal surgeons, there should be some arrangement by which the services of men like himself could be accepted. He felt sure that if Dr. Martin would take the matter up the law could be amended in this particular.

Dr. Martin said that this same difficulty had occurred in the drafting of medical students. They were asked to remain at their college and finish their courses. Also some young men were asked to stay at home and teach, in pathology and other branches, where their services were needed. The provision was made that when these men were drafted they should be placed in the draft Medical Reserve, with the understanding that they were to graduate into the Officers' Medical Reserve Corps. If this law had not been already carried out, it was under immediate consideration, and it would work out so that men who were eligible for work in the Medical Reserve Corps would not be obliged to waste their time in other kinds of work. The Surgeon General had been so fair in his settlement of all kinds of questions that no doubt this matter could be adjusted with entire justice to every kind of claim.

The Question of Operation in Gunshot Abdominal Wounds.—Dr. Joseph Rilus Eastman of Indianapolis read this paper. He said that notwithstanding the experiences of the present war had modified the old views as to the advisability of abstention in abdominal wounds, there still remained, notably in France, a rather sharp division between what were designated the abstentionists on the one hand and the interventionists on the other, the former group basing a diagnosis of penetration and perforation, as well as treatment, on the evolution of symptoms; the latter group making the complete diagnosis by laparotomy, and applying immediately or within the first few hours, the appropriate surgical treatment. Unfortunately, the most experienced surgeons would occasionally find more or less difficulty in diagnosticating penetration and perforation before operation. There was not always present an aperture of exit, in which case it was difficult to determine the course of the missile, for all missiles might ricochet. There were a few recognized rules to follow; for example, the closer together the wounds of entrance and exit, the less the chance of penetration and Rochard had declared that if a wounded man did not cease to complain of abdominal pain, a perforation was almost certain. Rochard also said that if a patient passed gas at the anus, there was no perforation. All rules failed sometimes, with the exception of these three which proved the existence of perforation: escape of bowel contents from the wound of entrance or exit, protrusion of perforated gut at the wound, and passing of the missile by the anus. At the beginning of the war nearly all surgeons were abstentionists, but now the general opinion inclined the other way. In support of intervention, the Interallied Surgical Congress of last March expressed the view which was the most authoritative available, that all intestinal wounds should be treated by laparotomy, with suture.

Dr. D. Eisendrath of Chicago said that the experience of surgeons in a large city was quite comparable to that seen at the front. In penetrating gunshot wounds of the abdomen the treatment was the same in civil life. In combined abdominal and thoracic injury the injury to the abdomen was often overlooked. Often after a gunshot wound of the chest there was abdominal perforation. Laceration of the chest wall and of the liver often occurred together. Formerly these cases were treated by non-interference, but since the Somme, surgeons, led by Duval, made an early exploration of the diaphragm for injury to subdiaphragmatic tissues. In civil life, as in war surgery, there were two or three infallible signs of perforation and if these were present the surgeon should not take any chance. It was better to do an unnecessary laparotomy one hundred times than to overlook a single case of perforation. Rigidity of the abdominal muscles was one of the important signs of beginning peritonitis. Tenderness was often also present, and the third sign was the increase of pulse rate. Increased leucocytosis could not be depended upon. Suprapubic drainage was a useful measure, but it was no use unless the perforation were repaired. In perforation of the upper abdomen there occurred a hypertoxicity from the activity of the pancreatic secretion. The picture was one of acute pancreatitis, with collapse, pulselessness, cyanosis, and distinct evidences of peritonitis. A laparotomy should be done and, beginning at the ileocecal valve, the gut should be followed up the coil of the small intestine, and then replaced; later, if no perforation was found, a similar procedure should be followed with the large intestine. This was a rough and ready way, but very practical.

Dr. J. Y. Brown of St. Louis said that he was an advocate of early operation. He agreed with Dr. Eisendrath that the principles of this surgery were the same as in civil life. A small penetrating wound of the abdomen would give no symptoms, without injury of the viscera. Another type of wound that appeared similar, but was very deadly, was one in which the intestine was injured in a bloodless portion of the bowel. That gave no symptoms, in contrast to wounds of the mesentery where there was immediate hemorrhage. Every case should be explored, as, while waiting for symptoms, peritonitis might develop. In regard to combined wounds, penetrating the chest and diaphragm, with pneumothorax, a rib could be resected and if perforation was found, a laparotomy should be done. In regard to wounds of the abdomen, the transverse column must be packed, the small bowel followed down to the ileocecal valve, and then beginning again the intestine should be followed up. In wounds of the stomach the omentum could be laid back, and the stomach turned back and the lesser peritoneal cavity may be looked into. It was the overlooked wound that killed the patient. The arguments put forth by civil and military surgeons that patients could recover from perforation without operation were worthless. Those who recovered had no perforation of the viscera.

Treatment of Incisional Ventral Hernia by the Transplantation of Fascia Lata.—Dr. Willard Bartlett of St. Louis presented this communication. A few essential points were noted. The lesion with the ring and sac was due to stretching of the abdominal wall in consequence of nerve section at previous laparotomies. Ninety-one cases were analyzed, in twenty-four of which the previous operation had been done by the reader of the paper. There was known cure in 61 cases and failures in 6, 2 due to implant of wire filigree, and 4 to overlapping, the latter procedure being of use only where the tissue was not too thin to hold in place. In order to effect cure the damage to the wall as well as the increase of pressure must be treated. Weight must be reduced and attention must be paid to cardiac and respiratory conditions. Constipation and urinary retention must be removed. Vomiting and meteorism must be prevented. Increase of blood pressure must be noted, as often tight closure of the abdomen caused a rise in blood pressure. No one operation was indicated in all cases, but in most a transplantation of the fascial flap would be a help, either by itself, or superimposed on some other method. Methods of treatment were by reconstruction of the wall, by flap inversion, by filigree wire work in emergency, finally by free fascia transplantation.

Dr. Van Hook of Chicago said it was difficult to close a hernia where the intraabdominal conditions had been modified. Laparoplasty was a method that was useful; by this method the anterior plate of the rectus sheath was dissected off and combined with the external oblique muscle. The large flaps corresponded to the lower quadrants of the man's breast, and these could be brought down to a lower point and the median line thus powerfully reinforced. The flaps could be crossed and united lower down on the abdomen. To diminish the capacity of the abdomen the patient was put in the Trendelenburg position with the thighs flexed on the abdomen and the legs upon the thighs. This would flex the spine and relax the anterior abdominal wall.

Dr. A. A. Strauss of Chicago said that he had gotten similar results in experimental work in dogs, that is he took the anterior sheath of the rectus away and never got hernia even with a great defect. It was not

so much the defect of the fascia, as of the strain following abdominal operation. He had had 3 cases with fascia lata transplants. In two there was infection, but the tissue took. If the transplant did not take it was the fault of the type of suture used. Catgut was not of such nature as to allow granulation to occur. If the right ligatures were used, the fascial transplant would survive infection.

Dr. McGEE of Burlington, Iowa, said that one point was not clear. Dr. Bartlett attributed hernia to increased intra-abdominal tension, yet one speaker said he shortened the anterior wall of the stomach to cure the hernia. These two statements seemed at variance.

Dr. HERTZLER of Kansas City said that too much had been said of the mechanical factors, and too little of the physiology of wound healing. If the primary elements of wound healing were interfered with, hernia would result. In non-infected cases if the physiology of healing had been conformed with, no hernia would take place. Exudative material, as from cysts, would prevent healing.

Dr. B. SALATICH of New Orleans said that a good many failures were due to the fact that the fascia was not cleaned of all fatty material. In Murphy's reconstructed joint cases, he left fat on the fascia to have two sliding surfaces, one on the other, until the catgut was absorbed. In all fat cases, in repairing ventral hernia a drain of a few strands of silk-worm gut would be found of value. It would be surprising how much exudate would ooze out. This would otherwise have been retained and cause suppuration.

Dr. GOLDSPOHN of Chicago said that they should keep in mind the etiological factors in these hernia cases. Some exceptional cases were practically incurable. The overlapping operation was very serviceable, but it had its limitations. There came a time, after many operations, when the material was insufficient. In one case, an obese woman, who had originally had a gynecological operation, and subsequently 3 hernia operations (one operation was done with fine silver chain instead of filigree) there was a recurrence every time. Finally transplantation of strips of fascia lata was done, these strips were 15 inches long and 3 inches wide and were placed transversely over the abdomen. There was a serous discharge for 2 months, but it finally stopped, and the patient was now in better shape than she had ever been.

Dr. S. C. WILLIAMS of Chippewa Falls, Wis., asked what type of sutures were used in the transplant.

Dr. W. P. MANTON of Detroit said in the early days of surgery a through and through suture was employed. Sir Spencer Wells was extremely careless in uniting the abdominal wall and had a number of post-operative hernias.

Dr. W. BARTLETT in conclusion said that he appreciated the interesting suggestion of Dr. Van Hook. He had not tried this method. Dr. McGee had spoken of increased tension, this might occasionally cause symptoms of obstruction. In one case this had happened, when, after a week of extreme discomfort, tight sutures had given way, and with a sigh of relief the patient started to recover. As a rule, however, abdominal tension was low. Dr. Goldspohn had confirmed what he had said about the fascial flaps holding even after infection. He had put the soft pedal on this fact, thinking that perhaps the cases cited were exceptional. They seemed to be borne out, however, by other experience. He had employed catgut prepared in tannic acid. This could be treated so as to last 6 months in muscle tissue. It could not be absolutely standardized, but it had good lasting powers. The tissues of different individuals reacted to suture material in different ways so that no hard and fast rule could be made. Why some wounds tended to develop hernia by weakening of the wall and why others did not had to do with the physiological location of the wounds and methods of closure. Incisional hernia was more common when through and through suture was used than with layer suture.

Infantilism and Other Hypoplastic Conditions of the Uterus.—Dr. EMIL NOVAK of Baltimore presented this communication. Infantilism of the female genital organs was frequently observed in women, who presented no other recognizable defects in development. The importance clinically of this condition was (1) its association with menstrual disturbance; and (2) that it constituted the anatomical basis for sterility. The study of the embryological status of the uterus was necessary for the proper understanding of the subject. Twenty-six uteri were studied, varying in age from the twelfth week of fetal life to the fourteenth year of postnatal life. During fetal life the cervix preponderated over the corpus uteri; at the very end of fetal life a striking acceleration of the growth of the fundus and cervix was noted, after birth there was shrinkage and involution of the fetal uterus, and during childhood the disproportion between the cervix and the corpus was lessened. Anteflexion and also retroflexion were often marked at this stage. Puberty brought about a marked stimulation of uterine growth by means of ovarian secretion. The corpus uteri was especially affected. The anatomical division of the uterus into two segments, corpus and cervix, was usually accepted, but Aschoff in 1906 found that the uterus was really composed of three segments: the corpus, the cervix, and the isthmus uteri. The isthmus was found to present certain histological features which had distinct significance in the explanation of physiological and pathological occurrences. The lower uterine segment of the parturient uterus was derived from this portion. Gynecologically this segment was of importance, inasmuch as flexions of the uterus always took place at the isthmus, both congenital and those of later life. The gynecologist would do well to study uterine function from this point of view, that is that the three segments of the uterus had separate function and were under different endocrine influence. This viewpoint was more conducive to fruitful observation and study than the habit of looking upon the organ as functioning *en masse*. In regard to types of hypoplasia,—these might occur either as arrest of growth, or as arrest of differentiation. The two principal types were: (1) *uterus fetalis*, in which development was arrested in the embryonic stage; (2) *uterus infantilis*, where the arrest occurred during the period of infancy and childhood. In the latter form the cervix still predominated over the corpus but the two were clearly differentiated. The fundus was better developed, but the broad convexity of maturity was lacking. Anteflexion was often found in this type. There was also a third type: *uterus subpubescens* in which arrest of growth occurred at the prepubertal period. All grades of this hypoplasia might be present. Anteflexions were very common. In regard to function, both menstruation and reproduction were profoundly influenced by uterine hypoplasia. In one type, the "amenorrheic," menstruation was very scanty. In the second group the chief symptom was dysmenorrhea, although sometimes the flow was normal or even excessive. Symptoms were divided, as regards the two groups, into two kinds: disturbance (1) of menstrual function (2) of reproductive capacity (sterility). In regard to treatment, this was still unsatisfactory, as the underlying cause of the condition was still unknown. Which of the ductless glands were concerned was as yet an unsolved problem. Aside from the probabilities of endocrine therapy, the matter was a very composite one. Amenorrhea, dysmenorrhea, and sterility were all stages of the disorder. Unfortunately the tendency was to treat the symptoms and not the disease. The two drugs most useful in dysmenorrhea were, unfortunately, morphine and alcohol, both to be avoided on account of habit formation. Atropine was without this disqualification and was of decided value. Curettage was of no value in this condition, as it tended to remove perfectly normal endometrium. The use of the stem pessary, by Carstens, was better than simple dilation, but occasionally it was the cause of a troublesome endocervitis. Caution in its use was therefore necessary. The plastic operations on the cervix, based on the impression that cervical stenosis existed, were without excuse and should be abandoned.

Paravertebral Anesthesia, with Report of One Hundred Cases.—Drs. N. R. MASON and F. C. W. KONRAD of Boston presented this paper, read by Dr. KONRAD. This form of anesthesia, combined with scopalamine-narcophin seminarcosis was the ideal form of anesthesia when reduction of surgical shock was of paramount importance, in those cases classed as poor surgical risks, or those so handicapped as to be practically inoperable. Twenty-six of these cases were analyzed. They in-

cluded carcinoma of the cervix during pregnancy; malnutrition, arteriosclerosis and senility in an extreme postoperative ventral hernia; toxemia of pregnancy with termination of the pregnancy after the pulse had risen above 140 per minute; failing cardiac compensation in pregnancy; blood pressure of 240 mm. with fibroids of the uterus; diabetes; ether idiosyncrasy; delirium tremens; and active pulmonary tuberculosis. In no case was there any untoward symptom after anesthesia except in the case of alcoholism. One case with ulcerating procedentia died 7 days after operation, of pneumonia. The reduction of shock was most marked and the only sensation noted was the first prick of the needle. Additional ether was given in one or two cases during the operation, but later studies tended to show that this was an unnecessary procedure. In some cases the packing back of the intestines seemed to occasion discomfort. A certain class of patients registered any sensation as pain by crying out or struggling, but there was no after memory of sensation. In order to do the nerve trunk anesthesia the patient was placed in a sitting posture with the back arched. The skin was prepared with iodine and alcohol. The 6th dorsal and the 3rd lumbar were located. In anesthesia of the neck the column was entered from the side. In the coccyx the 2nd sacral foramen was entered.

The needle used was 9/10 cm. in diameter and 5 cm. capacity. Patients under this anesthesia were always semi-conscious, and it should be remembered that bright light, loud noise, or any disturbance made the patient restless. A preliminary dose of veronal was given the night before and the injection of scopolamine-narcophin 2½ hours before operation. Scopolamine tended to cause lip dryness and this could be counteracted by moistening the lips with water or with salve. The method has been successfully carried out in 69 cases where the condition of the patient made ordinary narcosis precarious. There was no contraindication, unless immediate anesthesia was required.

Dr. A. E. Hertzler of Kansas City said that like standing on one's head, paravertebral anesthesia could be done, but it was time-consuming. It took at least a dozen injections. Unless a large amount of fluid was used, the results were uncertain. He preferred spinal anesthesia with novocain. The sacral paravertebral anesthesia looked uncalled for, one could get into the sacral canal with less trouble and more certain result.

Dr. F. C. Konrad said that the difficulties disappeared with practice. It was not for the surgeon to do, but for the anesthetist. The loss of time therefore to the surgeon was negligible. The patient did not need attention after operation, therefore one could have a continuous flow of patients. The amount of fluid was large, but the location of the injection precluded danger. Absorption was slow and anesthesia was prolonged. Elimination went on at the same time as absorption. Spinal anesthesia had accessory effects which could not be entirely eliminated. There had never been any untoward effects with this method, therefore even first attempts were without danger. The needles used were small and less likely to be broken.

The Pathology of Hemorrhagic Myomas and Their Relation to Sarcoma.—Dr. A. E. Hertzler of Kansas City made this presentation. The clinical significance of certain types of myomatous degeneration was studied. The development of hyaline dengeration of the vessel walls was illustrated and it was shown that hemorrhage into the tumor substance was due to changes in the vessel walls. The time of hemorrhage in some myomas could be determined by the clinical history of the case. This was due to increased vascularization during development. An interesting point was the chemical change in the blood, a lytic power being developed and a lack of calcium being found in the exudates, although just what significance this had was not as yet known. The whole question of sarcomatous development from hemorrhagic myomas was probably strictly a chemical proposition.

Dr. Emil Novak of Baltimore said that Dr. Hertzler's work was interesting. He, however, did not feel convinced that these cells derived from the blood vessels were becoming sarcomatous cells. One should be conservative about these statements. Most myomas showed hemorrhage and hyaline degeneration. A regular foreign body reaction was stimulated and the formation of giant cells took place. In a large ovarian cyst what seemed to be giant cell sarcoma was merely a reaction to an old hemorrhage by cells scattered in the granulation tissue. It was very easy to misconstrue a picture of this type. If Dr. Hertzler could show the actual transition of the cell he would put his demonstration on a firmer basis. This could be demonstrated with muscle cells, but hemorrhage did not tend to have this development in other parts of the body. The whole subject of sarcomatous development was of great importance and every myoma should be cut open before it left the operating room. Naked eye examination often would show the typical areas of raw-pork appearance. If these were shown a complete operation should be done. One reason often for unfavorable prognosis in these cases was that a sub-total hysterectomy was often performed, and later the total hysterectomy became necessary. This was as bad as operating on a carcinoma in two stages. There was little in the clinical history to show the point of sarcomatous degeneration. The overlooking of such cases, therefore, occurred rather frequently. At Johns Hopkins 1400 cases of myomas were collected and of these 17 were sarcomas. Thus it was seen that at least one per cent of these tumors might be potentialities for evil and they should be cut open and examined.

Dr. Van Hoosen of Chicago said that she could not take away anything from Dr. Hertzler's paper, but that she could add interesting facts concerning the reverse of the malignant process. These tumors might be converted into fibromas. A few slides were shown illustrating this process. In a case of inoperable carcinoma of the floor of the vagina, 9½ grains of emetine hydrochloride was given in 200 c.c. of physiological salt solution intravenously. In a week's time the hemorrhage and discharge had ceased. There happened to be no emetine in the hospital and a repetition of the dose was delayed. Finally, the patient was so anxious to repeat the treatment that she sent an interne out to get the drug and the dose was repeated. The first time there had been no reaction. The second injection produced a tremendous reaction and the patient died in one minute. It was not known at the time that the patient was at the height of sensitization after the first dose. At the post mortem the uterus was removed. There were no metastases and the growth was found greatly shrunken and the carcinomatous tissue was found to be replaced by fibrous tissue. In another case where small doses were given and gradually increased, the patient developed a toxemia, but there was nothing left of the mass. Very wonderful results had been obtained, but as yet the proper dosage of the drug had not been determined. A patient was shown, exhibiting complete arrest of the carcinomatous process.

Dr. A. E. Hertzler said that in the myomas that he showed there was hemorrhage in only a small fraction of the cases. In fully 90 per cent there was no blood in the balance of the tissue. He had found 4 per cent of sarcomas, the figure being therefore much higher than Dr. Novak's. One should be familiar with development of bundles of fibrous tissue *in vitro*. These things were brought together not so much to indicate a fact as a possibility.

The Radical Treatment of Cancer of the Cervix by Igni-Extirpation.—Dr. E. A. Weiss of Pittsburgh made this presentation. Radium and *x*-ray treatment were palliative measures only. The operative technique should be improved. The Wertheim operation was admirable, but there was a high primary mortality, and the questions of infection, hemorrhage, shock, and recurrences had to be considered. These all had a high incidence in operations on cancer of the cervix. Most operators agreed that heat produced the best operative results; 45 per cent of patients survived the 5 year period after this technique. In Wertheims' operation 25 per cent. survived the 5 year period. In the Werder operation the cautery was found better than the knife in that it effectively prevented recurrence by implantation of cancer cells in the vaginal areas. Large blood vessels were easily controlled by the cautery. Down's electric endotribe was used. The absence of bleeding tended to eliminate shock. A Percy flat blade, heated to a dull red heat, was most satisfactory. A high amputation of the cervix could be effected without bleeding, the cancer mass being manipulated as little as possible.

In searching for metastases it should be remembered that thickening of the tissues might be merely inflammatory. In doing the operation injury to the bladder and ureters was avoided by drawing the ureters aside and retracting the bladder. The knife was applied to the parametrium, the ligaments being made tense. Advantages of this method were the lowered mortality, less pain and shock, smooth convalescence, and higher percentage of permanent cures.

Dr. A. GOLDSPOHN of Chicago said that this operation was a valuable achievement but it should be permissible only for the expert gynecologists, not the rank and file of the profession. In the days of Lawson, Tait and Price, students were apt to listen to their teachings and then go home and try to do the same. The result was they populated the graveyards. There was a difference between knowing how and actual performance. The high mortality of these cases from 18 to 29 per cent was stunning to a patient who went to the doctor not because she was sick, for she was up and doing her household duties, but because she had a suspicious bloody discharge, and to hear that she had only two out of three chances to live was startling. It was therefore difficult to educate the public to come for early operation. There was a difference between the Wertheim and the Werder operations of 11 per cent. This was due to protection of the ureter. The uterine artery lay just in front of this structure and when the anterior cul-de-sac was opened the bladder and ureter could be separated and set to one side. A fairly radical operation could then be done. If metastases had extended into the parametrium then the ureter was dissected. It was, however, unnecessary to do desperate operations on people who had already one foot in the grave. It was of far more importance to educate the public to put themselves at an early stage in the hands of a competent man. The use of the cautery was equivalent to that of radium or the *x*-ray. Down's clamp had been lying by for years but recently its utility had been recognized.

Dr. GEORGE GELLHORN of St. Louis said that igni-extirpation of the uterus by means of the cautery had at one time (1894-8) promised excellent results, but after careful study of the records the operation, while a good one, was not considered so satisfactory as formerly. Its advantages were that recovery was easy and there was no implantation of metastases near the operative site. There the advantages ended. Its limitation was pronounced. It was applicable only in early stages of the disease. Most cases were too advanced for its application. It was not easy to pull the uterus into the vaginal opening. Dr. Weiss had said he pulled the cervix down but it was impossible to pull down a cancerous cervix.

Dr. L. SCHMIDT of Chicago said that the success in operation depended upon entire eradication. There would be no recurrence if all the cancer cells were removed. An exploratory laparotomy must be made and if there were any invasion of the surrounding tissues a total extirpation should be done. Such a condition was rarely found. In inoperable cases radium and the *x*-ray could be used to modify the conditions, and later the Werder technique could be used to liberate the cervix through the vagina. The abdomen was then opened and heavy radiation used with good results.

Dr. VAN HOOSEN of Chicago said that if the patients could be subjected to the 9 grain dose of emetine hydrochloride intravenously a fibrosis could be brought about in one week. The stiffness and infiltration of the surrounding tissues would disappear and the case would become much more easily operable.

Dr. J. L. KEEFE of Providence, R. I., said he had used the electric angiotribe in 200 cases. In 90 cases of thyroid operation he had found it valuable. It prevented hemorrhage and it was not hard to learn how to use it. If it was dipped in oil the tissues would not adhere to the blade. One should experiment on a piece of steak. The statistics of Werder and Weiss were better than any obtained hitherto. The heat of the cautery certainly did destroy the cancer cells.

Dr. CURTIS of Portland, Ore., said the pendulum was gradually swinging in favor of heat. Experience was as yet lacking in the use of this method, but it appeared to be excellent in well marked cases.

Dr. WEISS said that he had expected to receive sharp criticism. He was not condemning the Wertheim operation, but he had had a distressing experience with this method, and the plan he had advocated was rather a rehash of old methods than a new one. In the early operation illustrated in the slide, if the vagina was tight an incision could be used to widen the operative field. The Percy operation was not an exploratory one. When the abdomen was opened, it was determined whether to proceed or not. Abdominal exploration was not advised. If in doubt a high amputation should be done. This would give the patient a fair degree of health and there was not the slow tedious convalescence after laparotomy.

Dr. H. P. NEWMAN of San Diego, Cal., said that in every one of these cases there was a stage at which life could have been saved by some simple procedure. Time should be spent in educating the public for early operation so as to be saved such terrible affliction. Surgeons should get back to duty and try by this means to save the mortality in malignant disease.

The Conservation of Ovaries After Hysterectomy; with a New Technique of Extirpation of the Uterus.—Dr. G. GELLHORN of St. Louis made this presentation. Normal ovaries, left behind after hysterectomy, frequently gave rise to disturbances, such as cysts, adhesions, and degeneration, due to interference with the circulation. Many operators preferred to remove ovaries and uterus. The greater part of the ovary was supplied by the uterine artery, and after the removal of the uterus the delicate tissues of the ovary could not survive the blocking of the blood supply. The venous supply was blocked and congestion was bound to occur. This interference of uterine circulation could be avoided if the incision were made within the uterus itself, leaving a shell of the uterus and the circulation unimpaired. This would conserve normal ovaries and their secretion which was of great importance to young and middle-aged patients. The operation took perhaps 15 minutes longer than hysterectomy. Very fine catgut was used in suture and the results showed that the clinical behavior of the patient justified this technique. The field of opportunity was limited as, of course, diseased ovaries should not be conserved. Exact knowledge as to the influence of endocrine secretions was lacking and if it were possible to avoid depriving the patient of the sexual glands, it was the duty of the surgeon to do so. By this method the ovarian circulation was left entirely unimpaired.

Dr. BYFORD of Chicago said that this operation belonged entirely to the experts. In regard to the endocrinology, the ovarian secretion was useful to the young, but towards the change of life it became far less so. A woman might have another 45 years of life with no need of ovarian secretion. If with the removal of the uterus the sexual function had ceased what use was there in conserving the ovarian secretion? The woman might be more of a woman to her husband, and certainly taking out the ovaries gave women queer notions but this could be overcome by reasonable advice. Women would be put to much more risk of life if this operation were general.

Dr. B. SALATICH of New Orleans said that Dr. Gellhorn preserved the lateral portion of the uterus to keep the circulation. He had implanted the ovary between the fascia and muscle, and this had given enough circulation to continue the menstrual function. Often after operation the ovary was allowed to drop back into the cul-de-sac, and the consequent kinking of the ligament interfered with the return circulation and gave cystic degeneration. The ovary should be sutured in a straight line so that no interference with the return circulation resulted.

Dr. H. P. NEWMAN of San Diego, Cal., said this was an ingenious operation but he had used a clamp for broad ligament work which did what the doctor had done. This did away with hemorrhage. In a large majority of cases only the adventitious tissue was removed. The ovary was not removed and the results were uniformly good.

Dr. MCGEE of Burlington, Iowa, asked why the doctor had worked out this technique. Had he had any bad results from removal of cystic ovaries?

Dr. G. JACK of Buffalo said he had seen several cases

where the ovaries and uterus were removed for fibroid disease in which the woman was closely bordering on insanity. Most of them could recall similar cases. Dr. Gellhorn's point was well taken. The point made by Dr. Salatich about the precautions against twisting of the ovary was essential. The ovary should be sustained by the infundibulum.

Dr. G. Gellhorn, in closing, said that he would take issue with Dr. Byford. Even if the woman was unmarried and even if she never expected to have any sexual relations, she still needed the ovaries. This was not for gratification of sexual appetite, but to be one harmonious whole entity. The removal of the sex organs in man produced profound changes and the surgeon should have one standard both for the man and the woman.

The Age of Menopause; Observations Based on Statistical Data of Eight Hundred Menopause Cases.—Dr. K. I. Sanes of Pittsburgh read this paper. The difference in the menopause age was considered in relation to a large number of factors, such as race, climate, social status, relation of age to puberty, character of menstruation, marriage, sterility, fertility, and the age of the last pregnancy. The influence of pelvic and extra pelvic pathology was also studied. Racial differences showed that Circassians had a later menopause than Indians; Indians later than Mongolians; dwellers in warm climates earlier than those in cold climates. Exceptions, however, were noted. The Austrian women ceased menstruating 5 years earlier than the Germans, although of the same race. Persian women had a menopause 3 years earlier than Armenian women; the women of Southern Italy were later than those of the North. In the 708 cases studied the average age was from 45 to 50 years. Cases which started to menstruate either very early or very late ceased to menstruate early. This was contrary to the usual impression which supposed that very early cases continued later. Cases with extra pelvic pathology such as diabetes, nephritis, gout obesity had an average age of 47 years. Obesity often went together with early menopause and evidenced hypoactivity of the sex glands. Ovarian cysts induced an early climacteric. Atrophic pelvic organs also induced this condition. The impression that early marriage produced a late menopause was not true; the later the marriage the later the menopause. Unmarried women had an early menopause. A number of pregnancies increased the menopause age. This was in accordance with theories of the influence of the Graafian follicle. The reproductive capacity of women was seldom used to the full extent and 34 years was the average age of termination of fertility. The later the last pregnancy, the later the menopause. Profuse menstruation produced a later menopause with milder symptoms. Severe symptoms were usually attendant on an early menopause. Contrary to the usual belief a sudden menopause did not produce severe symptoms. The reverse was usually the case.

Dr. C. S. Foster of Pittsburgh said that race was supposed to have a marked influence, but there were exceptions, as in the instances cited by the reader of the paper. There must therefore be some other influence at work to cause this condition. The occupational or social status must have a bearing on the question. This needed a very comprehensive study. The influence of disease on the menopause was striking. It tended to lower the age. Local disease, such as fibroid tumor, increased the age. The relation of age of marriage was contrary to the usual belief. The number of pregnancies up to 6 raised the age.

Plastic Operations in the Vagina and on the Pelvic Floor.—Dr. S. E. Tracy of Philadelphia read this paper. These operations, he said, were done to repair injury after childbirth. Makeshift operations were often done on the perineum, from lack of skill in technique. Injuries to the cervix should be carefully repaired to avoid amputation. Vaginal incision should be made at the junction of the base of the cervix and the flaps should be sufficiently long to cover the stump. When amputation was necessary the flaps were sutured over the soft tissue. The vaginal wall should never be shortened. A damaged perineum should be repaired. No one operation was a cure-all, but different techniques could be used. In complete prolapse in a young woman, a portion of the vaginal wall should be sacrificed and a colporrhaphy done. After the menopause a round ligament operation could often be done, but it was not so desirable in a younger woman. Many lesions should be treated by the vaginal and not by the abdominal route.

Dr. H. Newman of San Diego, Cal., said that this work required skill and training. No one operation was applicable to all cases. The indications were according to the needs of the patient. Trachelorrhaphy had a place in the restoration of contour. Occasionally tracheloplasty was the preferable operation, the plastic operation being done after removal of adventitious tissue.

Dr. Goldspohn of Chicago said that repair of the cervix was an important prophylactic act in regard to what might happen to the woman at menopause. Malignancy might occur then and give a high mortality. Cervical cancer later arose from the Nabothian follicles and these must be removed. In elderly women the danger of miscarriage was less than that of cancer. Laceration of the cervix was not always pathological. It occurred with every first labor. A little slit was not a pathological affair. Induration of the cervix constituted pathology. Amputation should be done rather than trachelorrhaphy. The interposition operation was not necessary and should not be inflicted on a woman.

Dr. Tracy, in conclusion, said that one must get rid of pathological tissue and restore function and contour. He did not believe it wise to dissect the levator muscle unless the fascia was sutured. A small laceration did not need operation. Induration needed attention. The repair of the cervix should put it as near normal condition as possible. The cases must be carefully selected to get the best results. The public must be educated in order to reduce the mortality from malignancy.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Applied Bacteriology. Edited by C. H. Browning, M.D., D.P.H. 291 pages. Illustrated. Price, $2.50. Published by the Oxford University Press, American Branch, New York.

The Diagnosis and Treatment of Venereal Diseases in General Practice. By L. W. Harrison, D.S.O. 482 pages. Illustrated. Price, $7.50. Published by the Oxford University Press, American Branch, New York.

Infection and Resistance. New Second Edition. By Hans Zinsser, M.D. 585 pages. Illustrated. Price, $4.25. Published by the Macmillan Company, New York.

Diseases of the Heart. By Frederick W. Price, M.D., F.R.S. (Edin.). 472 pages. Illustrated. Price, $7.50. Published by Oxford University Press, American Branch, New York.

The Treatment of Cavernous and Plexiform Angiomata by the Injection of Boiling Water (Wyeth Method). By Francis Reder, M.D., F.A.C.S. 75 pages. Illustrated. Price, $1.50. C. V. Mosby Company, St. Louis.

Oral Sepsis in Its Relationship to Systemic Disease. By William W. Duke, M.D., Ph.B. 124 pages. Illustrated. Price, $2.50. Published by C. V. Mosby Company, St. Louis.

Interpretation of Dental and Maxillary Roentgenograms. By Robert H. Ivy, M.D., D.D.S. 146 pages. Illustrated. Price, $2.50. Published by C. V. Mosby Company, St. Louis.

Emergencies of a General Practice. By Nathan Clark Morse, A.B., M.D., F.A.C.S. 449 pages. Illustrated. Price, $4.50. Published by C. V. Mosby Company, St. Louis.

Cornell University Medical Bulletin. Vol. VII, No. 4. Studies from the Department of Psychiatry. Illustrated. Published by Cornell University, 477 First Avenue, New York City.

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THE TREATMENT OF DUODENAL ULCER.*

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NEW YORK.

BEFORE describing the treatment of duodenal ulcer, it seems advisable to give a brief outline of the diagnosis of these cases. We will deal principally with chronic ulcers.

Diagnosis.—Pain is the most constant symptom, and is usually localized in the right hypochondrium. Referred pain is experienced in the epigastrium or intercostal regions. The occurrence of the pain is usually from two to six hours after eating, but it is sometimes constant. The pain is often intermittent, lasting for a month and then subsiding for a few weeks. The character of the pain is usually acute and spasmodic when the ulcer is situated near the pylorus, and there is a dull ache in the duodenal region during the interval. The patient is always conscious of "something wrong" in this region. Backache is also very frequent. There is usually soreness or tenderness localized in the right hypochondrium. The pain is often relieved by small amounts of food or alkalies and is increased by acids, acid foods, meat, and large meals.

Digestive disturbances. Nausea during the attacks of pain, and sometimes vomiting, are present, and characterized by intermittency of symptoms. When the ulcer is actively bleeding, hematemesis and dark, bloody stools, or occult blood in the feces, occur. Only a few of the cases show these symptoms. Flatulence is nearly always present, but constipation is variable.

Toxemia. This form of toxemia seems to be peculiar to duodenal ulcer. It is different from the toxemia so common in lesions of the colon, and does not respond to the same remedies. It is due probably to a septic absorption from inflammatory exudate at the base of the ulcer, through the lymphatics, combined with the biochemical products from the duodenal epithelium, first noted in Draper's experimental work. The resulting symptoms are slight chilly sensations, brief rises in temperature, and mental depression. Small lesions in the sensitive duodenum give rise to severe general disturbances, as are evidenced by the disturbance following rough handling of this delicate organ at operations.

The coincidence of duodenal ulcer and appendicitis in the same patient is so very frequent that we cannot but pay attention to cause and effect in these two conditions. We might justly add to our list of symptoms those of chronic appendicitis. We must not only make our diagnosis very conservative, but we must also be very thorough at the time of operation.

When the ulcer is situated adjacent to the pylorus, pyloric stenosis, with its familiar train of symptoms, may result. This condition is nearly always of long duration, begins with the characteristic symptoms of duodenal ulcer, and then, as the pylorus becomes stenosed, the symptoms of a chronic dilated stomach appear. Very frequently no severe gastric symptoms are present, but emaciation is progressive. In severe cases there are marked epigastric distress and pain, gastric flatulence, hunger pains, and vomiting of large amounts of accumulated food, emaciation, and usually constipation. It is amazing, however, to see how much these patients will stand, and very frequently they do not consult a doctor until late in the disease. From the findings in the cases that have come under my observation most of the ulcers causing pyloric stenosis have started orad to the pyloric sphincter.

Physical examination of patients with duodenal ulcer usually shows well-nourished individuals with no evidences of gastric dilatation. Tenderness is generally present in the right hypochondrium over the duodenum. Tender points are frequently found along the lower intercostal nerves and a localized area of tenderness in the tenth intercostal space to the right of the vertebra. In gastric ulcer, the area of tenderness is often to the left of the spine, but there is no inflexible rule. This involvement of the intercostal nerves can be explained by the connections of the celiac plexus of the sympathetic and the intercostal nerves. More frequently, however, the cause must be attributed to the effect of a general toxemia on the whole nervous system.

The facial expression is often quite characteristic. As a result of the long-continued pain and distress, the face has a drawn, anxious expression, with a deepening of the lateral furrows, deepened and darkened eye sockets, and a toxic duskiness of the skin. The tongue may be only slightly coated, unless there is an accompanying gastritis and intestinal toxemia.

The true diagnosis often cannot be made until the *x*-ray examination is made. The characteristic findings are filling defects, irregular outlines, residues in the duodenum, and spasms of the pylorus. Great care must be exercised in differentiating these spasms from reflex ones due to lesions in other parts of the gastrointestinal tract. Occasionally the *x*-ray findings are more positive than the inspection during laparotomy, as in case of W. H. P., reported in this paper. A small defect in the duodenal cap was noted in the plates and fluoroscope examination,

*Read before the American Therapeutic Society at the annual meeting at Richmond, Va., June 8, 1918.

both before and after operation. Search for a defect was made during laparotomy, but none found, and the spasm and pain in this region still persist, so that we can be reasonably certain about the diagnosis. Hyperperistalsis of the stomach and duodenum, with rapid motility, are strong contributing factors in diagnosis. The value of gastric test meals is often doubtful. Hyperchlorhydria is often present, but normal or subnormal acidity is about as frequent. Ingestion of dilute hydrochloric acid is of little value.

The duodenal tube should be used, and may be of distinct service in the diagnosis. Its value is twofold: (*a*) From the examination of the aspirated duodenal contents, showing, perhaps, pus and blood; and (*b*) as an aid in the visualization of the duodenum. In some instances, when the rapidity of the passage of the bismuth or barium does not permit of proper visualization, irregularities may be demonstrated with the tube in situ, and filled with barium. It must also be remembered that there may be apparent deformities in the duodenal cap during the first few minutes after the ingestion of the bismuth or barium meal, due to the early slow and imperfect passage of the stomach contents through the duodenum. This mistake can be rectified by continuing the study for twenty minutes. Radiographs taken within the first ten minutes, and showing such defects, should always be interpreted cautiously. In one of our patients (M. G.), dilatation of the duodenum was the only finding, and operation revealed a large duodenal ulcer.

The string test is sometimes of value and simple, but the results are sometimes misleading, for it must be remembered that blood stains or blood are not always conclusive of ulceration. It is of value, however, as contributory evidence.

Treatment.—In order to treat duodenal ulcer intelligently it is necessary to bear in mind all the diagnostic points and the site of the lesion. It is fortunate that lesions in the duodenum are very rarely malignant, so that we can consider the process as benign.

The treatment should be considered under two heads: (*a*) Palliative, and (*b*) curative. Palliative treatment may also be curative, although all these patients should be considered surgical risks. Medicine and surgery share equal responsibility. Those men who claim that the majority of duodenal ulcers can be cured by medical means have probably had a good run of luck, but the teaching is pernicious. On the other hand, operation may also fail of a cure. Syphilitic ulcers may respond to antisyphilitic treatment, but positive Wassermanns and presence of tuberculosis do not exclude operative measures. The essentials in medical treatment are: (*a*) Diet, (*b*) rest, (*c*) drugs, and (*d*) duodenal lavage and local measures. In order to obtain success with a diet it is necessary to combine it with rest in bed. Many modifications of the famous Lenhartz diet have been made, but the formulæ should be flexible, in order to suit the individual. The first ten days should have a rigid diet of milk, eggs, or egg albumen, with frequent feedings. After that the diet can be gradually increased, and then a list of foods which are well borne should be given the patient.

The author will omit the minute details of diet, as these are boresome. In general, the articles of diet which are usually well digested and non-irritating are: Milk, sweet or fermented; egg albumen, rennet, cooked fruit of the non-acid type, stale bread or toast, butter, cream, thoroughly cooked vegetables, especially the green ones, and the light cereals, particularly strained oatmeal gruel. The foods usually contraindicated are: All kinds of meat and fish, acid fruit and raw fruit, vinegar, spices, large amounts of sugar, the heavy, starchy vegetables, as potatoes, lima or baked beans. Articles containing large amounts of cellulose and bran are not contraindicated, and are very useful to combat constipation.

Drugs. Alkalies are always useful, and apparently necessary in many cases. Of these, bicarbonate of soda is the best, and the magnesia preparations next. Bismuth subnitrate combined with heavy magnesium carbonate, in varied sized doses, will give temporary relief in nearly every instance. Hot water or milk, with bicarbonate of soda, is also extremely useful. The time to administer these alkalies is from two or four hours after meals and during the night. They should not be regarded as curative, but palliative only.

For the attacks of pain, some of the preparations of opium may be necessary to give relief; of these, tincture of opium and camphorated tincture of opium are the best. Morphine, hypodermatically, may be used when gastric irritability is too great, but is not as satisfactory as the opium preparations. Orthoform has a better effect on gastric than on duodenal ulcers; its usefulness in duodenal ulcers is of doubtful efficacy.

I have been using benzyl benzoate for the relief of pylorospasm and the consequent pain, with excellent result in one patient with duodenal ulcer. It has been recommended by Dr. David I. Macht of Baltimore, and said to be harmless as to habit formation. Complete relief was experienced by this patient in one-half to one hour, followed by a refreshing sleep. The relief was as pronounced as that from opium, but the effects two months later, according to the last reports, were not so good, and obtained only by larger doses. Operative measures will probably be necessary. Adrenalin hypodermatically has been reported on favorably by Dr. Charles G. Stockton, who obtained relief in four out of six cases. He used injections of 1 c.c. of a 1 to 1,000 adrenalin solution. As benzyl benzoate and adrenalin are supposed to have the same physiological action on smooth muscle, relieving spasm, their use should be logical.

Local application of cold or heat to the abdomen is of some value, and should be used.

The use of the duodenal tube. The duodenal tube is left in the stomach over night, and benzyl benzoate given if pylorospasm occurs. The following morning, on an empty stomach, the duodenum is washed out with plain hot water or soda solution. This is followed by instillations of silver nitrate, 100 c.c. of the strength of 1 to 20,000, up to 1 to 1,000, or 20 per cent. argyrol. The symptoms are relieved by this method, but care should be taken not to leave silver nitrate solution in the stomach, which should be aspirated before removal of the tube. The patient can follow up this treatment at home. In some patients, where the hydrochloric

acid content of the gastric contents is deficient, administration of hydrochloric acid has given good results, demonstrating the fact that pain is not always caused by this acid. On the other hand, large amounts of alkali may interfere with digestion.

Accompanying enteroptosis, constipation, and intestinal stasis must always be properly cared for. A large number of these cases are mistaken for gastric or duodenal ulcer, as the symptomatology of a residual stomach is very similar to that of ulcer.

Duodenal ulcer should always be regarded seriously, as the danger of perforation is very great, and delay in operative procedures may be fatal. Dr. C. L. Gibson has well described the symptoms of perforation as "very sudden, sharp pain in the epigastrium, faintness, or even collapse, abdomen becoming boardlike, retracted, and exquisitely sensitive to the touch. Vomiting at the beginning may or may not occur, and vomiting of blood is very exceptional." Operative treatment and repair of the ulcer, with or without gastroenterostomy, is imperative.

There are a variety of opinions as to the advisability of operation in the chronic cases. As a rule, we find the medical man inclined to treat them medically and the surgeon surgically; that, perhaps, is natural, as we all do that in which we are most proficient. It is to the internist, however, that we must appeal for advice, and he must be unbiased. Our opinion must be formed only after close observation of our operative and non-operative cases.

Of thirteen operations performed by Dr. J. W. Draper (personal communication), ten gave uniformly good results. First, in regard to the failures: Dr. Draper states that in the first place this operation has often been done either when no operation at all has been indicated, or when extensive resection of the right colon, developmental reconstruction, should have been done in its place. Again, the indications for the operation may have been clear, but the technique of its performance has been faulty. There is no way open for the practical elucidation of these problems equal to that of careful clinical observations on postoperative cases. Draper, in this study of thirteen cases, finds that two—in which he and Lynch subsequently performed the operation of developmental reconstruction of the colon—had undergone gastroenterostomy nine and twelve years respectively prior to the colonic resection. There had been, naturally, no improvement, but rather a clinical impairment, since the cases had not been suitable ones for gastroenterostomy, and this in spite of the fact that in each case, after *this lapse of years the stoma was found to be open and functionating.* The removal of a severely infected ceco-colon, in which, because of impaired epithelium, there were large amounts of subepithelial pigment, promptly cured these cases. These are striking examples of the need of careful preoperative study, so that such disastrous surgical errors in diagnosis may be avoided. In one case, the ulceration extended orad to the pyloric vein, and necessitated, therefore, a pylorectomy. Cancer cells were found in the overhanging margins of this ulcer, and as the gastroenterostomy following resection has functionated well, it was probably the operation of choice.

The remaining ten cases have given uniformly good results because they were done for more or less extensive duodenal ulceration, which had persistently refused to heal under modern medical treatment. The incidence of accompanying appendicitis is very large, no less than 90 per cent. in this series; five, or 50 per cent., had undergone simple appendectomy at least one year prior to the gastroenterostomy. The relation between cause and effect here is very significant.

One in which a pyloric resection was done required four operations before final cure, two successful stomata being established, only to be obliterated by inflammatory tissue. This patient has gained sixty pounds since the last operation, fourteen months ago. Competent men considered this case carcinoma, because of the massive glandular enlargement. All this has disappeared since the last operation.

Draper regards it as essential that Hartmann's advice be followed regarding the position of the stoma as close as possible to the pylorus, and at a point where the stomach can be cut directly across from the greater to the lesser curvature. His experimental studies upon animals corroborate his clinical findings as to the very great importance of this technical point.

I should like to quote in detail the case history of a typical small duodenal ulcer which showed definite *x*-ray findings, but could not be located at operation. It is also a good illustration of what medical treatment can accomplish.

W. H. P., male, 50 years, druggist. Patient was formerly a rapid and heavy eater and did not masticate properly. He was first seen six years ago, when he had complained for a year and a half of flatulence and eructations, the symptoms being worse at night. He had to sit up in bed with pain in the stomach and intestine; the pain was also worse when working, so that he had given up business. The bowels had been irregular for six months and he had been taking a purgative water and sodium sulphate regularly. The stools were constipated, whitish for a while, and covered with mucus. There had been loss of weight. At that time gastric analysis showed free HCl 37, combined HCl 17.75, organic acid and acid salts 45.25, no blood, no lactic acid. Radiographs showed normal stomach and intestinal stasis. Stools showed blood-streaked mucus, and the diagnosis was chronic colitis and constipation. He went to work on a farm and gained fifteen pounds. An abdominal belt for enteroptosis had also helped him. The pain continued, however, and one year later there was tenderness over the appendix.

Six months later he complained of pain starting in the right hypochondrium and traveling to the left side, lasting for eight hours and relieved by opium, ten minims of laudanum or ¾ grain of codeine. The pain would occur at night or early morning. No diarrhea, constipation nor mucus. The cecum crepitates. Colon irrigations were made.

Eight months later, January, 1917, there was a tender spot in the region of the gall-bladder and the pain in the upper abdomen still necessitated opium. String test was negative. He had attacks of food retention in the stomach. Orthoform relieved at times, but not nearly so effective as opium. Gastric contents showed free HCl 10, combined HCl 12, organic acid and acid salts 11, and total acidity 33.

In February, the next month, he had two bad attacks lasting twelve hours with food residues. I saw the patient at midnight, when he showed distinct pain, tenderness over McBurney's point, and right rectus rigidity. Gastric contents then showed free HCl 53, combined HCl 8, organic acid and acid salts 14, and total acidity 75.

Careful studies of gastric radiographs at this time showed a slight filling defect in the first portion of the

duodenum, close to the pylorus. Stasis, no ileal delay, no outline of appendix and no gallstones.

Dr. J. M. Lynch operated February 16, 1917. Appendix was very long, fibrous and bound at tip to terminal ileum. The proximal portion was dilated and acutely congested. The ascending colon was adherent by partial elbow adhesions to the liver. The adhesions were cut and the appendix removed. Gall-bladder, stomach and duodenum were normal, especial care being taken in examination, as duodenal ulcer was suspected. Constipation became severe after operation and there was a nephritis which cleared up. This decided us to be cautious about any further operation. Two months after the operation the patient was in excellent condition and had no pain.

One year later, February, 1918, patient had gained 19 pounds, but pain had returned last September with his old complaint of "formation of gases." Again he had to resort to opium and lost weight. The character of the pain was about the same as before and from two to three hours' duration. He had a tight sphincter ani and congested, dusky rectal and sigmoid mucosa. He had one slight attack of obstipation. Gastric contents showed free HCl 34, combined HCl 00, organic acids and acid salts 19, total acidity 43, bile present, lactic acid absent. Fluoroscope showed small active stomach, nearly empty in one hour. Pylorospasm was also demonstrated as seen in the lantern slides and also a small filling defect in the first portion of the duodenum. Tenderness in the duodenal region. He is taking small amounts of alkalies.

The duodenal tube was inserted over night, and the duodenal contents showed no blood, occult or otherwise. Duodenal lavage with hot soda solution.

This was followed by four days free from pain, the longest interval since September, 1917. The duodenal tube was inserted once or twice a week with lavage, followed by 100 c.c. of silver nitrate solution, beginning with 1 to 1000, which was left in, care being taken to aspirate any of the solution left in the stomach. The severity of the pain was gradually lessened, the intervals between attacks lengthened, with marked improvement in six weeks. The diet consisted of three eggs, milk one quart, strained oatmeal, cream, six slices of bread, stewed prunes and postum. Patient was not confined to bed, but rested and went to bed early. For the attacks of pain, benzyl benzoate in the following formula, as recommended by Dr. David I. Macht of Baltimore, was given: Benzyl benzoate 20 mils, alcohol 95 per cent. 80 mils, oil of peppermint 2 mils. Sig. Twenty drops in cold water once or twice a day. Relief from the pain and spasm was experienced in ¾ hour and complete in one hour. The diet was increased by the addition of arrowroot and tapioca. The patient stated that the relief from the benzyl benzoate was as complete as that from opium without disagreeable after-effects. The patient then went home and reported that the pains had recurred with some severe ones which were not relieved by the benzyl benzoate.

For two months the patient has been practising duodenal lavage every two days, and leaving in ½ ounce of 20 per cent. argyrol solution. The tube now enters the duodenum within an hour.

He was seen on May 31. The tenderness over the duodenum had disappeared and for one month there had been no pylorospasm attacks, the pains complained of being due to a constipation and colon spasm, caused probably by the constipating diet and flatulence. A more laxative diet was substituted, with bran, green vegetables, nuts, etc., and the duodenal lavage was continued. He has improved very much.

Conclusions.—1. Duodenal ulcer needs a careful differential diagnosis from gastric ulcer, as the prognosis and treatment are distinctly different from those in the latter.

2. The treatment of duodenal ulcer is usually medical and surgical; neither side should be neglected.

3. Under medical treatment, rest, and duodenal lavage and medication should be tried.

4. Operation is indicated in severe cases.

5. No-loop gastroenterostomy, after the method of Hartmann, should be done where possible.

6. The operation of gastroenterostomy may be useless if diseased conditions in the right iliac fossa are not rectified by removal of adhesions, kinks, cecocolon, etc.

7. In all operations for chronic appendicitis the right hypochondrium should be carefully inspected for evidence of duodenal ulcer, as the two conditions are closely associated.

8. Expert radiography, with fluoroscopy of the gastric and duodenal region, are essential, and sometimes of more value in diagnosis than simple inspection at operation.

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TREATMENT OF INTESTINAL STASIS BY DUODENAL LAVAGE.*

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The torrent of literature which has been poured out in recent years on the seemingly interminable subject of intestinal stasis is so vast and contradictory as fairly to bewilder the conscientious reviewer. While we all know what intestinal stasis is, as a profession we disagree about practically everything but the definition. In the pathological picture which the term involves, what is cause and what effect? It is a vicious circle, with a vengeance. A veritable legion of ailments is associated with the center of contemplation—the torpid bowel. Is the bowel the real culprit, or is it the goat? While one group of writers believes that a wrong and ill-assimilated diet is the principal cause of the stasis, leading in turn to numerous other complaints, another group holds the opposite view, and blames some anomaly of intestinal position for the malassimilation of the food and the consequent gamut of pathological possibilities. The proposed treatments differ, as a matter of course, as widely as the etiological views. While some would confine the treatment to medication, pure and simple, except when surgery is unmistakably indicated, others incline to the Biblical injunction to remove the offending member, and, on the assumption that even remote skin diseases are directly or indirectly due to intestinal kinks, membranes, adhesions, and bands, would fain anastomose the ileum with the sigmoid for the purpose of growing hair on a devitalized scalp.

While the experienced physician—who treats each case on its merits, instead of resorting to routine measures—finds intestinal stasis, with its associated pathological conditions, fairly amenable to indicated remedies, the fact remains that he must be content with having alleviated individual distress in a given case without having been able to solve the general question.

The addition of yet another method of treatment may therefore be viewed from two different angles: it may be considered a step in the wrong direction by those who flatter themselves that their own pet methods meet all the requirements, or it may be hailed with delight by those who have convinced themselves of the fatuity of medical and surgical endeavor in a large number of intractable cases.

*Read at the annual meeting of the American Therapeutic Society at Richmond, Va., June 7 and 8, 1918.

The title of this paper indicates that the new method to which I refer is duodenal lavage.

This method of treatment has several advantages, even in the improbable event of its not effecting the object intended: it is harmless, it does not mutilate or injure the anatomy, it will not in curing one pathological condition bring about another worse than the original; it will have a beneficial effect upon the intestine even if, in obstinate cases, which have yet to be determined, it should fail of its whole purpose. It is not the outcome of a fine-spun theory but the result of sober reflection, practical experience, and repeated application. The treatment may be given in the office, does not require detention at the hospital, and does not interfere with the daily occupation of the patient.

In cases of intestinal stasis associated with an obstruction, such as kinks, bands, and adhesions, I have found that clearing out the whole of the intestine from above the obstruction will give the bowel an opportunity to recover tonicity sufficient to overcome effectually the stasis. If there happen to be adhesions, compensation takes place in some way or other, and recovery is the result. The kink may remain the same, but the patient recovers his health, which, after all, is the practical object of any treatment in any condition. As long as normal motility is not interfered with there is absolutely no indication for surgical intervention. Lavage restores normal physiology, and if they are right who assert that the duodenum excretes a poison which is responsible for a great deal of the toxemia from which the human race suffers, then lavage, according to the method I am about to describe, is the remedy to remove the poison.

The immediate result in all of the cases I have so far treated, or which are still under treatment by this method, has been uniformly good, and the details of the clinical histories are therefore unimportant for the purposes of the present paper. I admit that all are recent cases, and that I cannot speak of end results until after a lapse of years; but in view of the fact that the immediate results have far exceeded all expectations, that, so far, no relapses have occurred, and that even in the event of a relapse no harm whatever is done and the treatment can be repeated, the patient having meantime enjoyed a long interval of good health, I consider myself warranted in strongly urging the adoption of duodenal lavage in all appropriate cases. I am convinced from the results obtained that in the majority of cases of intestinal stasis, duodenal lavage, as practised by me, will do all that surgery can do, and do it better, since it does not entail a train of possible deformities and their consequences.

The technique I have worked out and adopted is as follows:

While any of the many duodenal tubes can be employed, the instrument I now use is the duodenal tube of Jutte. The tube measures only one-sixteenth of an inch in external diameter, and is provided at the lower end with a small olive-shaped lead sinker, with perforations in the tube above. With a little practice the tube can be easily manipulated to insure its arrival at the pylorus, whence it is carried by peristalsis into the duodenum, with the patient lying on his right side. The pylorus should be patulous, and it is necessary, therefore, to undertake the proceedings on an empty stomach. By any of several well-known tests we can ascertain whether the sinker has arrived in the duodenum, and as soon as it has lavage may be begun.

Since Jutte's object in using his tube is the cure of a variety of ailments, he varies the composition of his solution accordingly, but I have found that for the treatment of intestinal stasis in general the best solution is 30 grams of magnesium sulphate and 60 grams of sodium sulphate in a liter of water. The lavage is given daily for ten days, as a first series of applications; then, on alternate days, for another ten days; and the third series follows at intervals of three days, the number of treatments given in this last series being only three or four. Although by this time success is fairly certain, I have made it a practice to continue with one lavage a week until recovery is fully established. There are no unpleasant by-effects, and patients will tolerate the treatment for any length of time without discomfort.

There has not been a single failure in any of my cases in regard to the clinical cure of intestinal stasis, and incidentally also of constipation, although the anatomical conditions of kinks and adhesions remain unchanged. From this positive fact several obvious conclusions may be drawn. The first is that kinks and bands—which, indeed, have been pronounced physiological by some authors—are not necessarily the cause of intestinal stasis, and that, consequently, their surgical removal will not cure the stasis. Another conclusion is that any other pathological condition—rheumatoid arthritis, gout, functional disorders of the heart, arteriosclerosis, epilepsy, asthma, cirrhosis of the liver, primary and secondary anemia, skin diseases, catarrhal inflammation of the mucous membranes, eye diseases, neuralgia, neuritis, insomnia, neurasthenia, melancholia, dementia, and insanity—should disappear after successful duodenal lavage treatment, if these conditions are really caused by intestinal stasis; and if they do not disappear after the supposed causative factor has been removed, it follows that the etiology requires correction—that these conditions were not, after all, due to intestinal stasis.

How far and in what way these conclusions will be supported by the final results of duodenal lavage, adopted on a wide scale, it is too early to state. Inasmuch as the intended clinical result, the removal of intestinal stasis, is fully assured by this method, its general adoption is to be hoped for, so that the combined observations of the profession in regard to incidental results in the improvement of other pathological conditions may be used as a basis for formulating a therapy for affections which have hitherto been more or less obscure.

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Food Conservation in Switzerland.—The Swiss Medical Commission reported in February that on account of the alarming food shortage no more barley, maize, rice, or other staple be utilized for brewing. The distillation of cherries, plums and grains, the manufacture of cider drinks from fruits and wine from grapes should be restricted as much as possible. Bars should be allowed to keep open only four hours daily, two each half of the day.—*Revue Médicale de la Suisse romande.*

THE SERUM AND VACCINE TREATMENT OF THE PNEUMONIAS.*

By FRANCIS E. STEWART, M.D., Phar.D.,

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THE old classification of pneumonias as lobar pneumonia and bronchopneumonia is giving place to a new classification, namely: pneumococcus pneumonia, streptococcus pneumonia, and mixed pneumonias in which both the pneumococcus and streptococcus, and sometimes other microorganisms take part. Attention should be directed to the excellent work done at the Rockefeller Institute in regard to types of pneumococci and their specific etiological relations to the pneumococcus pneumonias. The serum treatment of the pneumonias and the possibility of immunizing troops and civilians against the pneumonias should be considered.

The work of medical scientists and the results of their findings in this connection will prove far reaching in the practice of pneumonia prophylaxis and treatment. More attention will be given to the future treatment in hospitals where laboratory facilities are conveniently at hand. The tendency in the cities and towns will be for the general practitioner to transfer pneumonia patients immediately to the hospitals when it is possible to do so. As for the country doctor, situated remote from medical centers, the question, what shall he do? is a most interesting subject.

A general practitioner from the country district may well ask: "How is a physician engaged in country practice and not provided with proper laboratory facilities to determine whether his patient has a pneumococcus pneumonia or a streptococcus pneumonia, or is suffering from a mixed infection?

"You advise the country physician to send a specimen of sputum to a medical center for bacteriological diagnosis. This advice I do not consider of much value. Pneumonia is a treacherous and uncertain disease. A patient may be taken mildly ill with every reasonable expectation of recovery, yet may die suddenly and unexpectedly. If the doctor is forced to wait two or three days for a bacteriological diagnosis, the chances of recovery from a serious disease, that in its usual course terminates in from five to nine days, are reduced to a minimum.

"You say that the fundamental principle of treatment, in the light of present knowledge, is to inject promptly anti-pneumococcic serum intravenously in all cases of pneumococcus pneumonia, whether mild or severe, and give doses sufficiently large early in the treatment of the case to destroy completely the infecting microorganisms and neutralize their poisons. But how is the general practitioner, located in the country remote from medical centers, to know whether his patient has pneumococcus pneumonia or not?

"You also tell me that there are several types of pneumococcus; also, that there are several types of streptococcus; therefore, there are several types of pneumococcus and streptococcus pneumonias. Should a specific serum be used for each type of pneumonia? Or is the proper procedure to give the patient a polyvalent antipneumococcus serum, and a polyvalent antistreptococcus serum conjointly?

"I confess that the condition of my mind seems to be one of confusion worse confounded."

The dilemma of the country practitioner is typical of that of many practitioners in country practice all over the land. What can the American Therapeutic Society do to aid the country doctor in this dilemma? As an aid to the discussion of the subject a brief review of some points in regard to the etiology and treatment of the pneumonias, resulting from researches in this country and abroad, may prove serviceable.

We are indebted to Avery, Chickering, Cole, and Dochez for their researches conducted at the Rockefeller Institute, which have demonstrated that at least three types of the pneumococcus cause pneumonia. Furthermore, pneumonia may be caused by several other kinds of microorganisms, as we all know.

The pneumonias caused by Types I, II, and III, including group IV which possibly includes twelve or fifteen other types, vary in frequency, in severity, and in response to serum treatment.

In regard to the incidence of various types of the pneumococcus and the resulting mortality, the following table and explanatory statements are taken from the "Monographs of the Rockefeller Institute for Medical Research" No. 7, page 733.

Incidence of Various Types of Pneumococcus and Resulting Mortality

Type of Pneumococcus	Incidence, Per Cent.	Mortality, Per Cent.
I	33	25
II	31	32
III	12	45
IV	24	16

"The statistics given in the above table approximate the facts as closely as they can be ascertained at the present time. Organisms of Type IV have in our experience been found to possess the lowest virulence of the different types for human beings. Type III pneumococcus, although it is the cause of the smallest percentage of cases, nevertheless gives rise to a high mortality and the outlook for a patient infected with Type III pneumococcus is comparatively bad. Pneumococci of Types I and II are responsible for about 64 per cent. of all cases of lobar pneumonia and are of relatively high virulence for man, the largest number of deaths in lobar pneumonia being due to these organisms. The mortality in Type I infection is 25 per cent. and in infections with Type II pneumococcus about 32 per cent. These two types together are responsible for approximately 62 per cent. of all deaths from lobar pneumonia. It is evident, therefore, that the outcome of any case of lobar pneumonia is influenced by the type of organism with which the individual is infected, and knowledge of the type of pneumococcus causing the infection is therefore of value in prognosis. It must be borne in mind, however, that there is considerable variation in the severity of the individual cases due to the different type of pneumococcus."

The following editorial statement occurs in the department of therapeutics, *Journal of the A. M. A.*, Feb. 9, 1918:

*Read at the annual meeting of the American Therapeutic Society in Richmond, Va., June 7 and 8, 1918.

The serums against infection with Type I organisms appear to have produced especially good results, and to be highly effective in treatment of cases of pneumonia due to its type of organisms. The serum of Type II is much less efficacious and, indeed, it has not yet been thoroughly demonstrated whether it has any valuable effect on the outcome of disease. The serum for Type III organisms has apparently but slight therapeutic power and has not been considered worthy of use in infections with this organism. The same is true with infections with Type IV pneumococcus. Commercial preparations of these serums are available and also polyvalent serums. These polyvalent antipneumococcus serums are of extremely doubtful value. It has been suggested that polyvalent serum be given until the type of the organism is determined, and that following this the specific serum for Type I or Type II may be utilized if the infection proves to be of that character. . . . It has also been suggested that every pneumonia patient receive, immediately after being taken to a hospital, a large dose of antipneumococcic serum of Type I, with the idea that the case may prove to be of that character and considerable time will be gained. . . . The serum treatment of pneumonia with Type I serum is quite likely to be harmful because the intravenous injection of 100 or more cubic centimeters of horse serum can hardly be devoid of harm, and is certainly not to be used except when very decided benefit may be expected to follow its use.

I am calling attention to the latter statement because the editorial writer was evidently not posted in regard to the chemical composition of antibacterial serums in general. Polyvalent serum and Type I serum are practically identical, the only exception being that the former contains antibodies against Types I, II, and III pneumococcus and the latter antibodies to Type I only. Moreover, polyvalent serum contains the same amount of antibodies against Type I pneumococcus as Type I serum.

Polyvalent serum, therefore, if properly prepared, has exactly the same specific action against Type I infection as Type I serum has, and it also possesses immunizing properties against the other types of the pneumococci, in so far as the antibodies against these types are effective in combating Types II and III. It is true that whenever any one of these serums is employed "100 or more cubic centimeters of horse serum" are injected. But the writer of whom the editorial speaks, advises routine injections of Type I serum before waiting for type diagnosis, and, therefore, advises the injection of "100 or more cubic centimeters of horse serum" containing antibodies against Type I pneumococci, before waiting for type diagnosis. The advice in regard to the immediate use of serum treatment without waiting for type diagnosis, for the purpose of saving time, is good advice, and if the physician uses polyvalent serum containing antibodies against Types II and III, pneumococci, he is not only following that advice, but he is possibly giving his patient even better service than though he had only injected Type I serum. In either case he is forced to inject "100 or more cubic centimeters of horse serum" for he cannot administer the required dose of antibodies without so doing, whether he uses Type I serum or the polyvalent product.

Both Type I serum and polyvalent serum are being supplied by the large producers so that physicians may take their choice between them. There is no special reason why the producers should prefer to advocate the use of either one in preference to the other. The choice lies with the physician, but it would seem to me more logical to use standardized polyvalent serum than the Type I serum.

In the opinion of prominent army surgeons, with whom I have talked, the use of polyvalent serum possessing antibodies to Types I, II, and III, serves a better purpose than the employment of Type I serum, because it produces more or less immunity to re-infection.

Owing to the fact that observations of these army men were imparted to me in confidence and have been incorporated in their official reports, which are in the hands of the Surgeon General, and which have not yet been published, I am, of course, not permitted to use their names.

But, in the light of recent reports received from Fort Sam Houston, Camp Travis, Camp Oglethorpe, and other army posts, it is far more important to find out whether the patient is the victim of pneumococcus or streptococcus pneumonia, or is suffering with a mixed infection, than it is to determine the type or types of organism responsible for the condition.

Fortunately, it is not necessary for the country doctor to secure a bacteriological diagnosis before resorting to serum or vaccine therapy in the treatment of pneumonia. Nearly all that can be obtained from serum treatment is possible to secure by conjoint use of polyvalent antipneumococcus and antistreptococcus serums. Accuracy in diagnosis and treatment may require laboratory facilities, but the country doctor, who is not in a position to avail himself of such service, need not let his patient die for the want of it. The most important thing to remember is the necessity of prompt action and the use of large initial dose (100 c.c.) and repeated injection, for the purpose of destroying the infecting microorganisms, neutralizing their toxins, and keeping the blood sufficiently loaded with antibodies to prevent reinfection.

The Serum Treatment of Streptococcus Pneumonia.—Now in relation to the serum treatment of streptococcus pneumonia, the light shed on the subject by the researches carried on at the Base Hospital, Fort Sam Houston, San Antonio, Texas, is quite illuminating.

The first report of these researches appeared in the *Journal of the A. M. A.*, April 13, 1918, in a paper entitled "The Pneumonias: Streptococcus and Pneumococcus Groups," contributed by James G. Cumming, M.D., Major; Charles B. Spruit, M.D., First Lieutenant, both of the Medical Reserve Corps of the United States Army, and Charles Lynch, M.D., Colonel, Medical Corps, United States Army and Department Surgeon. This report followed a conference of medical officers from Fort Sam Houston and Camp Travis, held Jan. 13, 1918, for the purpose of considering the pneumonia situation. Various points in the determination of the causative organism in pneumonia following measles were considered, methods of procedure were suggested, and the laboratory force was organized to take up the work. A preliminary report was sent to the Surgeon-General of the United States Army, Feb. 7, 1918. The paper contributed to the *Journal of the A. M. A.* consists of a part of the original report, together with additional cases and comments.

Of patients with pneumonia following measles, 28 blood specimens in all were tested. Of these, 24 were negative while 4, or 17 per cent., were positive for hemolytic streptococci. In the series of necropsies reported, a much larger percentage of

the specimens were positive. Of the 61 examinations of pleural exudates from patients in the pneumonia wards, organisms were found in 48 specimens. Of 41 lobar pneumonia specimens, 59 per cent. proved to be pure streptococcus, and 41 per cent. pneumococcus. Of 7 bronchial pneumonia specimens, 86 per cent. were streptococcus, and 14 per cent. pneumococcus. By consolidating these two groups, the authors found that 63 per cent. were hemolytic streptococci and 37 per cent. pneumococci. In the 31 necropsies, streptococci were isolated from 21 lung specimens, 22 pleural exudates, 14 pericardial exudates, and 15 hearts' blood specimens. The streptococcus was isolated in each of the 24 bronchopneumonia cases. Of these 24 cases, 18 or 75 per cent. are known to have followed measles. In only one necropsy on a patient that had had pneumonia following measles was a type epidemic pneumococcus found, and this was coexistent with the hemolytic streptococcus; while in the 7 lobar pneumonia cases, hemolytic streptococci were found, either in pure culture or coexistent with pneumococci, in 5, or 71 per cent., of the necropsies.

The authors state: "It would appear that the hemolytic streptococcus was the cause of death in 29, or 94 per cent., of the 31 cases of lobar pneumonia included; and since this organism was found in entirely pure cultures in all lung specimens, as well as in pure cultures in either serous exudates or the hearts' blood or both, in cases of pneumonia following measles, it may be concluded that the hemolytic streptococcus is the causative organism in this complication following measles; moreover, that it was the immediate cause of death in a large percentage of the so-called lobar pneumonia cases."

The authors conclude that on account of the unquestioned prevalence of streptococcus pneumonia, both as a complication of measles and as coexistent with lobar pneumonia, it is apparent that a new differential procedure for type identification must be devised. In none of the lobar pneumonia cases which at necropsy showed both pneumococci and streptococci, had an ante-mortem diagnosis of type epidemic pneumococci other than Type IV been made.

Because streptococci were found in 55 per cent. of the cases, because mortality from infection by the streptococcus is high in the so-called lobar pneumonia cases, and because the streptococcus has not heretofore been recognized as an important factor in the pneumonias, the authors consider the identification of this organism in the sputum of great importance in determining the proper therapeutic treatment and say that some of the failures of the antipneumococcic serums in the treatment of lobar pneumonia are doubtless due to the hemolytic streptococcus. Therefore they advise that a specific antistreptococcus serum of a high titer be applied to both groups of pneumonias, believing that this will be the most effective agent in reducing the high mortality.

The results of the researches of Cumming, Spruit, and Lynch at Fort Sam Houston, were verified in essential particulars by the report of the commission sent by Surgeon-General Gorgas to Texas in February to study the pneumonia existing there.

This commission was composed of Drs. Rufus Cole, W. G. MacCallum and Oswald T. Avery, Contract Surgeons, United States Army, Captains A. R. Dochez and R. A. Kinselle, and Lieutenants F. G. Blake, T. M. Rivers, H. John, F. A. Stevens and William C. Von Glahn, Medical Reserve Corps. This especial study was undertaken at the Base Hospital, Fort Sam Houston, which was chosen for this work merely because pneumonia was prevailing there to a large extent at the time, and also because of its proximity to the laboratory of the Southern Department, where facilities were available for carrying out the bacteriological and pathological examinations. This report appears in the *Journal of the A. M. A.*, April 20, 1918, page 1146. It is entitled "Pneumonia at a Base Hospital." Part I deals with the etiology and clinical features of the pneumonia occurring in the hospital and was contributed by Dr. Cole. Part II deals with the pathology by W. G. MacCallum. The researches of the commission bring out many of the points concerning the bacteriology of the pneumonias occurring in the paper of Cumming, Spruit, and Lynch, already referred to. It was observed that pneumonia occurred frequently in the camp, but not always as a sequel of measles; that the coryza, conjunctivitis, and laryngitis produced by measles appeared to predispose to infection of the respiratory tract with bacteria; that streptococcus infection might occur in a person who had not had measles, and it is quite probable that other diseases, such as scarlet fever, predispose to it in the same way as measles. MacCallum says "When *Streptococcus hemolyticus* gained a foothold it usually caused in this series of cases the anatomic complex called here 'interstitial bronchopneumonia.' This is the same whether it is preceded by measles or scarlet fever, or by other diseases, and its characters are due to the specific effects of the streptococcus. When lobar pneumonia followed measles, the pneumococcus was in this series accompanied by the streptococcus, and in some cases the lobar pneumonia was complicated, anatomically, by the corresponding bronchopneumonia."

It was also observed that infection with the hemolytic streptococcus does not always cause an interstitial broncho pneumonia, but may produce a patchy lobular pneumonia.

The author states that "one of the most interesting features of our study of the cases in this hospital is the recognition of the invariable connection of *S. hemolyticus* with that characteristic anatomic lesion which was well known, but to which we have for convenience given the name 'interstitial bronchopneumonia.' * * * Empyema is a practically constant accompaniment of this condition and is of extremely serious import."

The report also states that "lobar" pneumonia due to pneumococcus has been found in many cases, not especially related to the occurrence of measles, but often complicated by secondary or coincident infection with *S. hemolyticus*.

One of the latest contributions to the bacteriology of the pneumonias is the report contributed by George F. Dick, M.D., of Chicago, and published in the *Journal of the A. M. A.* for May 25, 1918. It is entitled "A Bacteriological Study of the Pneumonia Occurring at Camp Pike, Arkansas." The study is based on sixty cases of pneumonia admitted to the base hospital during February and March. The evidence obtained by examination of the sputum was further substantiated in a number of cases by bacteriological examinations of the blood during

life and of the lungs after death. This report confirmed the statements of the other investigators quoted in relation to the frequency of the streptococcus as an etiological factor in penumonia.

The pneumococcus cases form 48 per cent. of the 60 cases studied; of these 21 per cent. were Type I, 34 per cent. Type II, and 45 per cent. Type IV. Only one case of Type III was observed.

In 46 per cent. of the cases streptococci were the predominating organisms; of these 46 per cent. were non-hemolytic. In the cases coming to necropsy the pneumonia in which this type of organisms was found resembled the ordinary pneumococcus lobar pneumonia.

As stated by the author, his series of cases is interesting on account of the high percentage of streptococcus infection particularly due to the non-hemolytic organisms, which were also found associated with cases diagnosed as influenza and in the pus from appendicitis.

Vaccine Treatment of the Pneumonias.—You will doubtless remember that in 1912 Sir A. Wright undertook some investigations for the purpose of testing out the value of bacterial vaccines in the prophylaxis and treatment of pneumonia. These investigations were carried on in the South African gold and diamond mines. At this time the existence of definite groups of the pneumococcus, distinct and possessing specific immune reactions, had not been definitely proved, so it is not known what groups of the pneumococcus were included in the vaccines he used. However, as pointed out by the *Lancet*, April 13, 1918, the results of these investigations were valuable as the remarkable reduction in the mortality of pneumonia among the native mine-workers fully demonstrated.

Mr. F. S. Lister, bacteriologist of the South Africa Institute for Medical Research, who independently worked out the differentiation of pneumococci into several distinct groups by a means of immune reactions (Publication 2, South Africa Institute of Medical Research, 1913), found that the pneumonia prevalent among the workers in the diamond mines at Kimberley, South Africa, is due, mainly to three groups of pneumococci. (Publication 10, South Africa Institute for Medical Research, 1917.)

The *Journal of the A. M. A.* for April 20, 1918, page 1163, informs us that Lister found that "three subcutaneous inoculations with the triple vaccine of the three groups prevent the occurrence of pneumonia as caused by members of these groups, but not the pneumonia due to other groups of the pneumococcus." From seven to ten million of pneumococci were given at each injection, the cocci being first killed by a germicide and not by heat.

The fact that Lister has apparently succeeded in preventing pneumonia caused by the pneumococcic groups of which his triple vaccine was made, is certainly worthy of serious consideration. "The suggestion lies near at hand that prophylactic inoculation with the prevailing groups of pneumococci should be given a thorough trial where susceptible persons are aggregated under conditions that usually cause the outbreak of pneumonia."

Lister found that his own serum, following vaccination, contained agglutinins and opsonins, against the type of organism injected, eight months after the last inoculation.

Cumming, Spruit, and Lynch, to whose report I have already referred, consider it advisable to vaccinate measles patients found to be hemolytic streptococcus carriers, and also advise vaccination against the streptococcus irrespective of measles patients, because the hemolytic streptococcus is of such universal prevalence, they believe that such universal vaccination would protect against the infection and if this procedure is carried out the case rate, as well as the mortality of the pneumonias, both pneumococcus and streptococcus, would be reduced by a large percentage. They suggest the use of a triple vaccination for this purpose, consisting of the hemolytic streptococcus and pneumococcus Types I and II.

Dr. E. C. Rosenow, of the Mayo Foundation, Rochester, Minn., reported results in the treatment of 200 cases of pneumonia with a partially autolyzed pneumococcic vaccine. In his report published in the *Journal of the A. M. A.*, March 16, 1918, he recommends that a polyvalent vaccine prepared in this manner be injected in all cases of lobar pneumonia as soon as the diagnosis can be made.

Mixed vaccines were opposed for a time by some of the specialists in vaccine therapy, also the use of stock vaccines, but more recent investigations have removed much of the prejudice. Dr. Aldo Castellani, Regius Professor of Tropical Medicine, University of Naples, and for some time in the British colonial service in Ceylon, as director of the Clinic for Tropical Diseases and Bacteriological Institute, was one of the first to emphasize the importance of mixed stock vaccines. For a number of years he advocated the mixed vaccine of typhoid and paratyphoid A and B. Not only did he advise the use of mixtures of typhoid and paratyphoid, but also suggested the addition of the microbes causing cholera, plague, and Malta fever. He furnished data to show that agglutinins developed in the serum as a result of the inoculation of such mixed vaccines were not less than when the vaccines were given separately. ("Some Recent Vaccine Therapy," by Alex. Fleming, F.R.C.S., *Practitioner*, April, 1917, page 322.)

In a private communication, dated Sklopje, Serbia, August 23, 1915, Dr. Thos. W. Jackson, a member of the commission appointed for the extermination of typhus fever in Serbia, referred to Castellani's "tetravaccine" (cholera, typhoid, and the paratyphoids) and said that it had been adopted by Dr. Richard P. Strong of the commission and also by the Serbian government. Dr. Jackson stated that more than 120,000 doses of this vaccine had already been administered without harmful results.

McCoy, in a paper appearing in the *Journal of the A. M. A.*, speaks in favor of mixed vaccines in typhoid fever. He says combined vaccines consisting of the typhoid bacillus, the two paratyphoids, the dysentery bacillus, and sometimes the cholera vibrio have been used to some extent. "There appears to be justification for the use of such combinations as preventives under special conditions."

Sir Almroth E. Wright has strongly advocated and applied a mixed "asepsis vaccine" prepared from mixed cultures for vaccination against mixed infections occurring in the wounded. According to the latest information at hand, half a million doses have been administered.

By means of the Abderhalden test, Smith demon-

strated in the Mulford Laboratories that specific antibodies for each of a number of varieties of bacteria are formed as a result of the inoculation of a mixture of the microorganisms employed, namely: *Staphylococcus aureus, Staphylococcus albus,* streptococcus, pneumococcus, *Bacillus influenzæ* and *Micrococcus catarrhalis.*

Now mixed typhoid and paratyphoid vaccination is almost exclusively practised in the army, and mixed vaccines for immunization against various mixed infections and for their treatment are quite in vogue. So it did not come to us with as much of a surprise when the above reports recommending mixed vaccines for immunization against pneumonia appeared. Nor were we surprised when one of our members, Dr. S. Solis-Cohen of Philadelphia, in a paper read before the Philadelphia County Medical Society, March 13, 1918, said that at Fort Oglethorpe, he had become conversant with the work of Capt. Arthur Dare and Dr. D. H. Bergey, assistant chief of the laboratory, who had put into execution at the hospital the treatment of pneumonias with a mixed vaccine and in more than a hundred cases of lobar pneumonia treated with this vaccine the death rate had been less than 6 per cent. (See Report Symposium on Pneumonia, MEDICAL RECORD, April 27, 1918, page 743.)

In the light of the above evidence and more of the same kind that might be presented if the time limits of this paper would permit, what advice shall be given the country doctor relative to pneumonia treatment without bacteriological diagnosis? In response to this question I have received the following answers:

1. Use antipneumococcic and antistreptococcic serum conjointly, employing the polyvalent serums. assuming that the patient is probably suffering with a mixed infection.

2. Use a polyvalent vaccine made from as many strains or types of the pneumococcus and streptococcus as it is possible to obtain. Preferably employ a sensitized vaccine, because the first step in the immunizing process has already been accomplished outside of the patient's body; therefore the immunizing response is more rapid and complete; moreover, there is less likelihood of severe reaction.

3. Use both serums and vaccines in the treatment of the same patient.

4. An original suggestion of my own: Have a serum prepared by immunizing horses against mixed cultures of pneumococcus and streptococcus. I presented this suggestion to one of the best known producers of biological products engaged in the preparation of serums and was informed that the preparation of such a serum was already under way.

11 WEST PHILELLENA STREET.

ACUTE INTESTINAL OBSTRUCTION.*

BY JEROME MORLEY LYNCH, M.D., F.A.C.S.,

AND

JOHN WILLIAM DRAPER, M.D., F.A.C.S.,

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"ALL our notions, thoughts, sentiments, even the loftiest ideals, are drawn from experience; and no man can hope to trespass beyond the limits which God has been pleased to set to our experience.'"

We present herewith an analysis of our last twenty-four cases of acute intestinal obstruction occurring in twenty-two patients, showing a mortality of 25 per cent. We attribute this low mortality to several factors, the most important being early recognition, immediate operation and reliance on Murphy's famous dictum: "Get in quickly and get out quicker."

As to cause—5 were due to intusseption, 1 death; 5 to cancer, 2 deaths; 8 to postoperative bands or displacements, 3 deaths; 1 to hydronephrosis, and 3 to ileosphincteric transplanatation.

As to recurrence this occurred three times in one luetic individual several weeks apart, the last one being fatal.

Operative trauma. We are unable to connect mechanical traumata with postoperative obstruction, still holding, as we have said before, that adhesion formation is in direct proportion to the fibrogenetic and fibrolytic functions of the individual.

As to arbitrary periods in obstruction, we recognize three, the first until the 48th hour, the second until the 72d hour, the third after that hour.

As to time of operation, all patients operated upon during the first period lived; 90 per cent. in the second period lived; the mortality occurred in the third period, when, owing in large part to impairment of the detoxicating power of the liver most of the patients were beyond help.[2]

Drugs. The effect of these was most undesirable. Several cases were lost because of the mistaken idea that drugs were helping.

We now know that so-called adynamic ileus never kills a patient if the stomach and colon are washed out. It is simply nature's effort to cure by rest the localized peritonitis which always follows every operation, and, like every protective symptom should be let alone.

It is interesting to note how nearly the observations we have made on animals coincide with our findings in human cases, the most important of course being that the nearer the obstruction lies to the lethal line of the duodenum the more violent the symptoms and the graver the prognosis.[3]

The coefficient of relative toxicity in animals finds its counterpart in human beings. This is atural when we remember that the very spring of life is situated in that duodenal area where the important secretions of the pancreas and liver empty. This reminds one of the questions put to his class by a well-known professor of anatomy, "Why do the ducts of the pancreas and liver empty into the duodenum?"—the answer, of course, being that "these great glands arise from this portion of the gut." Since this is so, it follows that the epithelial hormones of these parts must be sympathetic, and that interference with one must cause a cataclysm in the others.

We have held for years to the endocrine rather than to the bacterial theory of acute obstructive death, and the recent human study herewith presented strengthens this belief. The bacterial co-

*In part from the Laboratory of Surgical Research, New York University

efficient which may play an important part in the chronic obstruction of the aboral portion of the gut has no place in the discussion of acute obstruction because it does not exist.

As to pain. Deaver, after reading a paper on intestinal obstruction, hurled back this answer to a member of the audience who asked his grounds for operating—"I operate for pain." In agreeing to this we qualify it as follows: "The intensity of the pain is directly proportionate to the strength and irregularity of the peristaltic wave." (Lynch.) The pain is periodic; increasing to a climax of intensity, followed by gradual decline to a period of rest. It is possible to chart this pain and the curve of its intensity will be found to agree very closely with the known curve of intestinal peristalsis. This is the period in which operation to be of use must be performed. During this period, which is usually up to the forty-eighth hour, there is no appreciable disturbance of pulse or temperature and no distention. The pain of peritonitis, on the contrary, presents a wholly different curve in that it is constant, never reaches zero, and is subject to very irregular fluctuations. One resembles a temperature chart of intermittent fever, the other of remittent fever.

The second period, starting often at the forty-eighth hour, is marked by vomiting, slight pulse rise, and may be by some distention.

The third period, after the seventy-second hour is characterized by marked changes. The character of the pain is changed, and its intensity is diminished but it remains more or less constant. This is due to peristaltic inaction due to localized peritonitis. It is a purely secondary and terminal condition influencing the pain, but not the outcome; since, as we have already shown, by this time the glucuronic pairing capacity of the liver is already fatally impaired and operative removal of the obstruction is useless. At this period also the patient becomes distended and apathetic and often feels better. This is a very serious danger signal, analagous to that often seen in gangrenous appendicitis. The vomiting is copious and, because protective, is proportionate to the requirements of the organism.

No patient has ever been saved from obstruction by any measure save operation. Countless lives have been lost by giving drugs. These only camouflage the fateful picture of intestinal obstruction; lull the physician into fancied security, and the patient into the grave. Why is this so? Because of the prevailing idea that there are two forms of intestinal obstruction, one medical, the other surgical. This is not true and the sooner it is recognized the better. One is lethal, the other protective; one is pathological, the other physiological. The point is to distinguish between the two. The one is a rapidly fatal intoxication arising from mechanical interference with the endocrine system, and is surgical; the other is the normal reaction of the organism to infection or to trauma, is protective and should therefore be encouraged. Whatever physiological obstruction symptoms result from it are easily cured by washing out the stomach. It is the old cart-before-the-horse story of giving medicine to lower blood pressure, to stop coughs, to check diarrhea without consideration of cause and effect. Esoteric protective symptoms are important.

Drugs are not the only danger. Enemas, while safe in themselves, often lend false and fancied security—so many men are encouraged by the passage of a little gas and feces, as to abandon operation, thereby putting the patient's life in jeopardy. The colon can be depended upon to produce considerable gas and feces at any time, and at almost any level, therefore, unless there is a distinct recession of all pain, with copious movements of both gas and feces, it is imperative to remember that the patient is still in danger.

Following abdominal operations it is, therefore, most unwise to harass the bowel with any form of medication, because, unless there is mechanical obstruction with its above-described pain symptom, the bowel may be depended upon to move spontaneously between the third and fifth days. Delay is protective and should never be interfered with.

Differential Diagnosis. We have on many previous occasions pointed out the similarity between the stomach and colon and we wish to emphasize that they therefore require similar treatment, viz., lavage.[3]

The distention of the third period of intestinal obstruction should be carefully differentiated from that due to acute distention of the stomach accompanying physiological obstruction and always easily relieved by lavage. We have recently seen three days postoperative to cholescystectomy, and nine days postoperative to developmental reconstruction, the abdomen so distended as to feel as tight as a drum; board like and tympanitic, the stomach occupying the entire abdominal cavity, as was proved when both patients were immediately relieved by lavage.

The crisis of tabes may often closely simulate intestinal obstruction and other abdominal conditions, but the history and examination of the spinal fluid will clear up the diagnosis. It is more difficult to differentiate between acute mesenteric vascular occlusion and acute obstruction. The early recognition of the former lesion is even more important than the latter because immediate operation and that alone will save the patient. The very severe pain with early distention, tenderness, movable dullness, fall of temperature, rapid pulse, persistent vomiting followed by constipation, occasionally a palpable tremor and always grave constitutional symptoms, these are the characteristics of obstruction in the mesenteric vessels.[5]

In acute fulminating pancreatitis the shock is severe from the start; the pain is excruciating, but is confined more to the upper abdominal region.[6]

Conclusions.—1. Pain is the cardinal symptom of acute intestinal obstruction. It is typical. It is characterized by exacerbations and remissions as well as by a rhythm similar to that of the peristaltic wave which causes it. "The intensity of the pain is directly proportionate to the strength and irregularity of the peristaltic wave." (Lynch.)

2. Clinically we recognize three periods in acute obstruction. These merge imperceptibly—

the first, until the forty-eighth hour; the second until the seventy-second hour; the third, after this hour. Operation within the first period is practically free from mortality. In the second it is high. In the third period it is a forlorn hope.

3. Drugs, especially cathartics, must be avoided. Enemas are useful, but the correct interpretation of their results is all important.

4. Acute intestinal obstruction of the oral bowel unless released early results in an endocrine death. Bacteria have nothing to do with it.

5. There is only one form of acute intestinal obstruction, viz., that caused by mechanical means. The so-called adynamic or paralytic form should be looked upon in its true light, viz., that of a protective symptom and valued accordingly.

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VARIABLE HYPEROPIC ASTIGMATISM IN CHILDREN AND ITS CORRECTION.

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To write approvingly upon some popular theme universally accredited as true is, indeed, a pleasant and easy task, but when we turn to dispute a long-established principle, then prejudice is apt to obscure judgment. Because many refuse to question established teachings must we fail in our just estimation of evidence, even though it tends to disprove age-long beliefs?

Astigmatism seems to be considered an invariable defect or one which changes but slowly during periods of months or years. The lack of a symmetrical corneal curvature does give rise to a more or less permanent defect called corneal astigmatism. This defect constitutes the major amount of all astigmatism. Again an inequality of the refracting power of the lens may manifest itself in an astigmatic defect which is slightly if at all variable. The latter, or lenticular astigmatism is usually of a minor character and much less frequent than corneal astigmatism. Still less frequent of the permanent type are those caused by ptyrigia or scars. Permanent forms of astigmatism may be either myopic or hyperopic and found in subjects of any age.

The purpose of this article is to summarize the clinical evidence furnished by the refraction of about 200 cases of astigmatism, out of a series of about 750 cases, between the age of six and twelve, who came under the author's attention at the Los Angeles Public School Dispensary and in his private practice, demonstrating that there also exists a variable form of astigmatism in children, which cannot be corrected by the popular methods of using the chart at 20 feet, with or without a paralyzed accommodation, or by using the retinoscope while the accommodation is thus suspended, and that a single pair of lenses will not correct this astigmatic defect in children of this age for all distances within one-quarter of a diopter in about 20 per cent. of all cases, and that therefore the lenses should be prescribed which correct their near or working distance.

Variable astigmatism is possibly caused by the inability of the eye to maintain a perfect ratio of refraction while passing through its range of accommodation. It is an error which is not easily corrected and its correction is, as a rule, notoriously neglected. This form of astigmatism is found only in children who have, at least, a normal range of accommodation and is always of the hyperopic variety, never myopic.

Variable astigmatism is correlated with accommodation. The greater the range of accommodation, the greater the possible variation. The less the range of accommodation in the subject the less the possible variation. It is most evident in the child and least evident in the presbyope—gradually decreasing from childhood to old age.

By variable astigmatism we do not refer to that temporary variable type so familiar to every refractionist, which is caused by an irregular spasmodic contraction of an irritated ciliary muscle, so common in the hyperopic patient under thirty years of age and which compels the patient, if his accommodation has not been paralyzed, to pronounce one and then the other of the astigmatic letters as the brightest to the confusion of the refractionist. This is only temporarily an abnormal condition whose chief importance is that it be neglected.

By variable astigmatism we mean that form which compels the patient invariably to pronounce a certain astigmatic letter as the brightest when seated at a definite measured distance from the chart, but to pronounce a different letter as the brightest when this distance is changed; that form which compels the patient to pronounce some particular letter as the brightest after a definite amount of sphere has been added or subtracted from his accommodation; that form which causes the child continually and invariably to pronounce certain letters in definite order as the brightest while approaching the chart and to enumerate these letters in the reverse order as it recedes from the chart; that form which may cause even the adult who has been accurately corrected for the ordinary 20 feet to observe that one and then the other of the astigmatic letters become the brighter as he approaches the chart from 20 to 10 feet; that form which is "brought out" so as to be measured by the chart only at some definite degree of the patient's accommodation.

This variable form of astigmatism maintains a definite kind and amount for each degree of accommodation. A correction of variable astigmatism for the standard 20 feet when it is associated with the constant form or when it exists alone, may not only fail to furnish a correction for the near or working distance but may, and often does, increase the defect. Optical defects should be corrected for the eye at work and not for

the eye when relaxed, as for 20 feet or infinity.

The reader having followed to this point, may reasonably ask how is it possible for a form of astigmatism to exist so commonly in the eyes of children which varies with their accommodation and requires a definite correction for a definite distance? The following possibilities may be suggested:

1. The axis of the cornea and the axis of the lens may not correspond throughout the various degrees of accommodation.

2. The ciliary muscle may not be capable of a uniform amount of contraction for each degree of accommodation.

3. The varying distances between the anterior surface of the lens and cornea along with a variation of the amount and density of the aqueous humor between these organs during the changes of an active accommodation, may have some influence.

4. The lens may not be capable of maintaining a uniform curvature of its refracting surfaces or a uniform density of all its segments as it passes through its accommodative range.

Any one or combination of these possibilities may account for the fact that a minor hyperopic astigmatism not at all evident at 20 feet, or one which has been accurately corrected for that distance, may become so modified by a change of accommodation that there is an uncorrected and disturbing error for the reading distance.

Assuming that these defects are possible, we still must marvel that the eye approaches so nearly a perfect automatic instrument especially in the child with its normal range of from 13.5 to 14 diopters of accommodation. Considered merely as a part of an optical instrument the lens of the eye of the vertebrate stands alone in efficiency. The artificial construction of such a mechanism, capable of an automatic transformation into an infinite number of lenses by which any point from infinity back to within 9 inches of itself could be focused upon a screen is incomprehensible.

Variable astigmatism is hyperopic, rarely, if ever, myopic. The author has known of but one case of marked myopic astigmatis in which the correction for 20 feet was not also the proper correction for the reading distance. He has no reason to offer for this exception. Variable astigmatism is hyperopic, as a rule, because it is developed by accommodation if one or more of the refracting elements of the eye are not in perfect coordination, as formerly suggested. But how shall we explain that the exact correction of hyperopic astigmatism for the working distance is so important? Only uncorrected hyperopic defects of any kind, as a rule, become the source of local and reflex irritation. Out of this series of cases from which these 200 cases under discussion were taken, 98 per cent. suffering with optical defects were hyperopic, but not over 0.1 per cent. of myopes uncorrected ever complained of any trouble which would be attributed to this defect alone, except a lack of vision.

When we consider the mechanism of accommodation we can understand how the eye can be under a strain only in its attempt to overcome hyperopia.

Accommodation is an active effort, consisting chiefly of a contraction of the circular ciliary muscle surrounding the circumference of the lens by which the convexity of the lens is increased and the focal distance back of the lens decreased. This process takes place in the normal eye when adjusted for any distance inside of 20 feet. In the normal eye the accommodation for any distance from infinity to within 13 inches of itself is made with comparative ease, but even then the eye finds relief in an occasional relaxation for infinity, because all muscular effort required in accommodating is then suspended. If the eye is hyperopic its effort for near work is always an abnormal one, because the ciliary muscle must contract beyond its physiological limit. The contractibility and strength of this tiny muscle must normally be very great, greater, perhaps, than that of any other similar amount of muscle tissue in the body. Probably no other muscle of the body could maintain a similar and continuous strain for 10 minutes as does this one hour after hour while the eye is focused for near work. On account of its relative strength many simple hyperopic defects in healthy children do not need correction until for some reason the general muscular tone of the child falls below normal, when this muscle is compelled to rebel against its excessive exertion. No refractive defect of the eye can be corrected or even partially corrected by the eye itself, except by an abnormal contraction of this muscle so that myopic defects cannot in themselves produce local or reflex irritation. The myopic eye is not able to make any effort to correct its defect. It can make no active effort to see. Its accommodation is always suspended in proportion to its distant point within 20 feet. If the myoptic eye has a distant point as near as the ordinary reading point or distance it then has no accommodation. Unless the myopic eye is also associated with hyperopic astigmatism its ciliary muscle can never be called upon to make an abnormal contraction. The myope who complains of eyestrain usually has hyperopic astigmatism or has been over corrected with a minus lens and made artificially hyperopic, or has abused his eyes by excessive use as we often find among Japanese students, or has large pupils and a light-colored iris, admitting an excessive amount of light through indirect vision.

An overcorrection of myopic astigmatism is as apt to cause trouble, as a failure to correct hyperopic astigmatism fully, because in the former the patient is made artificially hyperopic and we have an unusual and unnecessary demand made upon accommodation—something in which the myopic eye is already deficient.

The author has become convinced after his experience in this series of cases that there are three things of utmost importance in making satisfactory corrections for hyperopic astigmatism in children which do not seem to be sufficiently emphasized if at all mentioned in text books and treatises on the subject; viz.: (1) The prescribing of the exact axis and its proper maintenance. (2) The prescribing of the pupillary distance of this axis to suit the working distance of the patient. (3) The full correction of the hyperopic

astigmatism for the working distance of the patient.

1. There is no excuse for not determining the axis within a few degrees at least. A very satisfactory and quick method for checking up the direction of the axis following the use of the retinoscope is to insert into the trial frame a cylinder of about one diopter more than that found to correct the defect by the dynamic method and then turn the axis of the cylinder until the child says it can see best. This will seldom fail to add valuable evidence as to the exact direction of the axis provided that the child is old enough to realize what is wanted. The inefficiency of a nose-piece alone, without temples, for the maintenance of the cylinder in its proper position is so generally recognized that it needs no comment.

2. Unless some muscular trouble requires a decentering of the lens the pupillary distance for school children should always be given for their near work. This pupillary distance will not disturb the eye when the accommodation is suspended for distance.

3. Our experience seemed to suggest that there was only one method of making the exact correction for hyperopic astigmatism in young children and that was by the dynamic method of retinoscopy.

An attempt to correct astigmatism in school children by the chart was found impractical. If the accommodation was fully paralyzed with a mydriatic, the chart correction was for infinity and not for the working distance. If a mydriatic was not used the chart was impractical, because even if the child was able to interpret what it saw its ciliary muscles were usually so sensitive that the appearance of the astigmatic letters constantly changed in their distinctness; however, if a correction could be made by this method it would be for a relaxed eye only.

In an adult or one nearing the presbyopic age the conditions are quite different. The ciliary body is not so irritable, but that by using the chart and the foregoing method a practical correction can be made, even without the danger of a mydriatic. The adult does not often require an exact correction for his astigmatism, not only because the ciliary body is less subject to irritation, but because variable astigmatism is absent at least in proportion to his decreased power of accommodation. In fact, many presbyopes who have never worn a full correction for their astigmatism do not always seem pleased with it, especially if they possess one with an off axis.

The static method of retinoscopy with its fully paralyzed accommodation was not found satisfactory for the correction of astigmatism in children of this age, although indispensable for differential diagnoses because irregularities of the cornea and lens increase from their visual axis outward toward their circumferences.

These irregularities are suggested by the visual acuity one obtains by looking through a pinhole disk in startling contrast to the blurred vision one must experience through a fully dilated pupil. The retinoscopic evidences of these irregularities become a source of great confusion in attempting to use the static method. Various scissor-like movements, exaggerated shadows (indicating a much greater amount of astigmatism than was actually present) kaleidoscopic movements from mixed peripheral astigmatism, each associated with chromatic aberration often entirely disappeared after the pupil had returned to its normal size and accommodation had again asserted itself. As it is unnecessary to correct optical defects outside of the normal pupillary area these peripheral shadows developed by the static method when the pupil is fully dilated are a source of unnecessary confusion in attempting to make the important pupillary correction. Even if it were possible to make the proper pupillary correction under such disadvantages we still would have failed to have made the correction for the working distance. Our correction would be for infinity and a suspended accommodation. Optical defects do not cause reflex irritation while the accommodation is suspended, but while it is active as previously illustrated when referring to myopia.

The dynamic method of retinoscopy proved the most satisfactory in making corrections of this kind and for children of this age. By this method we only attempt to correct or neutralize the shadows which represent defect over the pupillary area—defects which are concerned with actual vision—and at the same time we are making our corrections for an active accommodation and for the child's working distance. The only secret in the technique of this method is in the use of not less than an eighty-candlepower lamp in a dark room and some interesting design on the oculist's forehead, at a meter's distance, to attract the attention of the child. The lamp should emit its light as nearly from a point as possible through a diaphragm with an opening of about 1 cm. in diameter. With such a light the author likes to use a small, flat, unperforated retinoscope, but details may suit the choice of the physician. An arrangement as illustrated in the diagram has proven very satisfactory with the author for rapid dynamic work. A strong light, the retinoscope, and the eye to be corrected focused for a meter's distance are the all-important conditions for the correction of variable astigmatism.

Summary.—1. There is a form of hyperopic astigmatism in children which varies with accommodation, and the greater the power of accommodation the greater the possibility of this variation.

2. A correction of hyperopic astigmatism in children for the standard twenty feet often fails to correct this or a similar error for the working distance.

3. A child's eyes when relaxed may show no astigmatism, but when accommodated for the working distance may possess a disturbing astigmatic error which is usually hyperopic.

4. It is necessary to give the hyperopic child a full correction for his near work because the hyperopic eye suffers from its refractive errors while at work and not while relaxed for distance.

5. Variable astigmatism is not associated with myopia because it is dependent upon a long range of accommodation and the myopic eye has less than a normal amount of accommodatiton. A correction of myopic astigmatism for twenty feet is

therefore sufficient for the near or working distance.

6. As the myopic eye can scarcely suffer from an accommodation strain the full correction of myopic astigmatism is desirable, only to increase acuteness of vision.

7. An overcorrection of myopic astigmatism is as apt to cause trouble as a failure to correct hyperopic astigmatism fully, because in the former case the eye is made artificially hyperopic and an excessive demand is made upon accommodation, something in which the myopic eye is particularly deficient.

8. The pupillary distance for the astigmatic child should be measured for its working distance. A decentered lens is not so apt to cause trouble for a relaxed eye as for an accommodated one.

9. The dynamic method of retinoscopy is the only satisfactory one for the correction of hyperopic astigmatism in the child, because it eliminates the confusing and unimportant shadows of exaggerated astigmatism and other peripheral defects exposed by a fully dilated pupil and also because it corrects an accommodated eye and not a relaxed one. Details, like tools for other work, may suit the individuality of the physician, but two things are of utmost importance in the correction of variable or hyperopic astigmatism in children, viz., a concentrated light of not less than eighty candle power properly arranged and the eye to be corrected focused for a meter's distance.

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RABELAIS' MENTION OF PARTS OF THE HUMAN SKELETON.

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Rabelais mentions specifically parts of the human skeleton thirty-two times in the five books; eighteen times in the first book, twice in the second book, twice in the third book, seven times in the fourth book, and three times in the fifth book. It is interesting that this should occur so frequently in a popular satire, and it was probably partly due to Rabelais being a physician particularly interested in anatomy, and also to the highly objective way he had of describing the human being; and in addition there was the popular interest taken in anatomy and in bones at that time.

References to the skeleton in Gargantua.

1. Les mandibules (the jaws), Gargantua, Chapter XIV.
2. La jointure coronale (coronal suture), Gargantua, Chapter XXV.
3. Les spondyles du col (cervical vertebræ), Gargantua, Chapter XXVII.
4. Les mandibules (the jaws). Gargantua, Chapter XXVII.
5. Les omoplates (scapulæ), Gargantua, Chapter XXVII.
6. Les ischies (the hip bones), Gargantua, Chapter XXVII.
7. Les focilles (the bones of the forearms), Gargantua, Chapter XXVII.
8. L'areste du dos (the vertebral spines), Gargantua, Chapter XXVII.
9. La commissure lambdoide (the lambdoidal suture), Gargantua, Chapter XXVII.
10. La mandibule (the jaw), Gargantua, Chapter XXXVIII.
11. L'os acromion (the acromion process), Gargantua, Chapter XLIII.
12. Entre la seconde et tierce vertebre (between the second and the third vertebra), Gargantua, Chapter XLIV.
13. Les os pétreux (the petrous portion of the temporal bones), Gargantua, Chapter XLIV.
14. Les deux os bregmatis (the two parietal bones), Gargantua, Chapter XLIV.
15. La commissure sagittale (the sagittale suture), Gargantua, Chapter XLIV.
16. L'os coronale (the frontal bone), Gargantua, Chapter XLIV.
17. La crane (the cranium), Gargantua, Chapter XLIV.
18. La peau du pericrane (the pericranium), Gargantua, Chapter XLIV.
19. Les spondyles (the vertebræ), Pantagruel, Book II, Chapter XIV.
20. L'omoplate senestre (left scapula), Pantagruel, Book II, Chapter XIV.
21. Alkatim (vertebral column, lumbar region), Pantagruel, Book III, Chapter XX.
22. Les mandibules (the jaws), Pantagruel, Book III, Chapter XX.
23. Le brechet enfondré (the sternum stove in), Pantagruel, Book IV, Chapter XII.
24. Huict costes froussées (eight ribs broken), Pantagruel, Book IV, Chapter XII.
25. Les omoplates en quartre quartiers (the scapulæ smashed in four quarters), Pantagruel, Book IV, Chapter XII.
26. Le bras droit defaucillé (the right arm put out of joint), Pantagruel, Book IV, Chapter XV.
27. Demanché le mandibule (dislocated the lower jaw), Pantagruel, Book IV, Chapter XV.
28. Le records demandibulé (the jawless bailiff), Pantagruel, Book IV, Chapter XV.
29. La machoire inferieure (the lower jaw), Pantagruel, Book IV, Chapter XII.
30. Les omoplates (the scapulæ), Pantagruel, Book V, Chapter XXVII.
31. Les os bregmatiques (the parietal bones), Pantagruel, Book V, Chapter XXVII.
32. Les mandibules, Pantagruel, Book V, Chapter XLVI.

The Jaws.—The jaws are mentioned eight times, and in seven of these instances they are called mandibules, and in only one, machoire, the usual modern French appelation. In one instance Rabelais speaks of twisting and wrenching the jaws from right to left as if he considered the upper jaw movable. In another situation he employs the term mandibule, the lower jaw, just as is now customary in English when it is used at all. One of the pilgrims whom Gargantua inadvertently had taken into his mouth on a salad leaf was walking around on the dental crowns, and his staff accidentally slipped into a hollow tooth, causing exquisite pain to the nerve of the jaw, which, of course, must have been the lower one, as the pilgrim could not walk along the upper teeth.

Coronal Suture.—It was a beautiful September day in Touraine, the native country of Rabelais, and the shepherds were guarding the grapes from the predatory birds. Just then the cake bakers of Lerné passed along the road with a full load of freshly baked cakes. The shepherds were seized with a desire to eat grapes with cakes, a most celestial food, and a delightful laxative for the bowels. Forgier, one of the shepherds, begged Marguet, the standard bearer of the cake bakers' union, to let him have some cakes for good money paid down on the nail. Marquet received the offer with derision, and on Forgier insisting, he pretended to accede to his request, and on his approach gave him a vicious cut with a whip, about the legs, and then rode

quickly away. The good Forgier, incensed beyond endurance, threw his stick at him. The stick, as if directed by fate, sailed through the air, probably point first, and lit on the fleeing Marquet's skull, exactly on the coronal suture and the chrotaphic, that is the temporal, artery. This was the cause and the beginning of the great Picrocholian war.

Marquet was grievously wounded, as was natural, for the stick, as before mentioned, probably hit end on, and therefore with its full weight behind it, and the force of the blow was received in a small area, the size of the end of the stick. Besides this the blow fell in the region of the temple, which has always been held to be particularly vulnerable. To expose the region to the assailant, Marquet must have been turning his head with a sardonic smile on his face, as enjoying the discomfiture of the injured Forgier.

Marquet, the standard bearer of the cake bakers' union, was undoubtedly a man of much importance, for his injuries were attended to by a number of surgeons, who afterwards were tendered large fees for their services. The welts on the humble Forgier's legs, however, were soothed by simple grape poultices, applied by his fellow grape pickers.

That such grave political consequences should follow the injury to a union man shows that the world has undergone no notable change in this regard in the intervening four centuries. The nomenclature of the coronal and of the sagittal sutures has also remained undisturbed.

Cranium.—In the great Pichrocolian war it fell out that Friar John was taken prisoner by a troop of marauders, who left him in charge of two archers, who were so intent on the progress of other events in the field of battle that they neglected to put the friar on parole, to disarm him, or to observe his movements. He seized the opportunity to cut one guard's throat and then attacked the other, slicing off the top of his head equatorially, just above the level of the petrous portion of the temporal bones, in such a manner as to cut away the parietal bones joined by their sagittal suture, together with a large portion of the frontal bone, and passing through the two meninges, opened up the two lateral ventricles. The top of the cranium was thrown back over the shoulders, still attached posteriorly to the head of the pericranium, and so resembled a doctor's cap, black below and red within.

Rabelais specially mentions that this terrific blow passed above the very solid petrous portion of the temporal bones—in other words, he was willing to tell a lie, but there were limits. In this, as he himself stated in this very book, he was not as bad as Pliny and a number of other writers on natural history.

Gargantua in this tale speaks of the os petreux as if it were a separate bone. It is now always called the petrous portion of the temporal bone.

The parietal bones are called the bregmatic bones, from the Greek bregma, the top of the head, and the frontal bone is called the coronal bone (l'os coronal).

In another situation Rabelais speaks of the Quavering Friars as having the posterior part of the head and neck, from the summit down to the scapulæ (omoplates) shaved, while the hair of the fore part of the head, as far back as the bregmatic bones, was allowed to grow freely.[4] It is an example of the many curious ways the religious orders then had of characteristically fashioning their hair.

Besides the petrous portion of the temporal bone, the acromion process of the scapula seems to have been regarded as a bone apart, as Rabelais mentions l'os acromion, the acromion bone.

The clavicle, the little key bone, was then called the jugulum or joining bone, as joining the arm to the body. This word also served to designate the hollow in the neck above the clavicle, and also the throat. Rabelais appears to be the originator of the epithet as applied to the veins of the neck (veines jugulaires). It was afterwards used in the same sense by Canappe (1541) and by Ambroise Paré (vaisseaux jugulaires),[2] and so has come down to our day.

The word faucile, sickle, was applied to the bones of the forearm and also to the bones of the leg. The faucilia minora were the radius and the fibula or peroneus, and the faucilia majora, the ulna or cubitus, and the tibia. The word faucile also was applied to the physicians' robe. It was so called because its sleeves were such a prominent feature; it had four, two of them reached to the hand and two hung down from the elbow.[3]

Ischium.—In the phrase "desgondait les ischies" Rabelais meant luxated the hips; that is to say, drove the head of the femur out of the cotyloid cavity. According to James, Hippocrates by "ischion" means the entire articulation of the thigh on the pelvis, or possibly the head of the femur.[4]

Ischie or ischia also meant sciatica,[5] and people unacquainted with anatomy still speak of this disease as a pain in the hip. Now, of course, the name is limited to the "sit down" bone.

It has been said that if you wish to know what people thought in the Middle Ages consult Rabelais, that incarnation of the Middle Ages turning to the light of the Renascence. Toward the end of the period, about the year 1500, people had become mightily interested in bones, and there were several very good reasons for this.

Anatomy itself was a new and progressive science, and a knowledge of it contributed to the reputation of a physician. Rabelais' renown as a physician no doubt rested to no inconsidèrable extent on his knowledge of anatomy, on which he at one time lectured. But probably the study of anatomy was then pursued more enthusiastically by artists than by physicians, as, for example, by Benvenuto Cellini, Michael Angelo and especially by Leonardo da Vinci. In addition to this many theologians were then striving to find in anatomy a substantial basis for the soul. It was an old belief, reaching back to the origin of the Hebrew Scriptures, that the blood was the seat of the soul, or aura or spiritual breath, and it was in investigating along this line that Michael Servetus studied the lungs and the pulmonary circulation, in order to know the exact constitution of the portal by which this "breath" would enter.

While theologians, artists and physicians were studying anatomy for their several spiritual, artistic, or scientific needs, collectors were busy, as never before or since, collecting the bones of the saints as relics. This peculiar collecting mania would nat-

urally encourage the study of osteology, for while the Church was decidedly opposed to dissection, her encouragement in the trade in relics, mostly bones, would facilitate their study by stimulating interest and by making them easily attainable. A bone collector of this particular stripe would add the enthusiasm of a collector to the fanaticism of religion, and as the human being is never quite so funny as when he is in deadly earnest, this contributed to the grotesqueness of the mania and gave an admirable opportunity for Rabelais, the great Mocker, to make sport of it.

Besides this, the enumeration of long lists of bones would be quite congenial to Rabelais, who liked long lists of things, and he would also like them because many anatomical structures had high sounding names derived from the Greek, such as "lambdoidal," which would especially appeal to a Greek scholar like Rabelais, who would be all the more inclined to employ them because Greek was especially hated by the reactionaries.

The occasion for employing "lambdoidal" was when Friar John, with his crucifix staff, chased the Picrocholian marauders out of the vineyard of the abbey. If any one of them wished to save himself by running away, Friar John broke his head in pieces by hitting him on the lambdoidal suture.[4]

The New Mania for Collections.—Toward the end of the fifteenth and the beginning of the sixteenth centuries collecting on a grand scale was a new thing. Rudolph II of Germany (1552-1612) is dean of all collectors. He did nothing else. He sat in his beautiful castle, the Rhadchin, in Prague, and collected curiosities and works of art of all kinds, and would receive no one in regard to any business of the empire over which he ruled. Ambassadors from foreign lands and emissaries from his own dominions would wait years for an audience, and to such requests he would return the answer, "Er sei eben mit andern Geschäften trefflich molestiret," "His majesty is just now excellently well occupied with other affairs." His mania and his inefficiency cost him his imperial throne and, like all inefficient people, he was embittered and petulant at receiving his just deserts.

Rudolph's uncle, Philip II of Spain, was more of a specialist, and became the greatest collector of saints' bones that ever lived. John Hay says of him that, with the possible exception of Cuvier, he could see more in a bone than any man that ever lived. In his long life of osseous enthusiasm he collected 7,421 relics—whole skeletons, odd shins, teeth, toenails, and skulls of martyrs—sometimes by a miracle of special grace getting duplicate skeletons of the same saint.[8] Philip believed that these venerable pieces of phosphate were endowed with a sort of radiant energy, resulting in miracles.

Furthermore, it was believed that man was made of clay and therefore the human body could be regarded as a sort of animated pottery, of which the bones, as more nearly resembling pottery in appearance, might therefore be esteemed the most fundamental parts. It must also be taken into account that the gloomy Philip and the host of bone collectors, of whom he was only the chief, represented a morbid type of mind very common in the Middle Ages, where people experienced a sort of ecstasy in the contemplation of death. How differently constituted was Philip's august physician, the learned and original anatomist, Vesalius, who said that "one could get more out of one experiment on the human body than from years of dissection." The one had his face turned toward light and life, the other toward death and stagnation. There is no doubt that Vesalius was very unhappy in Philip's somber, wearisome court, and that Philip's dry bones were imperfectly satisfying to his hungry spirit.

There is reason to believe that Philip and those likeminded with him had come to view the whole hierarchy of heaven, together with the saints on earth, as a sort of relic mine. There was even an imprecation "by God's head full of relics." The Escorial, Philip's pet building, was erected as a sort of safe-deposit box for the royal bones of his line.

Besides this anatomical tendency of the times, inducing a popular writer to include in his works long anatomical lists, one must not forget that Rabelais was a physician and an anatomist. Most of the scenes in which these anatomical lists occur are a sort of "rough house" or "horseplay" such as would be indulged in by students, and they may have been taken out of Rabelais' own notebook, dotted down while he was a student in Montpelier.

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THE HOMIGRADE THERMOMETER.*

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The Homigrade system of temperature measurement is based on human nature. Its foundation is, therefore, secure. It recognizes the natural tendency of man to make his own normal within the radius of common sensation the criterion or measure of temperature values, and it reduces this natural system of temperature measurement to scientific accuracy. Because of the decimal feature of this scale its figures are not only very expressive, but their values are instantly and vividly apparent. In this respect this scale is totally different from all others, the values of their figures being obscure and the figures themselves very often misleading.

The two fixed points of this scale are freezing and boiling, just as in other systems, with 0 at the former and 270 at the latter point, the peculiar features and advantages of the system depending on the consequent figures at other important points.

What may be called the four cardinal points of the homigrade thermometer are 100° H., 50° H.,

*Homigrade: Human Scale.

0° H., and —50° H., each defined briefly below:

100° H. (98.6° F.) "Blood heat," or the full human normal at and near the surface of the body within the radius of common sensation. To all human kind this is the best known temperature and the natural criterion or measure of temperature values. This surface temperature is subject to many variations, due to both internal and external influences, but this figure expresses the full normal, above which is fever, and all departures from this normal are felt as more or less discomfort. This point also marks the upper limit of normal summer heat, above this point the heat being extreme and proportionally oppressive.

50° H. (65.3° F.) is the halfway point between freezing and the human normal; also the lower margin of summer heat and the upper limit of spring and autumn heat. It is a satisfaction to know the exact point at which the rising temperature passes from spring to summer heat, this not being apparent in any other scale.

0° H. (32° F.). The freezing point. This point is also the vital heat zero, for in any organism it marks the complete cessation of vital action therein. It is also the lower border of spring and autumn heat, and the upper limit or least degree of winter cold. Above this point only, therefore, are the values positive, actual vital heat assets.

—50° H. (—1.3° F.) is the lower limit of normal winter cold (exhaustion of heat). All freezing (winter) temperatures are minus values, for in all organisms they are incompatible with vital functioning. Hence vital heat should be measured from the freezing point and should not include in the measure any freezing temperatures.

The above account of the four cardinal points shows an ideal division of the seasonal temperatures with remarkably fitting figures, there being a normal range for each season of exactly 50 Homigrade degrees. It also shows that the human normal is exactly 100 Homigrade degrees above the vital heat zero. Hence each degree in this system equals 1 per cent. of this normal. The degrees below freezing, though of equal measure, as explained above, are minus values corresponding to the debts or liabilities of a person or corporation, and the figures expressing them are preceded by the minus sign. Every temperature, therefore, is expressed relatively to both the vital heat zero and the human normal, a definitely understood measure from the former and a true percentage of the latter, thus imparting an otherwise impossible sense of temperature values.

This wonderful double meaning scale adds a heretofore unknown interest to all temperature studies. It opens new views to nature students and discloses many facts not otherwise apparent. Its shorter degrees necessitate a less frequent use of fractions and with or without fractions afford greater precision.

Food Desiccation in Germany.—While the normal desiccating industries—milk for example—were injured by the war, the drying of certain food products shows an enormous increase. Comprised here are cereals, fodder of all kinds, potatoes and beet tops. If surplus potatoes are at once dried, the effects of freezing and putrefaction are forestalled.—*La Presse Médicale.*

Medicolegal Notes.

Construction of Harrison Anti-Narcotic Law—Primarily a Revenue Measure.—An indictment in the words of section 2 of the Harrison Anti-Narcotic Act alleged that the defendant, a Texas physician, who had duly registered and paid the special tax of one dollar required by the act, did unlawfully and knowingly sell and give away a quantity of heroin tablets, which sale was not made in pursuance of a written order on a form issued in blank by the commissioner of internal revenue. A second count of the indictment was identical with the first, except that it charged that the defendant did unlawfully, knowingly, and willfully sell, dispense and distribute heroin tablets not in the regular course of his professional practice, and not in the treatment of any disease, but to one then addicted to the drug habit. The two counts in the indictment, the federal district court for the Western District of Texas holds, do not state offenses against the laws of the United States. The acts charged to have been omitted and committed are violations of police regulations incidental to the taxing purpose of the act, and which do not tend to render effectual its prime object, revenue. To that extent the statute is in violation of article 10 of the Constitution of the United States. The main purpose of the act is to provide for a tax and enforce its collection for the legitimate sale or disposal of opium and its derivatives. Consequently any regulation of law or provision that aids in the enforcement of the collection of this tax is within the rights of Congress. In re Kollock, 165 U. S. 526.

The two counts of the indictment show that the defendant was a physician who had duly registered and paid the special tax. It is not made to appear in what particular the requirement that a written order must be given by the purchaser to the seller renders effective the enforcement or collection of the tax, especially in this instance, where the tax is shown to have been paid by a person duly registered. It is clear, looking to the provision of the statute as to this requirement, that it has an important bearing, as a police measure, in safeguarding the dispensing and distribution of the drug so that it may be limited in its use to persons actually in need of it as a medicine. A consideration of the whole act, and of the many regulations of the Treasury Department governing the sale and control of the drug, leads to the conclusion that greater efforts are made in the measure to protect against misuse of the drug than to its enforcement as a revenue act. This reasoning was held to apply more forcibly to the second count. There the regulations requiring the drug to be dispensed by a physician only in the course of professional practice, after having duly registered and paid the tax, can only be a police measure looking primarily to the protection of the public against the abuse of this drug, not remotely serving as an aid or means to effect the object of the act in respect of its revenue. —United States v. Doremus, 246 Fed. 958.

Malpractice—Jury Cases—Expert's Opinions.—In actions by a wife and her husband against a physician for negligence in his treatment and care of the wife after she had given birth to a child in that, while suffering from convulsions, the defendant negligently directed that she be held in bed by holding her by the wrists, whereby her shoulders became dislocated and fractured, and in that later the defendant failed to discover such injury, and negligently prescribed treatment which caused her great pain and resulted in permanent disabilities, the defendant's liability was held for the jury. An important question was whether the fracture and dislocation were due to the wife's convulsions alone or resulted from the convulsions together with the restraint exercised upon her by the defendant physician. It was held that the testimony of a medical expert as to whether, from his examination of a plate and the plaintiff, and the evidence in the case, he had formed any opinion as to the cause of the present condition of the plaintiff's left shoulder was inadmissible, since an expert witness cannot express an opinion founded in whole or in part on conflicting evidence. Defendant's exceptions to verdicts for the plaintiffs were sustained.—Connor v. O'Donnell, Massachusetts Supreme Judicial Court, 119 N. E. 446.

Military Medicine.

Appendicitis from Gassing.—That war gases produce digestive disturbances when swallowed has been known from the outset; the relative prominence of digestive symptoms has been believed to be due to the amount of gas which was swallowed. With the increase of our knowledge, it has become apparent that erosions due to the direct action of the gas might form the starting point of ulcers. The principal lesion is, of course, transitory gastritis or gastroenteritis. It has been known that the colon even can participate to a moderate degree in the reaction. Recently Moutier has published an article, an abstract of which appears in the *Journal de médecine et de chirurgie pratiques* for July 10, on an appendicular reaction set up by swallowed gas, with especial reference to the contained chlorine. He reports eight cases, but the number actually seen by him is much larger. As a matter of fact the coincidence is by no means rare. A distinction must at once be made between the patient with a history pointing to appendicitis and one without such history. The two groups appear to be of about the same incidence so far as the author's material reaches, although the superacute cases are somewhat more numerous. An incubation period, uually indeterminate in appendicitis as a whole, is naturally in evidence here, and is from 5 to 8 days after gassing. In the cases suggesting a relapse of an old trouble the incubation appeared to be longer than in the very acute cases and two weeks elapsed in several of this type. In no case was the onset of the attack fulminating. The evolution of the disease was rapid, however, and progressive. The presence of the subacute gastritis naturally masks the appendix symptoms to some extent, but even with this handicap these manifestations were not severe. There was always nausea, but vomiting was absent. The general reaction was decidedly mild, there being but little elevation of temperature. There was tenderness with rigidity on pressure over the appendix. The course of the disease was decidedly brief and mild. Its importance does not seem to be great and the chief element of interest lies in its suggestiveness, for it is obvious that merely irritating ingesta may be sufficient to cause appendicitis of a mild type. Other hypotheses are not excluded —for example, secondary infection and the sequence seen at times after burns.

Trench Lung.—This term has been applied to certain pulmonary symptoms unaccompanied by organic disease which occur during prolonged trench life. Naturally they have been placed by some writers under neuropathic phenomena. The subject has recently been made the theme of a graduation thesis by Saint-Aude. The symptoms are by no means rare, and comprise a tachypnea, such as might conceivably be due to excitement because most noticeable under trying conditions, as after shell explosions and before assaults. This banal symptom which might occur to nearly every combatant, is not of course to be dignified by the name of trench lung. The tachypnea referred to is somewhat more than this simple phenomenon and is a persistent acceleration of respiration—one in evidence after the exciting causes have quite subsided. Moreover, the determining factor is not a transitory emotional experience but rather a sustained emotional stress such as a prolonged bombardment. The tachypnea being purely psychogenic can be made to subside rapidly at times by purely suggestive measures. If this were all there is to trench lung the condition would not merit the name, but after the subject has been removed far from the battle zone and is tranquilly situated, the symptom recurs without apparent motivation. It appears by paroxysms and the picture at once becomes striking, for the crises of rapid breathing accompanied by agitation are absolutely unattended by a single organic manifestation. The subject in his distress may rush back and forth in his room, groaning and crying for aid; his inspiration and expiration may alike be noisy. The thorax is seen to make normal excursions and the pulse remains good. To this condition is added a hyperpnea of effort, for the slightest physical activity may be seen to increase the respiration. As a consequence of this tendency the subject, when not agitated, is found relaxed on his back, in which position he refrains from the slightest voluntary effort. It is from this passive state that he is aroused by the spontaneous crises of the disease. It is evident that in the intervals between crises he is still menaced by effort dyspnea. The best preventive of the crises is isolation and the best treatment of the paroxysm is flagellation of the thorax with a cold towel. A radical cure by psychotherapy is believed to be practicable.

Psychology of Mental Confusion.—Duprat of the experimental psychological station at Aix-en-Province considers this subject in *Le Progrès Médical* for April 13. The term as applied to soldiers has been somewhat abused, because under such designation psychic torpor, mere retardation to queries, memory lapses, etc., were included. In such conditions it is easy to infer wrongly that the patient is confused. To demonstrate the presence of true confusion requires analysis. A normal subject often has perfect insight into his confusional state, not only when this is simply the expression of fatigue, but in states with really abnormal consciousness, in which there is disorientation. Men who have experimented on themselves with intoxicants or when in hypnagogic states should be able to analyze confusional states in themselves because the incoherence encountered, the confusion of space, time, identity, etc., are of the kind seen in the confusion of soldiers.

In a case cited an officer had forgotten the name of one of his children and of the mayor of his town. This could hardly have been due to mere fatigue or torpor. Several men analyzed together showed the same troubles. They had lost all sentiment, all their affects, save a vague inquietude. They were unable to find their way in a small village with which they should have been familiar. They could not write home because the words would not present themselves. The head felt empty as if from an abrupt arrest of psychic activity. At intervals the confusion lifted slightly. It seemed however that the reawakened faculties immediately became fatigued again.

Considerable difference was seen according to the previous status. Men of low culture and devoid of imagination presented chiefly torpor, mental inertia, mutism, and a general absence of psychic reactions. Such individuals merely vegetate. After recovery the men complained of having suffered fearful nightmares, nights being the time apparently for subconscious activity, although the condition was prolonged into the day. Nothing was visualized, so that the fear inspired seemed unmotivated. The activity was akin to that of somnambulism and of the sort which may cause psychomotor behavior like tics.

The mode of regaining equilibrium throws light on the nature of the confusion. Apparently the critical or synthetic faculty is gradually recovered, so that incoherence becomes abolished. The first faculty to suffer appears to be attention and it is well known that this faculty is the first to suffer in fatigue. The author sees no absolute distinction between primary confusion, so to speak, and that which depends on severe fatigue or intoxication, and other writers on war psychiatry have said the same. Nevertheless, in the psychic fatigue of neurasthenia we do not expect to see actual confusion. The confusional soldier also has points in common with the psychasthenic or hysterical.

In essential confusion there may be a true disturbance of personality in association with amnesia. There is no actual duplication, but the subject behaves somewhat like one in delirium, in which he describes happenings which never occurred to him. The repetition of imaginary events is somewhat stereotyped. He deals with false memories, fantastic visions, in which there is more or less unconscious symbolism. In other words, in true confusion the true and false may be hopelessly jumbled, while in this dream state the subject is quite suggestible, or would be were it not for the degree of incoherence which naturally antagonizes suggestibility. The state of apprehension already mentioned as the only conscious feeling of intensity may exceptionally lead to impulsive acts or to a paraphobia.

In summing up, this type of confusion, while clearly the outgrowth of fatigue, is not related to other well-known results of that condition. Fatigue, for some reason, is expressed by disturbances of consciousness and memory—as if, contrary to other fatigue states, only the highest functions suffer as a result of some selective action on the cortex, a central fatigue. As a result of the inhibitions the subconscious activities assert themselves in the form of a dream existence with incidental psychomotor states.

Reconstruction of Disabled Soldiers in General Military Hospitals.—The War Department announces completion of plans for the physical reconstruction of disabled soldiers in the general military hospitals. These plans have been formulated with a view to close cooperation with the War Department committee on education and special service in the work of restoring men to full or limited military service, and with the Federal Board for Vocational Education. The records of 516 cases treated in four hospitals show 134 men able to return to full military duty, 210 fit for limited service, and 172 who are eligible for discharge. In the last group 121 are able to return to their former occupations. The policy to be followed is that hereafter no member of the military service disabled in line of duty, even though not expected to return to duty, will be discharged from service until he shall have attained as complete recovery as may be expected. The teachers for the work have been secured from among the convalescent disabled soldiers, who are already skilled in their vocations, and from the enlisted personnel of the army secured by transfer or by induction of registrants disqualified for general military service but qualified for special limited service. These instructors work under educational officers chosen for their professional standing in civil life, and commissioned in the Sanitary Corps of the Medical Department; commissions have just been authorized for 119 educational officers. The hospitals designated for reconstruction work are General Hospitals Nos. 2, 3, 4, 6, 7, 8, 9, 11, 16, 17; the Walter Reed, Letterman and Fort Bayard General Hospitals, the United States Army Hospital at Des Moines, Iowa, and the Plattsburg Barracks Hospital at Plattsburg, N. Y.

Reconstruction of Disabled American Soldiers Abroad.—The Department of Labor of the Bureau of Labor Statistics describes the plans that have been developed abroad for the care of disabled soldiers. The American authorities have decided to provide hospital care and treatment and training in England, France, or Italy, for every wounded American soldier whose disabilities are of such a character that there is even a remote possibility of his being in a reasonable time restored to active service on the firing line or retained so that he may take one of the positions behind the lines, thus releasing for the front some physically fit man. Only the men who can give no further military service, or who will require a long course of treatment, will be sent to America. At the Roehampton Hospital, England, 46 per cent. of the men fitted with artificial limbs have been returned to their old trade or business. The British minister of labor reports that about 60 per cent. of the men crippled in the army have been reinstated in their original employment.

Riviera Hospitals for American Wounded.—Extensive hospital arrangements have been made for American soldiers during the coming winter on the French Riviera. Accommodations for 25,000 men have been provided, there being 4,000 beds at Cannes. A plan for taking over several large hotels at Nice is under consideration.

Chateau Near Paris for Wounded Aviators.—Mrs. William E. Corey has given her French home, the Chateau Villeggenisse, near Paris, to the American Red Cross, as a convalescent home for wounded American aviators.

New Way of Amusing Wounded Soldiers.—The National War Work Council of the Y. M. C. A. has solved the problem of how to entertain wounded soldiers who are unable to sit up in bed. Portable motion-picture machines are so stationed at the base hospitals in the camps that the projections appear on the ceiling, and all the patient need do is to look up.

Killed by Shell Concussion.—A cablegram received by the National War Work Council of the Y. M. C. A. reports that the Rev. Walter Murray of East Orange, N. J., met an unusual death while serving soldiers at a canteen near the front-line trenches. He was between two shells that exploded simultaneously, the concussion killing him, although there was not a mark on his body.

Ten Years' Imprisonment for Shamming.—Because of the attempt to evade military duty by feigning insanity, a private at Camp Dix was sentenced by the camp courtmartial to twenty years' imprisonment. The term was later reduced to ten years because the soldier has been in the service but a short time.

Physicians May Still Volunteer.—The Secretary of War and the Secretary of the Navy have issued the following statement: "Orders issued by the War and Navy Departments suspending further volunteering and the receipt of the recruits for officers' training camps from civil life do not apply to enrollment of physicians in the Medical Reserve Corps of the army and in the reserve force of the navy. It is the desire of both departments that the enrollment of physicians should proceed as rapidly as before, that the needs of both services may be effectively met."

Women Doctors Needed in France.—A cable message has been received at the New York headquarters of the American Women's Hospitals, 637 Madison Avenue, stating that there is urgent need for more doctors and nurses to meet greatly increased demands. The hospital for which the doctors are wanted has 25 beds for military and 25 for civilian patients, and is establishing dispensaries in cooperation with the American Committee for Devastated France in near-by towns and villages.

Military Rank for Nurses.—Mrs. Helen Hoy Greeley, counsel for the Committee to Secure Rank for Nurses, announces that a grade above sergeant has been given to army nurses and confirmed by General March, though this announcement has not been made officially. The nurses still feel that this is not sufficient to effect the end for which they are working, namely, the same authority in military hospitals which they would have in the civil hospitals in ordinary times. Following the example of Canada, the Australian army nurses have been given the rank of major, captain, first and second lieutenants, and that is what the American nurses are asking. The highest rank is for the superintendent of the Army Nurses' Corps, the relative rank of major; for the assistant superintendents, directors, and assistant directors, that of captain; for chief nurses and other nurses respectively, the ranks of first and second lieutenant. The grade just ahead of sergeant, which has been given to the nurses places them below the men studying in the camps. A bill embodying these demands is being prepared for presentation to Congress.

The Volunteer Medical Service Corps, which was authorized by the Council of National Defense on January 31, 1918, was reorganized and enlarged on August 5. It will now include not only those who by means of age, sex, or physical disability are ineligible for service in the Medical Reserve Corps of the army or navy, but all legally qualified physicians in the country, whether eligible for service or not, provided they do not already hold commissions in any of the Government services. The plan has received the approval of President Wilson, who, in a letter addressed to Dr. Franklin Martin, chairman of the General Medical Board of the Council of National Defense, says in part:

> I am very happy to give my approval to the plans which you have submitted, both because of the usefulness of the Volunteer Medical Reserve Corps and also because it gives me an opportunity to express to you, and through you to the medical profession, my deep appreciation of the splendid service which the whole profession has rendered to the nation with great enthusiasm from the beginning of the present emergency.
>
> The health of the army and navy, the health of the country at large, is due to the co-operation which the public authorities have had from the medical profession; the spirit of sacrifice and service has been everywhere present, and the record of the mobilization of the many forces of this great Republic will contain no case of readier response or better service than that which the physicians have rendered.

Under the plan of organization the entire medical profession of the country will be classified under four heads: (1) Fit-to-fight men under 40; (2) reserves under 55; (3) home forces over 55; (4) ineligibles. The reserves will consist of those who may be called upon for army, navy, public health, or civilian service when necessity requires. The home forces include those who are able to do only civilian service. The ineligibles are such as have been charged with unprofessional conduct, moral unfitness, or professional inaptitude.

Health of Navy Improved in War.—The death rate in the navy for the week ending August 10 was 1.2 per 1,000 men, a much lower rate than in peace times. This applies to the men both ashore and afloat.

Ambulance Transport Torpedoed.—One of the most harrowing disasters of ruthless submarine warfare occurred on August 3, when the homeward bound ambulance transport *Warilda*, carrying 600 sick and wounded men, was torpedoed and sunk as she was nearing home from France. The torpedo struck in the after part of the engine room, destroying the dynamo and causing the instantaneous death of one hundred patients in a ward just over the dynamo room. The survivors relate heartrending stories of the fearful struggles in the dark to rescue the helpless invalids. There were on board seven Americans, all but one of whom were saved. The loss of life is estimated at from 105 to 130 and upward, and includes several women nurses. More than 650 survivors were landed at a British port.

Lieutenant-Colonel Clarence Leroy Cole, M. C., U. S. A., died suddenly at San Antonio, Tex., on August 9, aged 41 years. He was a graduate of the Kansas Medical College in 1903, and was formerly in charge of the laboratory at the base hospital at Fort Sam Houston.

Ambulances for Women's Service.—The National League for Women's Service has received a gift of four ambulances, valued at $10,250, from the cloak and suit trade. The motor corps of the league is assisting in the removal of the wounded men from the transports, and has now eight ambulances in operation.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, August 17, 1918.

A CASE OF SO-CALLED PANCREATIC INFANTILISM.

PANCREATIC infantilism is known to us chiefly through the celebrated case of Byrom Bramwell. A similar one was reported by Rentoul, and if others are on record their number must be very few. In the *Revista de la Asociacion Médica Argentina* for April, Bullrich reports in full detail the following observation: A boy entered the Alvear Hospital in Buenos Ayres with diabetes. The general appearance was one of retarded development. The family history was good and personal history that of the average child—he had had measles, whooping cough, and one unknown malady accompanied by swelling. A photograph taken at the age of nine showed a boy well developed for that age. He was 16 years old when admitted and his failure of health had begun about four years before. He had diabetes and diarrhea; at night there was incontinence of both urine and feces. The abdomen was protuberant. He appears to have had dropsical attacks but was free from edema on admission. His mental processes were normal. The height was 4 ft. 1 in., weight 46.2 lb. The genitals were infantile and there was neither pubic nor axillary hair. The skin was dry and wrinkled and the face senile. The thoracic organs were normal and the tuberculin cutireaction was negative. The Wassermann was also negative and the blood count showed absence of anemia. The diagnosis of pancreatic diabetes was evident. The feces contained much fat. Tests with the sound showed diminished trypsin in the duodenal contents.

The case was entirely refractory to treatment and death took place from cerebral complications which apparently had no dependence on acidosis and coma. Autopsy showed normal thoracic organs. The pancreas was small and without lobulation, weighing 60 gms. The abdominal viscera were also normal with this exception; there was nothing to account for the protuberant abdomen, which was evidently due to meteorism. The kidneys and adrenals were quite normal. The thyroid was very small. Upon opening the cranium the cerebrospinal fluid was found hemorrhagic without clot formation. The choroid membrane and other portions of the meninges showed intense congestion and the cause of death had clearly been meningeal hemorrhage. The hypophysis was normal to the naked eye. To the microscope the anterior lobe appeared to have been the seat of a proliferative process which had caused destruction of the normal elements. Microscopic sections of the thyroid also showed anomalies suggesting defective development. The liver was the seat of histological alterations of various types, affecting both connective tissue and parenchyma, which in general resembled those of the pancreas and were doubtless of the same origin and nature. Similar changes seemed to have occurred in the spleen. The pancreas was the seat of a pericanalicular sclerosis without any changes in the veins; there was no infiltration with embryonal cells, no congestion, no proliferation of canalicular epithelium. There was no sclerosis of the islets of Langerhans but these were few in number and showed much variety in size and shape.

The case was clearly of the same type as that described by Bramwell, but the author objects to the name conferred on the syndrome by that author. While there were indeed symptoms referable to a lesion of the pancreas, the actual condition was pluriglandular, and today it would be classed as a pluriglandular syndrome by all.

MEDICAL DEONTOLOGY IN WAR TIME.

MORSELLI (*Annali di medicina navale e coloniale*, January-February) refers to the duty of the Italian practitioners, civil as well as military. They must foster moderation, inculcate the need and practicability of reduced diet, favor the use of a vegetarian regimen, protect the regime of the war, combat the use of alcoholics, exercise rigor in regard to medical certificates and evacuations for unfitness. The number of certificates of disability which have accumulated since the entrance of Italy into the war is so vast that, if correct, they would justify the conclusion that the Italians are victims of physical degeneration, organic decadence, and general softness. The proportion of these subjects who are false hypochondriacs, hystericals, and autosuggestives must be immense. The medical man is inclined to sympathize with this class and to hear them with indulgence, especially as the men and their women may be his clients and personal friends. In some cases, of course, his leniency is well founded. Sentiment, however, has no rightful place here. A good opportunity is given to assure one's clients that bad teeth, flabby stomachs, tense nerves, flabby muscles, and fat around the waist line do not necessarily unfit one for military service. It will often enough be apparent that a man with a slight hernia is not debarred thereby from riding a bicycle, nor another with short sight from being a moving picture patron.

In sanitary services of all kinds will be found many men who have not been severely wounded, but are interned for various more or less trivial

ailments. These subjects do not wish to get well and return to the ranks and their continued sojourn in the institutions keeps out genuine invalids who would be glad to recover as well as slightly wounded who need brief institutional care. All subjects who are really cured or have endurable ailments or are false hypochondriacs should be turned back to the ranks incontinently. Those who present something to work on should be examined thoroughly and promptly cured. In this class with objective finds will be many malingerers, and the medical man must know how to unmask the alleged mutes, deaf and blind, paretics, etc., some of whom are, of course, innocent victims of neuroses.

Under the head of regimen the duty of the medical man is to prevent waste of food while seeing that each man receives the ration which his system requires. Overconsumption must be prevented, and many men who are able to consume 4,000 or 5,000 daily calories can obtain sufficient for their needs from 3,000 or less. Poorly nourished subjects who need building up, and convalescents, may for the time being require more. Many civilians of both sexes can subsist readily on 2,000 daily calories. In regard to variety of ailment the old Roman progenitors of the Italians resembled the natives of the Orient and tropics in their ability to subsist chiefly on cereals and fruits. Animal protein in sufficient quantity can be obtained from cheese with a very little meat, and the legumes supply plenty of dietetic albumin. The medical man must give his full countenance to the use of war breads, etc., and uphold the government in all wholesale attempts to conserve food, despite the fact that it would be both natural and easy to grumble against the rationing of sugar and other comforts. The opportunity should be improved of fighting the tendency to drink alcoholics. In Italy a crusade against the moderate use of wine would hardly be advisable, but excess in wine drinking and the use of stronger alcoholic drinks should be condemned. The medical men are also altogether too indifferent about the excessive use of tobacco, which is beginning to be a very serious problem.

MILK AND VEGETABLES IN THE DIET.

In order that the fighters may be properly fed, economy and a certain amount of self-sacrifice must be practised by the civilian population. Views as to diet must be changed and adapted to meet the new situation. The population must be reeducated, in fact, as to the comparative food value of certain articles of diet. The man in the street must be instructed as to the scientific aspect of food, and many of his long-held ideas in this direction must be overthrown.

The winning of the war rests with the population at large, for if its members do not loyally support the soldiers the results cannot but be disastrous. In the first instance, then, the civil inhabitants of the country have to be taught the value of different foods, so that they may be able to exercise a wise and discriminating economy, and who shall teach them but the medical men.

Many foods easily grown or raised and therefore cheap are as nutritious as the foods difficult to grow or raise and consequently expensive. These facts are not generally known, nor, what is even more essential, is their supreme importance recognized. A campaign of education with regard to food has been inaugurated and it must be conducted strenuously throughout the country both by written and spoken word.

In a special number of *American Medicine* for June, 1918, in which the food problem is dealt with from various viewpoints, Professor H. C. Sherman of Columbia University discusses the place of milk and vegetables in the diet. He points out that milk is the one article of diet whose sole function in nature is to serve as a food, and it is the one food for which there is no satisfactory substitute. Moreover, even from the standpoint of the ordinary conception of food value, it is inherently much more economical of resources to feed farm crops to milch cows than to animals which are raised merely for slaughter, and consistently with this it is usually found that milk is a cheaper source of protein and calories to the consumer than is meat, unless some special marketing or other condition intervenes to interfere with normal economic relationships. Sherman demonstrates that from the broader view of food values, it must be concluded that a quart of milk is a greater food asset than an amount of meat which should furnish the same weight of protein and the same number of calories, and he gives a number of indisputable reasons in support of the validity of the argument. Further, he quotes McCollum to show that milk is the most efficient food in supplementing a grain diet because of its richness in calcium and in fat soluble A. Added to this is the further advantage that the milk proteins supplement in an important way the proteins of the grains and other seeds, especially in those cases in which the requirements of growth, reproduction, and lactation are concerned. In the opinion of Sherman, it has been proved that milk is much more than a substitute for meat, in fact, it has been shown that meat is a very inadequate substitute for milk. Thus not only does patriotism demand the consumption of less meat and more milk, but such a procedure is plainly desirable from the standpoint of our present knowledge of nutrition.

Over and above wheat saving, the food-conservation campaign is essentially an effort to diminish the consumption of meats, fats, and sugars, by substitution of perishable foods such as milk, eggs, vegetables, and fruit. Patriotism carried in this direction will greatly aid in winning the war by ensuring a sufficient supply of food for the fighters and will also act in the interests of public health and of economy. The substitution, to a great extent, of milk and vegetables for meat and wheat, will, ac-

cording to Sherman, result in the better support of growth and reproduction, the maintenance of a better hygiene of the intestine and higher reserve alkalinity of the blood, and the safeguarding of the body against any tendency in the direction of the so-called deficiency diseases.

Truths of this kind should be instilled into the minds of the community, for when it is thoroughly understood that it is patriotic as well as cheaper and more beneficial to health to subsist upon milk and vegetables, rather than upon meat and wheat, the merits of the former combination cannot but prove irresistible.

Rickets in Relationship to Housing.

The favorite theory of the causation of rickets is that it is due, or mainly due, to errors of diet; to the administration of food, for instance, lacking in the vitamine element. However, this view is not universal. Dr. Leonard Findlay, writing in the *Glasgow Medical Journal* for May, 1918, does not believe that dietetic errors are responsible for the causation of rickets. Experiments made by himself and others appear to show that diet plays an insignificant part in the causation of the condition. He is of the opinion that the following are the causes of rickets in the order of their significance: (1) Improper housing. (2) Absence of facilities for open air life. (3) Imperfect parental care. Poverty *per se* does not seem to be of any importance, and Findlay asserts that investigations show the conclusion is warranted that diet has no bearing on the etiology of rickets. Findlay has demonstrated to his own complete satisfaction that the frequency of rickets is directly proportionate to the air space in the home available per person. Furthermore, lack of exercise in the open air, he says, is a contributory factor of great consequence in the causation of the disease.

The Alimentary Chemistry of the Boche.

Dr. Matignon states in the *Journal de Médecine de Bordeaux* for May that the German chemists have striven valiantly against the results of the blockade; whenever the Allies shut off a new portion of the ration these men are right there with new substitutes. One almost thinks, says the Frenchman, of the miracles of the New Testament. In the *Vossische Zeitung* a professor in the Berlin University has expressed himself as follows: "It is useless to conceal the truth longer. The Government must supervise the flood of substitutes which threatens to engulf us. Otherwise the end of the war will see an end of one-third of the German people. Besides, the other remaining two-thirds will be so debilitated by undernourishment that they will have neither strength nor means to recuperate themselves. Only the devil knows what these substitutes contain or what the people eat in place of butter, eggs, cheese, oil, meat, milk, soup, coffee, sugar, tobacco, fish, tea, caviar, etc. The very latest finds of the chemists are too rank to be tolerated. Oil for frying is obtained from crude petroleum. To this product alone 800 cases of indisposition and eight deaths have been imputed. Dog fat has been substituted for that of the goose, "eggs" for pastry are composed of a mixture of chalk, flour, and yeast, caviar consists of fish scales, and bread is made of straw." The learned German professor asks how patriotism alone can enable a people to withstand forever such a state of affairs.

The Cosmetic Mask.

In *La Presse Médicale* for May 30 is a brief account of the activities of an American lady, Mrs. Ladd, wife of an American physician in the Toul sector, in the direction of making masks for disfigured soldiers. Born in Boston, she studied sculpture in Paris and Rome. Among her successful works, one, "La Paix Victorieuse," is specially admirable. The slow process of recreating new features in a face become almost unrecognizable influenced her to contrive a cosmetic mask, which serves alike for temporary or permanent use. In this work she is being financed by the American Red Cross, and has derived artistic support from the work of Derwent Wood, the British sculptor. She makes a mold of the face, and from this a face of wax by the aid of old photographs of the victim. This wax face is only a model, the actual false face being made of silver-plated copper, very thin and light. The features of the subject are then reproduced on the mask in oil colors, the eyebrows and moustache being, of course, of false hair. Two photographs accompanying this article, of terribly disfigured soldiers, show fine cosmetic results, which are naturally, however, not intended or expected to deceive any one. Doubtless, with dim illumination, or at a reasonable distance, deception might result, but the benefits are wholly moral. The victim can feel at ease, his relatives are spared much mental anguish, and the public escape a harrowing spectacle. The mask is to be worn chiefly on the public streets and in the public conveyances, and the illusion of reality is at times really very marked. The models and masks, so carefully prepared, may serve the plastic surgeon as a guide if the features are to be reconstructed.

News of the Week.

Cholera Spreads Unchecked in Petrograd.—A despatch from Amsterdam states that there have been more than 20,000 cases of cholera in Petrograd up to August 6, and that up to August 3 there were 1,100 deaths. It is said that the authorities are helpless to check the spread of the disease, and that the epidemic is not expected to cease until all the available material for the disease to work upon is exhausted.

Yellow Fever in Guatemala.—Yellow fever is reported to be raging in Guatemala. The average number of deaths from the disease is said to be about 40 daily.

Red Cross Needs Doctors.—The New York Chapter of Red Cross has issued a call for additional physicians to offer their services in providing free medical service to the families of soldiers and sailors. This work is being carried on from the Red Cross Medical Station at 314 East Fifteenth Street, Manhattan. According to the announcement from the Red Cross the number of cases to

be treated is rapidly increasing while the number of physicians volunteering their services is decreasing. In order to continue the work the services of additional physicians are badly needed.

A Memorial to the Late Dr. Trudeau.—A statue of the late Dr. Edward L. Trudeau was unveiled at the Trudeau Sanatorium, at Saranac Lake, on Saturday, August 10. Dr. Francis B. Trudeau unveiled the statue, and addresses were made by Dr. Walter B. James and Miss Louise Bonney.

Ambulance Wrecked.—As the result of a collision between a Coney Island Hospital ambulance and an automobile on Ocean Parkway, Brooklyn, the ambulance was completely wrecked and its occupants cut and contused.

Doctors Increase Fees.—The physicians of Webster, Mass., have increased their fees. Henceforth, house calls between the hours of 7 A. M. and 7 P. M. will be $2, within a certain radius. Within a larger radius they will be $3, and within a still wider radius $4. Confinement cases will be $10 up, according to the time spent and the operation performed. For all calls between 7 P. M. and 7 A. M. an additional dollar will be charged.

Hospital Annex Burned.—The frame annex of the Rahway (N. J.) Hospital was damaged by fire to the extent of $5,000 on the night of August 3. No one was injured.

Dr. Timothy D. Lehare, for fifteen years a coroner's physician of New York City, has been appointed police surgeon for the Thirteenth and Fourteenth Districts.

Dr. Julius P. Brown, recently tried on charges of neglect of duty by the Hylan administration, and acquitted, has been unanimously reinstated as director of the Bureau of Food and Drugs of the New York Board of Health. In acquitting him of blame the board publishes an implied censure of the administration of the two health commissioners who served before Dr. Amster.

Deaths of Foreign Medical Men.—Dr. JOHAN WILHELM RUNEBERG, who was perhaps the foremost medical figure in Finland, died last May at the age of 75 years. In addition to general practice he did surgical work and conducted laboratory researches in physiology. The first subject with which he identified himself was albuminuria, and his first research was conducted in the laboratory of Leipzig University. He maintained his interest in this subject, and was regarded as an authority on Bright's disease. He developed his own classification of the varieties of nephritis, and differentiated carefully between inflammatory and degenerative forms. He made an exhaustive study of the albumin content of ascites cases and studied 164 cases with this end in view. Another subject which he had studied with great care was anemia, with special reference to pernicious forms and parasitic anemias. A third subject on which he was an authority was arteriosclerosis. As a surgeon he was one of the very first to develop the surgical relief of pulmonary abscess and gangrene. He was also an extensive early operator on empyema, and was therefore entitled to rank as one of the pioneers among thoracic surgeons.

Dr. LEOPOLD MEYER of Copenhagen died recently at the age of 65 years. He was distinguished as an obstetrician and gynecologist. He published a monograph on the pathology of pregnancy in 1906 and a textbook on midwifery in 1914. He was an authority on obstetrical operations as well as abdominal surgery.

Dr. CARLO FORNANINI, whose death occurred quite recently, was born in Milan in 1847, and was graduated at Pavia in 1870. He at once became an assistant at the celebrated Ospedale Maggiore in Milan, remaining there in successive ranks until 1884, when he was made professor of clinical medicine in the University of Turin. In 1890 he received the same appointment in the University of Pavia, his alma mater, remaining there until his death. He was active at various periods as physician, surgeon, dermatologist, ophthalmologist, pathologist, and experimenter, which training made him a superior teacher in his terminal field of internist. He was founder of a medical periodical, *Il Policlinico,* not the present journal of that name, but one which subsequently became *La Gazetta Medica Italiana.* In 1912 he was made Senator. From 1882 until his death he was interested especially in the subject of therapeutic pneumothorax, with which operation his name is eponymically associated.

Dr. NICOLAS ACHUCARRO, a pupil of Ramon y Cajal, died recently. He was a young histologist, distinguished especially for his studies of the intimate structure of the nerve centers. He was a consummate technician, and his work on hydrophobia and general paralysis was well known to his colleagues. His greatest claim to distinction is his pioneer work on the neuroglia, and he was led by his finds to the belief that this tissue is an organ of internal secretion of capital importance for the central nervous system.

Obituary Notes.—Dr. SAMUEL FREDERICK ANDERSON of Brooklyn, N. Y., a graduate of the Long Island College Hospital, died at his summer home at Seaside Park, N. J., on August 5. He was assistant laryngologist to the Methodist Episcopal Dispensary of Brooklyn.

Dr. FERDINAND LESSING died at Philadelphia, on July 11, at the age of 81 years. He was graduated from Jefferson Medical College in the class of 1869.

Dr. FREDERICK LYMAN HILLS of Bangor, Me., died in New York City on July 30, aged 48 years. He was graduated from the College of Physicians and Surgeons, New York, in 1892, was on the staff of the Danvers State Hospital at Danvers, Mass., for several years, and later assistant superintendent of the New Hampshire State Hospital, superintendent of the tuberculosis sanatorium at Rutland, Vt., and since 1910 superintendent of the Bangor State Hospital.

Correspondence.

THE CHANGING VIEWS ON CANCER.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—It is certainly very encouraging and hopeful to note the change which may be observed in medical periodical literature relative to the subject of cancer. The journals during the last year have been singularly free, that is relatively, from active surgical articles concerning this disease, and correspondingly full of those relating to the medical aspect of the question.

Thus, in the *Journal of the A. M. A.* for July 27 there was a long editorial on "Diet and Tumor Tissue Growth," and in the MEDICAL RECORD of the same date an article on "The Relation of the Proteins in Food to the Cause of Disease," with special reference to cancer. And now in this week's MEDICAL RECORD an article comes from England on "Cancer a Disease of Deficiency," and in *The Medical Times* for August one on "Does Analogy Exist Between Animal and Vegetable Tumors?" In this last article there is, in addition to a strong negative answer to the question, also a strong argument toward the constitutional or metabolic origin of cancer.

Is it not interesting that in several journals four different writers should at about the same time indorse and sustain a proposition which the surgeons have so long ignored? For in several writings I have already shown that it has repeatedly had strong support from able men for the past one hundred years at least. Surely light is beginning to dawn, and it is sincerely to be hoped that before long the rational therapy of cancer will result in a material reduction in the steady and alarming increase in mortality, which, as I have repeatedly shown, cancer has had under surgical care of late years.

L. DUNCAN BULKLEY, M.D.

NEW YORK.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE MEDICAL PROFESSION UNDER A MINISTRY OF HEALTH—MEDICAL ETHICS AND PROFESSIONAL DISCIPLINE—THE ENGLISH COLLEGE OF SURGEONS.

LONDON, July 18, 1918.

IN the House of Lords on Wednesday last Lord Willoughby de Broke raised the question of the failure of the Government to redeem their oft repeated pledge to establish a Ministry of Health. Medical men are every whit as aware as any member of the public or any professional politician that the country is at war, and that the conduct of business is hampered thereby, in some directions by the absence of the natural leaders in special departments and in other directions by the enormous piling up of military and administrative work. None the less the Government should recognize that this excuse cannot be used forever and ever; already it has become a confession of weakness, and yet there can be no argument, other than that of inability to find the time, to justify (if justification it be) a delay in legislation which compels the nation to pay an enormous price in lives, and to put up with an infinite amount of preventable disease and misery. That the public and the medical profession are at one in desiring the early constitution of a Ministry of Health has been proved this week significantly by the fact that several schemes for a reorganization of the medical profession under a Ministry of Health have been brought forward and that they have received from the lay press an amount of attention which has not hitherto been accorded to professional subjects. The British public is now awake to the fact that anything which is of first class importance to the medical profession is of first class importance to themselves. These are the steps of thought that are being realized in their logical importance: (1) that a Ministry of Health is absolutely needed to guard the public health, but particularly to organize a service for the prevention of disease and for its treatment in the earliest stages; (2) that the administration of such a Ministry of Health must be largely in the hands of the medical profession, who are the only people who can lay down the best programs, visualize the places in which difficulties will occur, and deal in substance and in detail with the machinery of preventive and curative medicine; (3) that where so much depends upon the medical profession the organization of that profession in such a way that it can render the best professional services to the public is a matter of first importance.

It is being felt by all the more thoughtful members of the medical profession that the time has come when some sort of general opinion of the profession should be arrived at in answer to the attitude of an expectant public. The public should learn how, in the opinion of doctors themselves, the best services of the profession would be obtained under a Ministry of Health, so that when the actual proposals of the Government come to be discussed in Parliament the force of medical opinion will not be frittered away in suicidal bickering but be brought to bear, as common and collective arguments in respect of agreed principles. At the present moment the medical profession may be subdivided as follows: First there are some who think about the organization of the profession and some who do not, and the latter class is probably the larger, for the medical life is a very absorbing one, and the actualities of pathology are naturally more real to the busy practitioner than any schemes of reconstruction which may, or may not, take effect upon the occurrence of future legislation. It is depressing to think that only the smaller proportion of the medical profession as yet heeds the professional future. Then all that proportion of the medical profession which does heed the future is not in agreement as to the direction in which reform should come. There are three main divisions among them. First, there are those who consider that all the best work will always be done by individual doctors treating individual patients in accordance with any routine that suits the individual parties. Secondly, there are those who think that all medical service being a national asset, medicine should be administered by the State, and that all medical men, having obtained a diploma from the State, should *ipso facto* become State servants. Thirdly, there are those who think that, at any rate for the present, the truth lies somewhere between the two extremes, and who would like to devise a scheme whereby the State got a certain proportion of the services of all the medical profession as a right, while the doctors, as their right, would be able to reserve to themselves a certain amount of their time and their opportunities for individual work and profit. Englishmen are said to be especially fond of compromise, and certainly it is from this third class that the best schemes for the future development of the medical profession have emanated. These schemes have been many, and the last to attract attention was one laid down by Major-General Sir Bertrand Daw-

son in the Cavendish lecture recently delivered before the West London Medico-Chirurgical Society. Sir Bertrand Dawson's scheme would provide the public with State-subsidized hospital buildings and institutes to be distributed in accordance with geographical and population needs. All these hospitals, at the periphery of the scheme, would be served by the medical profession, who would be paid by those who could afford it and who would render aid to the others, partly paid or wholly gratuitous according as those patients were beneficiaries under the National Insurance Act or objects of medical charity. Then each of the district hospitals, general and special, and of all the various kinds, would be connected up with institutions at the largest center of population in the neighborhood, and from these consultant medical and surgical advice on all subjects would be drawn. This is, it will be seen, a working scheme whereby doctors do public work yet preserve individuality, and under which they are helped by the State exactly in the place where help is most needed, namely, by the provision of proper quarters in which to house poor patients, and proper premises in which to conduct medical research. The scheme gives general practitioners of every grade the chance of playing their part in the evolution of scientific medicine.

A case of great interest to the medical profession is now being heard before the King's Bench Division of the High Court of Justice, in which certain medical men, medical officers of an institution entitled the Coventry Medical Dispensary, are bringing an action for conspiracy, libel, and slander against the British Medical Association and the Coventry local officials thereof. The case is now proceeding, and has been opened at such length that there is no doubt the verdict will not be given before this letter is despatched, but there will be no question of contempt of court if I outline the case, as far as it has gone, because the actions of the British Medical Association are admitted—it is only the interpretation of them which is strenuously denied.

Many medical aid dispensaries have been mischievous to the proper administration of medical benefits to the public because of four main things: (1) the dispensary admits to the benefits of the club persons whose income is so high that they could very well afford to pay adequate fees to private practitioners; (2) the dispensary, by handbills or canvassers, advertises its medical staff to the detriment of other practitioners in the locality; (3) the dispensary pays its medical staff inadequate salaries; mainly because (4) the dispensary is under lay management, the medical voice or its executive being absent or outvoted, so that sums of money earned by the medical work of the staff are allocated to the payment of secretaries and canvassers. Under some or other of these counts the Coventry Medical Dispensary earned the disapproval of the British Medical Association, which, many years ago—at least ten—decided that members of the Association should not hold office at the dispensary, and should not meet professionally those who did so hold office. Certain medical officers of the dispensary consequently resigned their posts, but other medical men took their places in the face of notices in the *British Medical Journal* warning them not to engage themselves without inquiry into the constitution of the dispensary, whose advertisements were refused by the medical press. The action of the British Medical Association in this locality, confirmed by the central organization of the Association, led to certain events which furnished some of the medical officers of the dispensary with obvious grounds for legal action. Undoubtedly they were made to feel publicly that they had defaulted from professional standards, and they lost patients either from this reason, or because it became known that in the event of a consultant opinion being required in a difficult case, the opinion could not be obtained in the neighborhood, save where the question at issue was the saving of life.

The great question at issue before Mr. Justice McCardie, one of the strongest and most learned judges on the bench, has a most important bearing upon professional ethics in this country. I am saying nothing about the particular facts of this case; it would not be right to try to guess what view Mr. Justice McCardie, who is sitting without a jury, will take of the evidence that the dispensary has been managed to the detriment of the medical profession in the indicated ways; it would be equally wrong to suggest either that the damages alleged by the dispensary's doctors have not been incurred, or that the professional boycott of these doctors, has not been in accordance with general professional tenets. But whatever the result of the case may be, the medical profession will obtain an important ruling on the legitimacy of erecting an ethical tribunal within itself, and acting thereon. The General Medical Council has the ethical control of the medical profession as its statutory business by Act of Parliament; if this conduct of a medical man cannot be brought under the notice of the General Medical Council as having transgressed any laws or principles of that council, can no professional tribunal deal with him when his actions conflict with accepted professional standards? That is the great question at issue, and there is no doubt that the medical profession awaits Mr. Justice McCardie's decision with anxiety.

At the last meeting of the Council of the Royal College of Surgeons of England, Sir George Makins was re-elected President, and Sir John Bland-Sutton and Mr. W. F. Haslam were elected Vice-Presidents. Mr. Haslam, who is professor of surgery in the University of Birmingham, is among the most prominent provincial representatives on the Council of the College. Prominent among the new members of the Council is Mr. J. Lynn Thomas, the well-known consulting surgeon at Cardiff, so that the old reproach to the college that it is an entirely London affair is not holding good at the present moment.

Pneumonia and Bronchopneumonia in Nurslings from Descent into Cellars.—Netter and Triboulet call attention to a new consequence of air raids in the shape of dangerous respiratory affections as a result of taking babies to cellars at night. In the Trousseau Hospital 21 of the nurslings as a result of these experiences developed pneumonia or bronchopneumonia, with 7 deaths. Exposure was the sole causal factor.—*Le Progrès Médical.*

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

PRÉSIDENT POINCARÉ APPRECIATES Y. M. C. A.—RED CROSS RELIEF WORK IN ITALY—AN AMERICAN HOSPITAL TRAIN IN FRANCE.

PARIS, July 2, 1918.

DR. JOHN R. MOTT, of the American Y. M. C. A. war work council, has just returned from his tour of inspection among the American and French troops and has been received by President Poincaré. The President said to Dr. Mott that in his own name, in the name of the Government and the people, he wished to thank the American people for the indispensable service rendered by giving to the French Army the service of the Association. Dr. Mott has discussed with both M. Clemenceau and President Poincaré Y. M. C. A and Foyer du Soldat work. Both expressed first-hand knowledge of the work and unqualified approval of it. During his visit to the front and in the training areas Dr. Mott found scores of Association huts and "foyers" working in varying conditions, many under shell fire and some of the work actually being carried on in the front line. Both French and American generals bore testimony as to the military value of this agency and its service in promoting the comfort and well-being of officers and men.

Captain Charles Carroll of the American Red Cross and one of the founders of the American Ambulance, has just returned from a visit to Italy with the Italian Commission of the American Red Cross. He is convinced that Italy is fully alive to her responsibilities, is determined to drive the enemy out of her invaded provinces and will work heart and soul to help the Allies achieve their great aims. The Red Cross, realizing the suffering caused in Italy by the increased cost of living, decided to distribute a large sum for relief throughout the country. This distribution was undertaken by delegates sent to all parts of the country. Captain Carroll was on the Adriatic coast, where mine fields had cut off an important source of industry—the fisheries. The distress was marked, but this action of the American Red Cross not only cheered up the population, but gave it a practical demonstration of the value of America's entry into the war.

In addition to this special relief, the American Red Cross organized other work along the coast. At Rimini shoe factories were established for the refugees from Venetia as well as hospitals for children. At other coast towns, as well as in the interior, much assistance was given to local Italian charities that are in many cases admirably organized, but needed funds. At important railway junctions canteens have been established, and refugees and many soldiers are supplied with coffee and food by Red Cross workers. All along the coast the work of the American Red Cross is admirably handled, and the name of America is acclaimed with enthusiasm by all classes. At all the towns visited, demonstrations were organized, and speeches made lauding America as the representative of the principles of Liberty and Democracy. At Ricanati, a beautiful town on a high hill in the province of Macerata, windows were decked with flags and women threw flowers as the American Red Cross delegates were conducted to the municipal buildings.

When the full story of what has been done by the American Red Cross in its multitudinous activities is written it will prove to be one of the brightest pages in the history of this terrible war.

Great interest is evidenced by Americans and French alike in the American Hospital Train, now operating in France. This train stood on a siding awaiting orders, in a part of the country where Uncle Sam's hospital arrangements are on an enormous scale and magnificently complete. The train is about 930 feet long, and is composed of 16 carriages. These are fracture and infectious-ward wagons, staff, kitchen and four general ward wagons, pharmacy wagon and operating-room; then come five ward wagons, another kitchen and staff carriage and one for stores. A medical officer was asked to tell him how many things were lacking to make the train as complete as any ordinary hospital at home, and after reflecting he replied, "None."

This handsome hospital on wheels will accommodate 360 patients in cots. But it can carry 480 sitting down, and at the same time 120 in cots, making in this way accommodation for 600 patients. Each ward has 36 cots, hung in threes, one above the other. When desired, the top cot may be slung flat to the side of the wagon, the second cot slipped down and made a back to the lower cot, thus forming a sofa or lounge. The space between the rows of cots is very wide—sufficient to allow a stretcher to pass with ease. The train carries a water supply of 2,835 gallons, apart from the drinking water carried in filters. Electric fans change the air completely when the train is in motion. The heating is, when the engine is detached, entirely independent. There are bathrooms, douches, lavatories, drug stores, grocery and butcher supplies, and so complete is this provision department that 500 persons can be comfortably fed for three days at a stretch.

The staff comprises three medical officers, a manager, two lieutenants, a sergeant of the first class, two sergeants, two cooks and thirty-one enlisted men. The carriages are the last word in hygiene—rounded corners, so as to be easily cleaned, cheery, and extremely neat, all in white enamel, finished off in mahogany. These are only some of the details that catch the eye of a layman. But there are many others. These wagons are not turned out of American shops. It was found impossible to get results owing to transportation difficulties. So they were built in England, under American supervision. Major (Dr.) William Bertram Meister is in command of this train and he is very proud of his responsible post.

In passing through one of the kitchens, I noticed a cage of canaries, and they seemed wonderfully happy in their hospital home. "That," said the major, "is a little souvenir of one of our trips in France. We pulled up, one day, at an out-of-the-way siding, and awaited orders. While there a Frenchwoman came and implored us to save the life of her little daughter, who required an immediate operation. We could hardly refuse and were very glad to restore the little girl safe and sound to her mother. The poor woman was completely overcome with gratitude and, with tears in her eyes, emptied her savings in the hands of an astonished lieutenant. Of course, we gently assured her that we could accept no fees or gifts, and supposed we had got

rid of her when she left. Not a bit of it. That evening the woman came again, and, after leaving us this cage of sweet-singing canaries, fled in precipitation. We never saw her again. But those are *some* canaries, and we are mighty glad to have the cheery little songsters."

146, Avenue des Champs Elysées.

Progress of Medical Science.

Boston Medical and Surgical Journal.

August 1, 1918.

1. Modern Principles in the Control and Management of Cancer. Edward Reynolds.
2. The Energy Content of Extra Foods. Cornelia Golay Benedict and F. G. Benedict.
3. The Training School for Hospital Apprentices at the Boston City Hospital. John A. Foley.
4. Impacted Stones of the Bladder and Urethra. Walter D. Bieberbach.

1. Modern Principles in the Control and Management of Cancer.—Edward Reynolds comments on the recent changes which have taken place in our knowledge of the malignant diseases, due in large measure to the work of the American Society for the Control of Cancer. He points out that all authorities are now agreed that there is no sharp line between the benign and the malignant and that many malignant new growths originate in, or about, originally benign growths or ulcers. In general, most benign new growths must be regarded as potentially malignant, though the lipomata, for instance, are almost invariably innocent. A malignant new growth is frequently the product of continuous chronic irritation, which results in hypertrophy of the normal tissues; this is followed by proliferation, then by the extension of the epithelial elements into the surrounding non-epithelial tissues, and the assumption by the individual cells of the malignant characteristics, in successive stages. (In the sarcomata, of course, the malignant process originates in connective tissue.) The essential change in our views is an acceptance of the modern idea that the duty of the physician to his patients is now to recognize, diagnose, and treat radically the conditions which ordinarily *precede* cancer and which for the most part are readily curable if radical treatment is adopted before actual malignancy has been established. In the digestive system and other difficult situations, diagnosis can be made only by the use of intricate and expensive methods of modern laboratory diagnosis at a time when symptoms warrant no more than a suspicion. The disease is not contagious and the influence of heredity is probably negligible. The general principle of treatment is the immediate removal of any mechanical or physiological irritation which could conceivably cause an existing thickening or ulceration, and if this removal is not followed by prompt disappearance of the lesion, an immediate and thorough excision of the induration or ulcer while still benign, by an incision made through unaffected tissues and without entering the lesion itself. Radiation and the use of the cautery should be avoided during the early stages though they are of great value in the palliation of advanced disease. The following are pre-cancerous conditions which are not malignant: moles (and especially pigmented moles), keratoses, ulcers of the skin and orifices of the body, gallstones, ulcers of the stomach, ulcers of the mouth, cystitis, erosions of the cervix, premature or obstructed involution of the breast, uterus, and prostate, the adenomata, the papillomata (especially in the intestines, bladder, and thyroid glands), cysts in the ovary and breast (because they tend to develop papillomata of their linings), polyps of the uterus or rectum, and, in general, all epithelial neoplasms. The dictum "*ubi tumor, ibi incisio (excisio)*" may be accepted as a safe general rule. Reynolds then proceeds to apply these principles to a few of the situations in which cancer most frequently occurs. He points out that in the case of squamous epitheliomata of the surface and carcinomata which originate in the follicles of the skin, radiation, cauterizing agents or freezing mixtures may be employed in the early stages; if any suspicion of malignancy arises, however, they should be radically removed together with the nearest set of lymphatic glands. It is important that all tissue removed should be examined under the microscope at the time of operation, and even when the immediate examination is negative the tissues should subsequently be carefully studied by a pathologist. The organs of the digestive system are among the most common seats of cancer, especially in men, and their inaccessibility makes early diagnosis extremely difficult. In cancer of the stomach the symptoms are those of chronic indigestion with, later, bloody vomitus, loss of weight, and change of color. In cancer of the colon the symptoms are persistent colic with bloody stools and, later, attacks of obstruction. Diagnosis is made by use of the *x*-ray after a barium meal and enema, and by exclusion of the ordinary sources of rectal bleeding through a proctoscopic examination. An exploratory abdominal incision should be done in doubtful cases. A positive diagnosis can rarely be made until the case is beyond the prospects of cure. In cancer of the rectum, a differential diagnosis between incipient cancer and hemorrhoids can be made only by physical examination with the finger and proctoscope. From the nature of the organ, operation, even in the early stages, is extensive. Cancer of the pancreas, liver, or gall bladder is rare, and is inoperable except when incipient cancer is discovered in the process of removing gallstones. Cancer of the breast is perhaps more controllable than in any other situation. Success depends upon early operation; any chronic lump in the breast which has persisted for a month without decrease should be removed. Cancer of the uterus may take one of two forms—the squamous carcinomata of the cervix and the adenocarcinomata of the body. With early and efficient treatment, prognosis is good in both cases. When actual malignancy is present permanent relief is rare in the first case. In adenocarcinomata of the uterus, prognosis after hysterectomy is favorable even in the presence of fully developed disease, so long as peritoneal perforation has not taken place. Reynolds closes with a few words on the palliation of inoperable cancer. Radiation should be employed in advanced disease of the cervix, prostate, and about the mouth and nose, also in Hodgkin's disease; it relieves pain and decreases hemorrhage and offensive discharges. The removal of sloughing portions of a superficial growth, either by the knife or by the knife and cautery, often decreases suffering. Ligature of a number of the nutrient arteries may also decrease the size of the growth. Tracheotomy, gastroenterostomy, and colotomy, neurotomies or deep infiltration of the plexi which supply the affected part, may all result in alleviation of symptoms.

New York Medical Journal.

August 3, 1918.

1. Ophthalmic Changes in Tabes and Paresis. I. S. Wechsler.
2. The Successful Treatment of Chronic Pathogenic Infections of the Lower Respiratory Tract. Irving Wilson Voorhees.
3. Why Is Asparagus Forbidden During Gonorrhea? Hermann G. Klotz.
4. Some Interesting Rectal Cases. Arthur A. Landsman.
5. How Can We Get Enough Sleep? Edwin F. Bowers.
6. Hirschsprung's Disease with Eventration of the Right Half of the Diaphragm. Edward A. Aronson.
7. Examination of Recruits for Tuberculosis. Ralph C. Matson.
8. Medical Notes from the Front. Charles Greene Cumston.

2. The Successful Treatment of Chronic Pathogenic Infections of the Lower Respiratory Tract.—Irving Wilson Voorhees draws attention to chronic infections of the lower respiratory tract—the larynx, trachea, and bronchi—and the importance of combating the microorganisms which cause the infection. The organisms most commonly found are those of the streptococcus or staphylococcus family and the *Micrococcus catarrhalis*. Sputum should be obtained in all cases and cultures taken from the nose and throat whenever symptoms are referable to these organs. If deemed necessary a vaccine should be made from the culture and whenever possible the site of bacterial growth should be determined. A continuous desire to scrape the throat indicates the presence of mucus on the vocal cords. Plaques of mucopus, mucus, and blood streaks are often seen, particularly in cases where the *Streptococcus mucosus* is present. In chronic tracheitis the mucous membrane over both true and false cords is

often covered with crusts. There is a dry, hard cough which becomes easier when the crusts soften and can be coughed out. The secretion is viscid and when dried becomes firmly attached to the epithelium and on coming away leaves a raw, bleeding, eroded surface. The voice is husky and at times there is aphonia. The condition may be limited to the trachea or may extend into the larger bronchi. In one case a small encapsulated abscess cavity was found; culture showed a staphylococcus organism. In chronic bronchitis with copious, fetid discharge, the possibility of a foreign body in a bronchus must be considered. In all cases a careful history should be taken as to how the condition began, its probable origin, whether following pneumonia, grippe, etc., the question of associated disease of heart or kidneys, duration, local symptoms, character of cough and sputum, effect of climatic or barometric factors, former treatment, and so on. A thorough local examination of the nose and nasopharynx should be made for obstruction and presence of pus. The larynx and trachea must be studied with the laryngeal mirror, and if this method fails, with the direct speculum. A specimen of secretion should be secured in every case and submitted to bacteriological examination. X-ray examination of the nasal sinuses and of the chest is sometimes necessary, and a Wassermann may throw surprising light on a baffling problem. Physical signs are not of much value. Treatment should be directed toward improving the patient's general condition and destroying the bacterial parasite. Voorhees has used the vaccines with great success. Whenever possible he prefers the autogenous kind. He points out the importance of the mode of preparation of these vaccines; heating, for instance, may exert some lipoid change which renders the vaccine ineffectual. He comments on the fact that direct treatment to destroy the microorganisms has been sadly neglected. The silver preparations are especially helpful in case of crusting. Silver nitrate, however, should not be swabbed on with an applicator but sprayed directly into the trachea with a De Vilbiss anatomizer (No. 52) or dropped in the bronchi with a laryngeal syringe. Silvol, an analogue of silver nitrate, has been used with success and much is to be looked for from the new dichloramine-T of Carrel-Dakin. Too much importance cannot be attached to the necessity of persistent and repeated applications of bactericidal agents. Cultural conditions are ideal and bacteria grow at an enormous rate on the respiratory mucous membrane and, therefore, treatment should be administered at least once, and if possible twice, a day.

Journal of the American Medical Association.

August 3, 1918.

1. Present Status of the Urology of War. Edward L. Keyes.
2. Nervous and Mental Symptoms in Exophthalmic Goiter. Lewellys F. Barker.
3. Pituitary Disturbance in Its Relation to the Psychoses of Adolescence. Beverley R. Tucker.
4. Medical Service in the Conservation of Industrial Man Power. C. D. Selby.
5. Modern Industrial Medicine. C. G. Farnum.
6. Diagnosis in Traumatic Neurosis. Walter F. Schaller.
7. Lumbar Puncture in Meningeal Hemorrhage of the New-Born. Jules M. Brady.
8. Oil of Chenopodium in the Treatment of Amebic Dysentery: Preliminary Report. Mifford Edwin Barnes and Edwin Charles Cort.
9. Radiculitis: Its Diagnosis and Interpretation. Edward E. Mayer.
10. Children in the War Zone. J. P. Sedgwick and N. O. Pearce.
11. Work of the Children's Bureau, Department of Civil Affairs, American Red Cross, France. William Palmer Lucas.
12. Cases of Empyema at Camp Lee, Va.; Preliminary Report. Empyema Commission, Camp Lee, Petersburg, Va.
13. Reconstruction and Rehabilitation of the Tuberculous Soldier. E. H. Braus.
14. The Significance of Presystolic Thrills in the Examination of Soldiers. A Functional Presystolic Thrill. Roger S. Morris and Alfred Friedlander.

2. Nervous and Mental Symptoms in Exophthalmic Goiter.—Lewellys F. Barker points out that the intimate relationship of the endocrine glands and the nervous system is nowhere better illustrated than in the symptomatology of exophthalmic goiter, in which condition neuropathic and psychopathic phenomena predominate. Even in the disturbances looked upon as non-neural in origin, Barker suggests that a neural link may later be found. Although both the cerebrospinal nervous system and the vegetative or autonomic nervous system (including the sympathetic and autonomic systems) exhibit deviation from the normal, it is to the latter system that the larger number of pathologic-physiologic phenomena are referable. A consideration of the symptoms met with in exophthalmic goiter (of which a list is given) is in itself proof of this. These symptoms are never all found in the same case and some of them are opposites—epiphora and dry eyes, sialorrhea and xerostomia, constipation and diarrhea. The English physiologists, Gaskell and Langley, have shown that there is a double innervation in all autonomic domains. Normally there seems to be a fairly stable balance between the innervations of one set and those of the other set of fibers, each reciprocally antagonistic in their effects when stimulated, and this balance is temporarily and adequately upset from moment to moment by certain stimuli correspondent to physiologic needs. It is probable that, in some persons, constitutionally inferior, there may be a special sensitiveness to one set of innervations at the expense of the other; Eppinger and Hess have postulated the conception of vagotonia and sympathicotonia. In exophthalmic goiter a mixture of the phenomena of sympathetic stimulation in one domain with the phenomena of craniosacral autonomic stimulation in another is often met with; or the phenomena of either of these types may be predominant, *i.e.* the socalled sympathicotonic and vagotonic types of the disease. Though the facts are insufficient to warrant any dogmatic assertion regarding the pathogenesis of these symptoms, it is certain that their careful analysis and a consideration of their relation to one another have awakened a new interest in visceral neurology and bid fair to stimulate research. Toxi-degenerative processes involving the peripheral neurons (both motor and sensory) of the cerebrospinal nervous system are only met with occasionally, but do sometimes arise in exophthalmic goiter. In the domain of the cerebral nerves the nervus oculomotorius, the nervus trochlearis and the nervus abducens are most frequently involved. Isolated palsies of the nervus facialis are sometimes observed. Most interesting of all are the cases of palsy in the domain of several cerebral nerves, yielding the clinical picture of an acute, a subacute, or a chronic, bulbar paralysis. Further study is needed to decide the importance or unimportance of thymus hyperplasia in these cases. Barker states that what has surprised him most has been the constant presence of extensive evidence of disturbed function of the peripheral autonomic nerves in contrast with the apparent absence of evidence of disturbance of function of the peripheral cerebrospinal nerves. Of the grosser organic lesions of the brain and spinal cord occasionally encountered in exophthalmic goiter, none seems to stand in any direct relation to thyrotoxic cause. The neurotic and psychotic symptoms manifested in these cases are of particular interest, and Barker suggests that the nervousness and abnormal behavior of patients suffering from exophthalmic goiter may be due to abnormal functioning of the fundamental instinctive mechanism on which the whole personality depends. Each instinctive mechanism has a cognitive, an affective, and a conative component, involving a knowing, a feeling, and a striving. In exophthalmic goiter, it would seem as though the affective-conative processes were more involved than the cognitive. As yet it is impossible to say how far the nervous symptoms and especially the pathological emotivity of patients depend upon a direct intoxication of the brain itself and how far on indirect effects on the higher nervous apparatus through an intoxication of the vegetative nervous system or of all the body cells in which the ultimate metabolic processes go on. Barker, however, is inclined to lay more stress on injury to the lower and more primitive mechanisms.

7. Lumbar Puncture in Meningeal Hemorrhage of the New-Born.—Jules M. Brady. See MEDICAL RECORD, June 22, 1918, p. 1107.

10. Children in the War Zone.—J. P. Sedgwick and N. O. Pearce. See MEDICAL RECORD, June 22, 1918, p. 1105.

11. Work of the Children's Bureau, Department of Civil Affairs, American Red Cross, France.—William Palmer Lucas. See MEDICAL RECORD, June 22, 1918, p. 1105.

The Lancet.

July 13, 1918.

1. The Goulstonian Lectures on Modern Views on Diabetes and on the Significance of Acidosis in Disease. Lecture III. E. P. Poulton.
2. The Absence of the *Bacillus Influenzæ* in the Exudate from the Upper Air-Passages in the Present Epidemic. Captains T. R. Little, C. J. Garofalo, and P. A. Williams.
3. On Some Unusual Forms of Epidemic Disease—General Report by A. K. Chalmers. Polioencephalitis and an Epidemic Disease of Obscure Origin. H. M. F. Picken. Outbreak of an Acute Febrile Disease in Three Factories and an Industrial School in Glasgow. A. MacLean.
4. A Clinical Study of Craniotabes. Lieutenant Edmund Hughes.
5. The Nervous Sequelæ of Cerebrospinal Fever. Captain Cecil Worster-Drought.
6. A New Method of Preparing Gonococcus Antigen, and a New Technique for the Complement Deviation Test. Captain David Thompson.
7. A Quick Method of Diagnosing the Type of Meningococcus in Cases of Cerebrospinal Fever. Major A. S. Gordon Bell and Miss I. M. Harmer.
8. A Note on the Loss of Complementing Power in Kept Serum. Captain J. S. C. Douglas and J. W. Bigger.
9. Kala-azar in Malta: Two Cases Treated by Intravenous Injection of Tartar Emetic. H. I. Winifred Kerr.
10. Technical Reeducation in Italy. Professor Ettore Levi.

1. The Goulstonian Lectures on Modern Views on Diabetes and on the Significance of Acidosis in Disease. Lecture III. Acidosis in Disease.—E. P. Poulton defines acidosis as an increase of acid relative to basic radicles in the blood, the CO_2 of the blood not being considered (Barcroft). It has nothing to do with the final reaction of the blood, *i.e.* its hydrogen ion concentration. The condition may be one of "compensated," "uncompensated," or "overcompensated" acidosis, the respiratory center being overactive in the third case. It has been shown that the effect of altitude results in a compensated acidosis, which may be considered as a process of acclimatization. In muscular exercise, on the other hand, the acidosis is uncompensated, and Barcroft has shown that this uncompensation is greater if the exercise is taken at an altitude. During pregnancy there is a fully compensated acidosis, but in severe cases of eclampsia the condition may resemble that found in uremia. Hasselbalch found that, as a general rule, an acid urine was accompanied by an increased ammonia excretion, and vice-versa. The increased formation of ammonia may be due to a specific formation of ammonia from protein, which spares the alkali reserve of the blood and prevents unnecessary excretion of phosphates. Emphasis has been laid on the fact that acidosis is accompanied by increased pulmonary ventilation and Yandell Henderson has attributed the condition of shock to acapnia. Cannon has found that there is an acidosis present; but there is no proof that the acidosis is the cause of shock. It may be a compensatory mechanism to guard against acapnia, but it is more probable that through failure in the circulation acid products are formed which produce the acidosis, and that it is the result of shock and not its cause. Poulton next considers heart disease and uremia. He points out that there are two distinct types of case—the uremic with the high blood urea and the case showing simple cardiac insufficiency. The uremic case tends to show acidosis in quite an early stage and this is compensated to start with; in the final stages the acidosis is uncompensated, and extremely acid values may be found. In the later stages of simple cardiac failure there is an uncompensated acidosis. The cardiorenal case is usually a mixture of these types. There is often obvious cardiac failure and the blood urea is raised to some extent. In the cardiorenal case there is often another independent condition—viz., the liability to Cheyne-Stokes respiration. This is due to a diminished excitability of the respiratory center, which is probably due to sclerosis of the arteries supplying the center, so that there is some failure in the supply of blood to the center. Wright and Fleming have published results indicating the existence of an acidosis in gas-gangrene patients and advocate injections of sodium bicarbonate as a therapeutic measure. The observations of Joffe and Poulton and the work of Bull, however, would seem to indicate that the acidosis was a terminal result of the infection and probably not of much significance; and it is possible that equally good results would have been obtained by intravenous injections of some neutral salt. Poulton adds, however, that in case of acidosis the most rational method, if an intravenous injection is assured, is to add some alkali to the fluid. In conclusion, he states that acidosis may be explained in two ways. It is either the result of increased production of acid, when the body uses the means at its disposal to compensate for its presence, and so prevent the rise in hydrogen-ion concentration of the blood; or acidosis is of itself of benefit to the organism and is deliberately produced by the organism by modifying the action of the kidneys and liver, *i.e.* the formation of ammonia and the excretion of alkali. These two types of acidosis will be similar to one another in the fall of the alveolar CO_2. They will differ in the character of the urine. In the one case the ammonia and the acidity will be increased and in the other both will be diminished. Acidosis may be expected whenever the ventilation of the lungs is increased, and it is difficult to believe its existence except to a minute extent when there is no altered respiration. It is a very common condition and seems to occur as a terminal phenomenon just before death, as has been shown, by Whitney. In such diseases as scurvy, skin diseases, and rickets, it is extremely unlikely that an acidosis exists. Finally, Poulton states that our knowledge of acidosis has been greatly increased during the past ten years, the modern conception of the condition being due before all others to Hasselbach of Copenhagen, Haldane of the Oxford, and Barcroft of the Cambridge schools.

British Medical Journal.

July 13, 1918.

1. An Address on the Future of the Medical Profession. Major-General Sir Bertrand Dawson.
2. The Clinical Organization of the Profession from a General Practitioner's Point of View.
3. The Sympathetic Nervous System and the "Irritable Heart of Soldiers." Captain Francis Fraser and Lieutenant R. M. Wilson.
4. The Psychoneurotic Factor in the "Irritable Heart" of Soldiers. Captain B. S. Oppenheimer and Lieutenant M. A. Rothschild.
5. The Chemiotherapeutic Treatment of Gonorrhea. J. E. R. McDonagh.
6. The Treatment of the Pregnant and Parturient Woman and the Prevention of Maternal and Infantile Deaths. Neonatal Life—and Death. J. W. Ballantyne.
7. The Maternity Hospital and Ante-Natal Centers. Comyns Berkeley.

3. The Sympathetic Nervous System and the "Irritable Heart of Soldiers."—Captain Francis Fraser and Lieutenant R. M. Wilson investigated a number of cases of "soldier's heart" in order to ascertain the mechanism by which certain of the symptoms manifested in such cases are produced, with a view to finding some therapeutic measure of relief. The cases investigated showed no signs of organic disease and included: (*a*) cases with a history of acute rheumatism or allied infections, even if some years before the onset of the symptoms of irritable heart; (*b*) cases with a history of an acute infection, such as typhoid fever, dysentery, influenza, trench fever, etc., or of "gassing" at a short period before the onset of the symptoms; and (*c*) cases with a history of shell shock or severe physical or mental stress immediately preceding the onset. The authors point out that these patients appear to differ from healthy men only in that a stimulus, such as excitement or emotion, produces an unusually large response. The symptoms by which the condition may be recognized—increase of pulse rate, shortness of breath, palpitation, precordial pain, and dizziness provoked by exertion or excitement—are associated with the organs of circulation and respiration, whose mechanism is related to the involuntary nervous system. Bearing this in mind, the authors considered that the following four drugs would probably modify the innervation of the heart, namely, adrenalin, apocodeine, acetyl-chlorine, and atropine; they, however, had opportunities of testing the reactions of the first two only. The intravenous method of administration was employed in all cases. Records of pulse rate and respiration were made with a Mackenzie ink polygraph, and of the systolic blood pressure by means of the Riva-Rocci type of sphygmomanometer and the auscultatory method of reading. Precautions were taken to avoid any reaction from excitement or exertion interfering with the effect of the drug. Controls were carefully chosen from men who had undergone the exertions of military service without

developing symptoms of "irritable heart." It was found that in the case of each of the two drugs—adrenalin and apocodeine—minute doses produced a greater action in the patients than in the controls. The authors conclude, therefore, that the sympathetic system of nerve fibers, using the term in its physiological rather than in its anatomical sense, is relatively unstable in that it appears to be more susceptible to the stimulating and depressing influences respectively of these drugs.

Berliner klinische Wochenschrift.

June 3, 1918.

A Clinical Study on Thymico-Lymphatic Status.—L. Mohr records three case histories in which a hypertrophied thymus produced compression of the trachea, the resulting disturbances being more or less marked. The symptoms met with may be due to all the endocrine glands and assume the most varied modalities. The writer places hypertrophy of the salivary and lacrymal glands and tonsil in the foreground. The diagnosis of hypertrophy of the thymus is made by palpation and percussion. Mohr believes that the gland can be percussed when it attains the weight of about twenty-five grams. Radiography may give a shadow over the aorta, the best incidence being from behind forward and from left to right.

Quinine as a Cardiac Medicament.—K. F. Wenckebach studies the practical indications for the use of quinine in cardiac conditions. The cardiodepressing action of the drug can be used to advantage in (1) auricular fibrillation, but the effect is only evident in recent cases; (2) in continued arrhythmia (delirium cordis) in which quinine may be given in combination with digitalis with excellent results. The writer advises the exhibition as follows: pulv. digital. jol. 0.5 to 0.8; quinine hydrochlor. 0.4 to 0.8; strychnine sulph. 0.002 to 0.003. To be taken in divided doses in 24 hours. The effect is obtained in three days, being made manifest by a notable slowing down of the cardiac action, which should not fall below 80 beats. The paroxysms may occur, but give in to smaller doses than were first exhibited. In hyperkinesis, such as paroxystic tachycardia, extrasystolia, etc., an intravenous injection of quinine, 0.75 may have an immediate effect. Basedow's disease is favorably influenced by a decrease in the force of cardiac contraction. The use of digitalis in valvular cardiopathies, chronic nephritis, and scleroses may trouble the patient from the force of the beats. Here, again, quinine can be used as a cardiac moderator with good effects.

Münchener medizinische Wochenschrift.

May 21, 1918.

An Artificial Hand.—Von Balyer describes an articulated hand attached to an arm prothesis. The joint of the hand is connected with a joint of the thumb in such a way that extension of the hand produces an outward movement of the thumb. All that is necessary is to press the hand on its palmar aspect to cause abduction of the thumb. As soon as the pressure is relieved adduction takes place. This principle allows the wearer of the artificial hand to seize coin laid on a table, to take matches from a box, and other small objects.

Preventive Vaccination of Cholera.—H. E. Kersten believes that vaccination may render the beginning of a cholera epidemic both atypical and difficult to recognize. It is particularly prone to result in a febrile début which is relatively less frequent in subjects who have not been vaccinated. Mixed infection is much more common than is generally admitted. Kersten has noted that the effect of the vaccination does not last for more than five months, so that it should be repeated before the lapse of five months. He is of the opinion that at the beginning of an epidemic subjects formerly vaccinated may be again vaccinated even when they already show the early symptoms of cholera. There need be no fear of setting up a negative phase. Quite on the contrary, revaccination has seemed to give very happy therapeutic results.

Elimination of Coloring Matter by the Urine in Certain Renal Affections.—W. Stepp insists on the incapacity of the kidney, the seat of Bright's disease, to eliminate substances which give to the urine its normal color. The examinations made by Stepp indicate that urochrome is retained to a marked degree in these cases. The relation of this substance to the oxyprotein acids should draw one's attention to the possible etiological part played by these products of albumin disintegration in the uremic states, so-called. The amount of neutral sulphur eliminated may serve to measure these substances.

Deutsche medizinische Wochenschrift.

May 23, 1918.

Experimental Typhus Injection.—Ritz gives the results of his experiments which represent an important contribution to this much mooted question. Inoculation of guinea pigs with the blood taken from patients dead from typhus fever gave an incalculable disease in series, so that these results confirm the work of Nicolle, Conor, and Conseil in 1911. In no one instance would the condition of the animals be looked upon as an anaphylactic state or serum disease. Ritz was dealing with a true typhus fever because histological examination revealed the vascular changes belonging to this disease. Successive injections in the same guinea pig gave rise to a certain immunity conferred by the first injection. The writer tried to utilize his material to settle the question of the morbid etiology. He was only able to note that the serum of the animals acquired agglutinating properties toward the X 19 organism, in contrast to what takes place in man (Weil-Felix reaction). On the other hand the injection of X 19 produced a rapid agglutination of this proteus with the serum of the guinea pig. From these researches, it would seem to result that Friedberger's opinion that the X 19 is the causal agent of typhus fever is most improbable. It is impossible to maintain that in man there is either a para-agglutination or a mixed infection.

Hysterical Neuritis.—A. Bittorf believes that this process occurs as a secondary toxi-infectious inflammation since it commences after acute intestinal phenomena. Sensitive disturbances are more marked than motor disturbances. Paresis, pain, and anesthesia are manifest. The writer refers to a peculiarity belonging to certain cases, namely, an *ascensional début* and an *ascensional recovery*, this being contrary to what is observed in other types of neuritis. Treatment consists of heat, abundant feeding, and an energetic treatment of the intestinal process.

Wiener medizinische Wochenschrift.

June 8, 1918.

Hunger Edema.—R. von Jaksch gives some statistics of an official nature relative to this process, which is to be attributed to insufficient feeding. It has already been described during the Napoleonic wars and during the great Irish famine in 1835. German Bohemia has been the part of Austria most afflicted by this affection, the industrial districts being far more seriously hit than the agricultural regions. In 1917, 22,842 cases were reported with 1,028 deaths; the global mortality thus being 4.5 per cent. The mortality has reached 5.22 per cent. in the manufacturing districts. At the beginning it was thought that the disease was an epidemic as the first cases observed were in prisoner's camps. From the quantitative point of view, the affection is practically fatal with a minimum feeding of 1,400 calories daily for a person at rest (the writer estimates at from 900 to 1,000 calories the ration of the populations where the affection raged). The quality of the men also plays an important part. The Serbian prisoners suffered much less than the Russians although they received the same number of calories, which shows that potatoes did not replace the corn in nourishment to which the Russians were accustomed. The cardinal symptoms were bradycardia, hydropsy, polyuria and general lability. The edema, the most frequent symptom, may be absent in some cases. Blood examination revealed a decrease of the albumins and an increase of chlorides. The albumin may fall to 3 per cent. (9 per cent. being normal). Hypothermy may attain the point of eryesthesia and gangrene. The treatment is deducted from the pathogenesis of the process. The State should furnish a daily ration of 1,400 calories

for a medium-sized adult; for one engaged in light work 1,935 calories, and for those engaged in heavy work 2,365 calories.

The Development of Babies During the War.—L. Pollak points out that statistics show that the condition of nursing infants has become steadily worse from 1913 to 1917. The mortality has gone from 4.27 per cent. to 15.74 per cent. at the Prague clinic.

Correspondenz-Blatt für Schweizer Aerzte.

April 13, 1918.

New Sign of Spasticity of Organic Origin.—Bing describes what he terms the paradoxic ankle reflex found by him only in spasticity of organic origin and not obtainable in 200 controls of all kinds, including cases of functional spasticity. Thus far he has had 14 positive results in 19 cases of organic spasticity, in but 10 of which a Babinski was elicited. The underlying conditions comprised cerebral lues and meningomyelitis, cerebral embolism, multiple sclerosis, epidemic cerebrospinal meningitis (sequelæ), and cerebral traumatisms. To obtain the reflex the patient lies supine in the position for obtaining the ankle clonus—medium flexion at the hip and knee joints. The foot is flexed slightly on the leg so that the tendo Achillis is slightly taut. With a reflex hammer which is broad and heavy, the ankle joint line is struck anywhere between the malleoli. In positive cases a strong twitch occurs in the gastrocnemius while the foot makes a flexion movement as in the ordinary Achilles reflex. This behavior inverts that hitherto noted, for striking the anterior tendons is usually alleged to cause no motor phenomenon in injuries of the pyramidal tracts, save perhaps plantar flexion of the toes.

Operative Cure of a Cancer at the Esophago-Cardiac Juncture.—Bircher reports the case of a woman who has survived removal of a cancer in this locality for 18 months and is still free from recurrence. The intervention was entirely abdominal. There was marked gastroptosis, and as the tumor was not adherent resection was performed without much trouble. The esophagus stump was sutured and drawn through the stomach wound, to which it was united. A gastrostomy was then performed and the patient nourished through it for 10 days. The passage of a sound *per os* through the cardia at first encountered much resistance and one of 10 mm. only could pass. Nevertheless, patient gained 30 pounds. The resected portion measured 8 cm., three of which belonged to the esophagus. According to Witzel, as much as 14 cm. of esophagus may be mobilized through the diaphragm. The author thinks that from 4 to 7 cm. is the length realizable in surgical work. The establishment of an anastomosis between the esophagus and stomach requires great care, for the line of union must be fully covered by peritoneum to prevent infection. The implantation of the stump in the stomach is effected by fistula technique. In addition to the case already described the author has since operated on two others of the same character by the same technique.

La Presse Médicale.

April 25, 1918.

Renal Elimination, Normal and Pathological.—Ambard makes three types of elimination, viz., effraction, diffusion, and secretion. The former is not physiological but due to traumatism—rupture of the capillaries of the parenchyma leads to escape of blood into the urinary conduits with clinical hematuria and albuminuria. In these cases the degree of the latter may show great variation, sometimes only in proportion to the escaped blood, sometimes much greater. Elimination by diffusion may have to do with solutions or suspensions. It is believed that the monatomic alcohols, chloroform, and other substances leave the blood through diffusion, as if the kidney were an inert membrane. In other words, the kidney does not dilute or concentrate them. Glycerin, a triatomic alcohol, on the other hand, does not appear to be diffused. It looks at present as if the diffusible group corresponds with the oil solvents. Elimination by secretion is by far the most important, for urea, sugar, ammonia, chlorides, sulphates, and most of the drugs are eliminated in that manner. Secretion involves the law of ureo-secretory constants, or otherwise stated the act of concentration, *i.e.* the substance appears in the urine in a higher concentration than was present in the blood. The relationship between these two concentrations is constant for each substance. The principle is not universal, for sodium chloride and glucose, for reasons readily intelligible, do not exhibit any constancy of elimination. Glucose never escapes into the urine until it exceeds a blood concentration of 3 per 1,000 its threshold value. Hence the excess over the latter is the true blood concentration for calculations. In like manner the threshold of sodium chloride is 5.80 per 1,000. If the excess is .20, then .20 per 1,000 is the figure which enters into the secretory constant. In theory urea should have a threshold, but as a matter of fact it is not an integral part of the blood. If we happen to find 0.35 parts in 1,000 parts of blood this must all be counted as excess. The same is true of all substances other than native constituents of the blood present in fixed values. Secretion then deals with thresholds and ureo-secretory constants. If the constant of urea is 0.09 we shall find that iodine or other foreign substance exhibits the same constant. For functional testing we should use substances which have no threshold; and if we test the same kidneys with methylene blue, iodine, phthalein or what not the response should always be the same. The study of thresholds is far more complicated for these have only average values, maxima and minima being determinable. We may speak of 5.80 per 1,000 as the threshold for NaCl but 5.80 is really the superior limit, 5.60 being the lower limit. This mobility or plasticity of the threshold may be utilized in kidney testing, for phloridzin lowers the threshold of glucose in causing glycosuria while theobromine lowers the threshold of sodium chloride by causing chloruia, *i.e.* if there be chlorine retention. The subject of secretory constants leads us to the determination of blood urea in its relationship to uremia. If the urea maintains 2 per 1,000 concentration for a long period such a figure is incompatible with life and there is nothing gained by ascertaining the particular figure. But in concentrations below 2 per 1,000 there is not the same degree of fatality and the prognosis may vary with the exact concentration. The author fixes 0.50 per 1,000 as the normal maximum. If the concentration is from 0.50 to 1.00 per 1,000 there is disturbed function of the kidneys, he says, to the extent of 40 to 90 per cent. If the concentration is over 1.00 per 1,000 Ambard holds that the kidneys are from at least 80 to 98 per cent. insufficient at the time.

Hygiea.

March 30, 1918.

Nasal Reflex Neuroses.—Hofvendahl refers to the prodromes of reflex bronchial asthma—stopping up of the nose, sneezing, watery discharge shortly before the paroxysm—which suggest that nervous coryza and hay fever are reactions of the same type, although of different degrees. When the syndrome appears in bronchial asthma one thinks of a parasympathetic hyperirritation, as evidenced in the blood picture of eosinophilia. The same is seen in hay fever. Even in nervous catarrh with normal blood picture there is a certain tendency in the same direction. The abundant watery discharge suggests a hyperirritation of the parasympathetic, while the swelling of the turbinals, a phenomenon of vasodilatation, is affiliated. This syndrome is benefited for the time by atropine, which is known to paralyze the parasympathetic. In 3 cases related by the author tuberculosis was probably the eliciting factor through the action of its toxin which is known to exert a selective action on the parasympathetic. It is possible that tuberculous foci exerted mechanical irritation on the vagus fibers of the parasympathetic. Again, there may have been a congenital lability of the nervous mechanism. Pollen granules may have been active in some of the cases. The author found in the Hospital for Tuberculous about 10 per cent. of the patients suffering from so-called nervous coryza and as a rule this condition had preceded the first signs of the pulmonary lesion by an interval of several years.

Book Reviews.

THE DIAGNOSIS AND TREATMENT OF HEART DISEASE. Practical Points for Students and Practitioners. By E. M. BROCKBANK, M.D. (Vict.), F.R.C.P. Hon. Physician Royal Infirmary Manchester, Clinical Lecturer on Diseases of the Heart, Dean of Clinical Instruction, University of Manchester. Third Edition, with Illustrations. Price, $1.50. New York: Paul B. Hocher, 1917.

THIS practical little book on the elements of cardiac auscultation is a clear and concise description of how to diagnose heart sounds and murmurs with regard to their causation and differentiation. In the third edition a number of additional clinical points have been incorporated and a new chapter has been added on the general physical signs and symptoms of heart disease. The book is adequately illustrated and that it has proved useful to students is shown by the fact that it has gone through three editions since 1916.

A CLINICAL MANUAL OF MENTAL DISEASES. By FRANCIS X. DERCUM, A.M., M.D., Ph.D., Professor of Nervous and Mental Diseases, Jefferson Medical College, Philadelphia; Consulting Neurologist to the Philadelphia General Hospital; Ex-President of the American Neurological Association, of the Philadelphia Neurological Society, and of the Philadelphia Psychiatric Society; Foreign Corresponding Member of the Neurological Society of Paris and of the Psychiatric and Neurological Society of Vienna; Member of the Royal Medical Society of Budapest, etc., etc. Second Edition, Revised. Price, $3.50 net. Philadelphia and London: W. B. Saunders Co., 1917.

THE title of this book is an excellent description of it. In a clinical psychiatry of the descriptive type, little space and scant respect are found for the newer trends in the study of mental disease which look on the individual as a biological mechanism which may develop faulty adaptations to its environment, either through actual physical disease or through psychic maladjustments and failure to progress along the path of evolution. The stage in psychiatry which this book represents may be estimated by the opening sentences of Chapter II: "Pathology has as yet so little to offer that we must content ourselves with a purely clinical interpretation of insanity. A clinical interpretation is not only of practical value, but it is also interesting and scientific." To be sure, Dr. Dercum has a chapter on "The Psychologic Interpretation of the Symptoms," in which he very surprisingly borrows many of the doctrines of the psychoanalytic school, perhaps unconsciously. This chapter, by the way, would probably be more valuable included in the introductory chapter, in order that the practitioner might orient himself somewhat as to the meaning of symptoms before proceeding to study types of mental disorder.

The chief fault of the book is found in the chapter on the neurasthenic-neuropathic disorders, where the author speaks of "Insanity of the Special Fears," "Insanity of Indecision," "Insanity of Deficient Inhibition" and "Insanity of Deficient Will." This is neither a scientific nosology nor a useful one.

There are, however, many good points about this work. The descriptive pictures of mental disease are excellent and we do not see how a practitioner can fail to learn much from them. Then, too, the chapter on treatment is to be praised highly. After all, the question of treatment is the one which the physician is called upon to solve first of all in a majority of the mental cases he sees. Dr. Dercum has some good ideas about prophylaxis, but does not give the subject enough space; his advocacy of sterilization, too, is stated without sufficient explanation. His description of the extramural treatment of the individual patient is, however, above criticism. His discussion of delirium and its management is extremely valuable. Many practical points in the handling of mental patients are given, as, *e. g.*, the scheme for alternating nurses in cases of melancholia.

On the whole, we find much to praise and much to blame in this book. The beginner in psychiatry will learn a great deal from it, but we cannot recommend his following it too implicitly as he pursues the subject further.

PLAIES DU PIED ET DU COU-DE-PIED PAR PROJECTILES DE GUERRE. Par É. QUÉNU, Membre de l'Académie de Science et de l'Académie de Médecine. Professeur de Clinique Chirurgicale à la Faculté de Médecine de Paris. Avec 477 gravures et radiographies dans le texte. Prix, 16 Francs 50. Paris: Librairie Félix Alcan, 1918.

THIS volume of 460 pages contains the very large number of 302 case histories, with not much attempt at coordination and analysis. It is difficult to understand how a work of this size could have been written by one so situated as its author must be on any other plan. The cases and pictures tell the story. At the same time there are many solid pages of text. The foot is divided into the anterior and posterior segments and the ankle joint, each of which is considered separately when possible. The chapters cover pathology, symptoms, primary and secondary treatment, remote results of lesions, and remote results of mutilating operations—resections and amputations. The volume constitutes an exhaustive reference monograph on the subject of gunshot wounds of the foot and ankle.

LA GANGRENE GAZEUSE. Par ANDRÉ CHALIER, Ancien Chef de Clinique Chirurgicale à la Faculté de Lyon, Lauréat de l'Académie de Médecine, Médecin-Majeur de 2e Classe aux Armées, et JOSEPH CHALIER, Ancien Chef de Clinique Médicale à la Faculté de Lyon, Aide-Majeur de 1ere Classe aux Armées. Octavo of 388 Pages, with 52 Illustrations. Price, 8 Francs 80. Paris: Librairie Félix Alcan, 1917.

THIS book, written in collaboration by a physician and a surgeon, gives a very complete description of all phases of gas gangrene, the methods of treatment that have been found most efficacious and the results that may be expected under various conditions. All this is based upon actual experience during three years of war, upon statistics of 108 personal cases, details of all of which are recited in connection with appropriate portions of the text, and upon a discriminating review of the literature of this subject.

After a very interesting introduction dealing with historical and other general phases of the subject, etiology, pathologic anatomy, bacteriology and pathogeny are discussed, in order, thus building a foundation for the consideration of the clinical side of the subject. This is taken up in great detail under the captions: General symptomatology, clinical forms, associated morbid conditions and complications. Separate chapters are also devoted to diagnosis, prognosis, prophylaxis, and treatment.

While it is true that cases of gas gangrene are far less numerous now than at the beginning of the war, it is only because the principles involved in the avoidance or successful treatment of this type of infection have become well understood by those who have had experience in handling war wounds during the past three and a half years, and because the newcomers in the medical ranks have been able to profit by their experience. The subject is admirably covered in this book, and any American surgeon who can read French will be well repaid for the expenditure of time requisite for its perusal. He will then find himself much better equipped both to prevent the onset of gas gangrene, when the case is seen early enough, and to handle such cases when they do occur.

TYPHOID FEVER CONSIDERED AS A PROBLEM OF SCIENTIFIC MEDICINE. By FREDERICK P. GAY, Professor of Pathology in the University of California. Price, $2.50. New York: The Macmillan Company, 1918.

TYPHOID fever has been considered from many aspects, and especially from the clinical standpoints and the laboratory and public health points of view. Dr. Gay's endeavor in this work has been to deal historically with the development and present status of our knowledge concerning the mechanism of the disease. In accordance with this intention, the life history of the typhoid bacillus has been followed rather than the manifestations of the disease it produces. As a scientific consideration of the typhoid fever problem the work is highly elucidating.

Society Reports.

AMERICAN THERAPEUTIC SOCIETY.

Nineteenth Annual Meeting, Held at Richmond, Va., June 7 and 8, 1918.

DR. W. WAYNE BABCOCK OF PHILADELPHIA, IN THE CHAIR.

First Day—Friday, June 7.

Obituary of Jacob Friedman, M.D.—Dr. ERNEST ZUEBLIN of Cincinnati read the following: Dr. Jacob Friedman was born in St. Louis in April, 1856, where he received his primary education in the public schools, graduating from the High School in 1873. After successful studies at the Washington University from 1873 to 1876 he obtained the degree of Chemist from the same institution. In order to pursue his studies successfully Dr. Friedman taught in night school, so supporting himself throughout his academic course. In 1878 the St. Louis Medical College conferred upon the young promising scientist the degree of M.D. While interne at the St. Louis City Hospital and as resident physician in the Quarantine Hospital, Dr. Friedman, by his skill and courage, distinguished himself during the great yellow fever epidemic. This achievement deserves the recognition of the profession since the danger of becoming a victim of that deadly disease was no reason for the young doctor to shrink away from the great responsibilities of such a position. Dr. Friedman's career as teacher is very interesting. As the years passed by we see him steadily advance to higher and more important positions. In 1879 Dr. Friedman was appointed Demonstrator in Chemistry in the St. Louis Medical College and in the Washington University. In 1884 he became Adjunct Professor of Chemistry, which position he successfully filled until 1892 when he was appointed Professor of Chemistry in the Beaumont Hospital Medical College. After the consolidation of that institution with the Marion Sims College of Medicine under the new name of the St. Louis University School of Medicine, Dr. Friedman remained in the same position until 1904 when the same institution was anxious to have him as Professor of Therapeutics. Not only along the line of teaching and in Science were Dr. Friedman's qualities highly appreciated; in charge of the Medical Service of the Alexian Brothers his professional services were in great demand from 1897 to 1903. From 1902 to the time of his unexpected death, Dr. Friedman was Physician in Chief of the Jewish Hospital of St. Louis. Although Dr. Friedman as a citizen of St. Louis devoted most of his work and services to his native city, by his extensive travels in Europe and by his keen interest in medical science he added a great deal to his skill and medical knowledge. Devoted to his profession, to his patients, a man of the highest character, it was not surprising that in the course of his work he acquired a great following. Beloved by his patients, noted and well known for his patriotism and enthusiasm, well appreciated in his great integrity, his bluff honesty found a devoted following among the profession.

The above notes are only a short review of Dr. Friedman's work which will be remembered among his colleagues and friends. A successful, rich life has come to an unexpected and too early stop, and while we, the members of the American Therapeutic Society, pay our full admiration to the deceased member whom we will miss in our gatherings, we feel with the wife and family of Dr. Friedman the great loss of his death. The remembrance of him as a colleague, physician, teacher and friend will, however, remain as a stimulating example for those who are left of the ethical heights to which a noble profession may lead.

Obituary of Heinrich Stern, M.D.—Dr. THOMAS F. REILLY of New York read the following: Heinrich Stern was born near Frankfort, Germany, 50 years ago. Because his father had been bold enough to oppose the Prussianization of his native state, he was taught the meaning of *Schrechlichkeit*. As soon as his sons were able to travel the father literally drove them from the land of the oppressor, so that they might not experience a fate like unto his own. Soon after arriving in this country, Dr. Stern began the study of medicine. He received his first medical degree 24 years ago. A few years later he took a second degree. After some years in general practice he began to devote himself to a study of the diseases of metabolism. The prize offered by the New York County Medical Society for the best essay on "diabetes" was won by him and this brought him to the notice of the profession. From that time his work was consistently in the field of internal medicine.

He was connected either as founder or member with the following organizations: The Institute for Medical Diagnosis, and Philantropen Hospital; Visiting Physician, St. Mark's Hospital; Consulting Physician, Central Islip and Seney Hospitals; Sometime Professor of Clinical Medicine, at the German West Side Post Graduate Medical School; Lecturer on Medicine, Boston University; Founder and Editor of the *Archives of Diagnosis;* Founder of the Manhattan Medical Society and of the American College of Physicians, which was the culmination of a life-long dream. In addition he was a member of a dozen other medical societies. He was the author of upwards of 300 medical articles and of half a dozen text books on medicine, most of which were devoted to treatment in its various phases.

Dr. Stern's life was marked by unabated industry both in the line of original studies and the self-imposed exactions of his profession. He was an omnivorous reader with a most tenacious memory. Time and again he made a lasting impression on his fellows by quoting extensively from an article written by a friend, maybap a decade or two previously and mostly forgotten. He was a strong character; positive in his likes and dislikes; honest in his purpose and often misunderstood. The fatal illness which hung as a shadow over Dr. Stern ever since about the time of his election to this society, prevented his active participation in its deliberations but his interest remained to the end and its aims and purposes were always uppermost in his mind.

Address of Welcome.—Dr. BEVERLEY R. TUCKER of Richmond, Va., said that Richmond possessed many historical associations. It was near here that the Indian maiden, Pocahontas, saved the life of Captain John Smith, when he came here to seek supplies for the early settlers who were starving in the Jamestown colony. Here Nathaniel Bacon had his quarters, and from here this leader sallied forth to strike the first blow for American liberty against the tyranny of the English crown. Here Patrick Henry made his speech for American liberty which rang around the world. The government of the confederacy was situated in this city. Coming on to later times one found men no less deserving of fame. The late Dr. George Ben Johnston was the chief spirit in building up and equipping the medical College of Virginia. Three present hospitals were organized by him. His wonderful personality tended to elevate the ideals of the profession and his influence spread through this whole section and into all the Southern states. He stood for all that was fine and true and high in medicine and his life would remain an enduring influence for those principles. Fifty years ago the battlefields around Richmond were soaked with the blood of brothers fighting for the principles of civil life. To-day, their sons were fighting for the common cause of humanity so that the principles of freedom might live and have breathing space upon the face of the globe. The American Therapeutic Society, meeting here to-day, had two duties to perform: first, the inauguration of a method of combating the terrible spread of disease that was the scourge of every war; second, to aid the people at home by keeping up the highest standards of this scientific association. With these ends in view they had come together to-day. The City of Richmond extended to this society, individually and collectively, the welcome of the profession and also all the social welcome that such a community could afford.

Response to the Address of Welcome.—Dr. R. T. MORRIS of New York said that the old ideal of character was to combine utility with piety. This society aimed to combine science with good fellowship. The

spirit of American social life was very apparent in Richmond. There was a thinning of the ranks of the society on this occasion. This was due to high idealism. It was because the country as a whole was engaged in a fight for the supremacy of idealism over materialism that the membership was so depleted. As a whole the members of this society had shown their willingness to stand in the forefront of the fight. The welcome extended to them by the members of the profession at Richmond had made them feel quite at home.

Operative Measures in Duodenal Ulcer.—Dr. GEORGE REESE SATTERLEE of New York read this paper. (See page 265.)

Treatment of Intestinal Stasis by Duodenal Lavage.—Dr. CHARLES D. AARON of Detroit presented this communication. (See page 268.)

The Ambulatory Treatment of Duodenal Ulcer.—Dr. ELMER B. FREEMAN of Baltimore, Md., presented this topic. One hundred and sixty-nine cases at the Johns Hopkins Hospital Dispensary were studied and treated. Those with pyloric obstruction were excluded and referred for surgical treatment. The age of the patients was from 17 to 68 years, early ages predominating. More cases were noted in the male sex. In negroes it was very infrequent. Pyorrhea was an accompanying symptom in all cases. Alcoholism was present in 25 per cent. The use of tobacco, tea, or coffee was frequent. Appendicitis was present in 7 cases. Typhoid fever occurred more frequently in the past history than any other disease. The symptom of pain and tenderness in the upper right side of the abdomen was present in all but 4 cases. Bowels usually showed a tendency towards constipation. There was hyperchlorhydria in 26 cases; normal acidity in 54 cases; subacidity in 26 cases. Fluoroscopic examination was made in all cases with the patient in a standing position. Hypermotility of the stomach was marked in all cases. Occult blood was found in the stools in 100 cases. Treatment was by removal of infectious conditions in the mouth; regulation of habits; regulated diet; hot moist applications made over the abdomen; medication. The latter consisted of large doses of belladonna, beginning with 3 and increasing to 20 or 30 drops 3 times a day. This lessened secretion, muscular spasm, and pain. Alkalis were used, viz., sulphate of magnesia and subcarbonate of bismuth. This treatment was of no value in cases of obstruction, but in cases where it was necessary for the patient to keep on at his work a good deal could be claimed for the treatment.

Dr. ERNEST ZUEBLIN of Cincinnati, O., said these papers covered the subject from the diagnostic and therapeutic standpoints. It was necessary to be more than careful in diagnosis. Duodenal ulcer meant a series of examinations which were usually most disagreeable to the patient. In regard to the duodenal contents examination by the Einhorn tube and the string test might be valuable. Objection was frequently made to the string test, but this might not be so much the fault of the method used as of the interpretation of the result. The string and bucket should be swallowed in the evening and withdrawn the following morning. If the blood stain was in the yellow bile-stained portion close to the attachment of the duodenal bucket, there was strong probability of a duodenal ulcer. As to the toxemia, the catabolism of the proteins might be interfered with by faulty digestion and the general organism might suffer by faulty absorption, or there might be a kind of anaphylaxis with symptoms reflecting on the other organisms which were falsely interpreted. In regard to lavage, Dr. Aaron last year had made observations on the effect of duodenal lavage in lowering high blood pressure. He would like to know more about the histories of these cases. The statistics of Dr. Freeman were very valuable as showing what could be done in the treatment of ambulatory cases. The medical treatment of this condition could not be exclusively medical, one had to defer to the surgeon in many instances; at the same time, operations were often needlessly performed. Physiological tests were necessary to complete the diagnosis. As regarded belladonna, it was probably necessary to employ heroic doses, but did the patients not complain of eye symptoms or other toxic symptoms? It was no doubt necessary to choose the lesser evil, but it would be surprising if there was no intolerance.

Dr. DOUGLAS VANDER HOOF of Richmond, Va., said that good team work was necessary between the internist and the surgeon. It had been his practice for 12 years to have a consultation with a surgeon about these patients with duodenal ulcer. He did not do this so frequently as formerly. The doctor was apt to formulate in his own mind the procedure of choice. The question of age entered into this matter. After 40 years of age medical treatment was advocated rather than surgical. The situation of the ulcer was likewise considered. One felt particularly unhappy about ulcers situated near the pylorus because of the possibility of malignant disease. Ulcers in the duodenum were the easiest thing to diagnose clinically. Competent *x*-ray diagnosis should be sought. In regard to treatment a plan of simple routine was of most use. Many features had been discussed that morning, but a few should be emphasized. One thing was frequent feeding. These patients must be fed 6 times a day. They should never go without feeding every three hours, even if the church or the house was burning down. This was not for a month or two, but for 18 months, and not omitted a single day. It was possible to undo in 2 days all the good of two months. Cooperation of the patient was essential. If pain occurred a glass of milk should be taken. This could be done 5 times a day. One intelligent patient, a man of 70, had had occasion to take milk 5 times during the night. He had continued to follow this treatment of frequent feeding and taking milk and had had no return of symptoms for 5 years. Olive oil taken alone as the first course of a meal, or a cup of cream 3 times a day before meals, was a useful measure. After meals bismuth nitrate, 3 parts, and calcined magnesia, 1 part, were used. In regard to diet, these patients should not be restricted as in general they had too much digestion. Acids and acid fruits were forbidden, as were soups, meat extractives, and alcohol, and tobacco. Seasonings, such as salt, Worcestershire sauce, etc., were to be avoided; intense sweets like honey and molasses were harmful. There was no restriction of meat or of starches. These means would afford great relief and a clinical cure. The only objection to medical treatment was that one was apt to overlook associated lesions in the abdomen. The great advantage of surgery was the opportunity for complete exploration. Cases that failed to yield to medical treatment were no doubt associated with appendix or gall bladder conditions. It was interesting to hear about the doses of belladonna which the patients had tolerated. He had tried to run belladonna up, but the patients complained bitterly of disturbance of vision. It was possible that the dispensary patient did not use the eyes so much. In complicated duodenal ulcer cases the patient should be carefully watched and if he did not do well, a surgical consultation should be asked for. Medical treatment should not be persisted in unless the patient got well.

Dr. JACOB DINER of New York said that he was interested in what Dr. Aaron had said about magnesium sulphate. This drug was very interesting. It was supposed to be passed out through the gastrointestinal tract and from the bowel. As a matter of fact it was found to be reabsorbed by the colon and excreted by way of the kidneys and had a stimulating effect on the renal epithelium. Its disagreeable taste was one objection to its use. It could, however, be made very palatable by the addition of aromatic sulphuric acid (two per cent.), and sweetened with glycerin. With reference to bismuth, he believed that in peptic ulcer it was indicated because it acted as a demulcent just as milk did, upon the mucous membrane. Olive oil had the same effect. Bismuth subnitrate, used internally, was readily broken up and liberated nitric acid. This was irritating. Bismuth oxide could be used instead of milk of magnesia. He expected to hear Dr. Aaron speak of the effect of exercise on stasis. Most of the people followed a sedentary occupation and the stasis was more or less due to that. Gradually increasing exercises, combined with doses of magnesium sulphate which cleared out the intestinal tract, would overcome the condition.

Dr. Thomas F. Reilly of New York said that Dr. Freeman said he could diagnose these cases by the hypermotility, but in the fluoroscopic examination it could be shown that any drag on the intestinal tract produced hypermotility. How could he rule out gall-bladder conditions, from the hypermotility due to ulcer? These patients often presented a peculiar pallor which was of some assistance in the diagnosis. A large percentage of these cases also had a positive Wassermann. A Wassermann should be done in all cases. In regard to the occurrence of pain, often it was found that before an attack of pain the patient had had a severe nose cold, or some other infection, which had started up the attack. Most of these cases got well after 3 weeks or more of treatment, but the return of symptoms was one of the diagnostic points of the condition. The pain in the upper right quadrant made it difficult to differentiate from gall-bladder trouble. In regard to treatment, every practitioner had his own fads. Personally, he was fond of the bismuth subnitrate. He thought there were better results than with other bismuth preparations. The bismuth should be given before meals as it protected the ulcer during the passage of food. Patients often said that they did better when taking "the white medicine before meals." One hour after meals the patients were given bicarbonate and magnesia. Occasionally calcium was indicated because of diarrhea. Ten grains of oleosaccharate of cloves was used as a carminative to disguise the taste, and to relieve pain. Milk was given 3 hours after a meal and the powder one hour after meals. In regard to the bismuth, it may be mentioned that patients who had had large doses for diagnostic purposes were suddenly relieved of symptoms and felt well for two or three weeks. Roentgenologists have frequently noticed this phenomenon. The salts used were usually the sub-carbonate or barium salts. It was usually better to give the patient a diet list to go by; they were apt to forget verbal instructions as soon as they got out of the office. A dry diet at meal times was better, with glasses of milk between meals. Tea and coffee were almost always badly borne. These patients usually felt better lying down. One could give these patients more rest by means of abdominal supporters of stockinet. Provided no pressure was exerted, this appliance afforded comfort and made for recovery.

Dr. Francis E. Stewart of Philadelphia said that in regard to the use of belladonna, hyoscyamus was more apt to disorder vision than any of the atropine group. In regard to bismuth preparations, the finely divided type of powder penetrated better into the villi of the intestines. Microscopically there was a great difference in the action of the large crystals and of the minute kind. The flavoring of the magnesia salts with aromatics had been patented, so that one might be infringing trade rights in this particular.

Dr. E. McGuire of Richmond, Va., said that he had been very much interested in these papers. He did not hesitate to say that formerly he referred many more cases to the surgeon than he did now. He believed that gastric ulcer should be treated properly to get good results. Absolute rest in bed arrived at this end. He never gave the patient ambulatory treatment if it was by any means possible to put him to bed for two or three weeks. He had made use of the various methods described. He preferred the subnitrate salt of bismuth to the subcarbonate. It was necessary to neutralize the gastric juice. One important thing in cases with retention was that these people should have their stomachs emptied at night. This should be done at 10 P.M. with the stomach tube. At 8 A.M. the patient was fed. The stomach was thus put at rest for the night. Four or five years ago he had a case with retention of 400 c.c. The case was *x*-rayed. The man had lost 35 pounds and begged to have something done for him. The stomach of this patient was emptied every night. He was put on a diet and had alkalies. In five or six weeks he improved very greatly. The treatment was continued and after 5 months the man was perfectly well, had regained his weight, and there was no sign of retention. That case was due to inflammation of the submucosa and when the ulcer was relieved the opening became larger. Therefore these cases were not now referred to the surgeon until efforts had been made toward relieving the obstruction by medical treatment. Dr. Morris had spoken of gastroenterostomy, but three-fourths of these cases had the ulcer situated on the lesser curvature, where no surgeon could possibly reach it. Many of these cases, *x*-rayed after gastroenterostomy, showed that four-fifths of the barium passed out through the contracted opening in the pylorus and not through the gastroenterostomy. He felt that gastroenterostomy was done entirely too often. If surgery was done, it should be excision of the ulcer. A pyloric ulcer could be excised. Their friends, the surgeons, could get much better results if they treated their cases medically for a time. Many cases of ulcer that submitted to operation should never have been touched.

Dr. R. T. Morris of New York said that the discussion had been carried on by experienced men, but what the surgeon would like to ask was what was the easiest way for the patient? If one went to Canada should one go over the falls or across the suspension bridge? There was about that much difference in the treatment. He had had patients come into his office apparently starved. They had traveled to the different resorts, and would have had a good time, only they were starved. He told them to go out and get a good dinner of corned beef and cabbage, with a glass of ale, then, later, they could talk about surgery. Sometimes they did not need much further treatment. In regard to peripheral irritation, some patients had eyestrain, loose kidney, hemorrhoids, or other disturbances. Sympathetic disturbances might give rise to symptoms related to the duodenum. No matter whether the ulcer was cephalad to the duodenum or caudad to the pylorus, one knew, as Rosenow had shown, that the tissues had a selective affinity for toxins. These toxins caused injury to the terminal arterial system, sometimes accompanied by plastic exudate producing endarteritis and increasing susceptibility to bacterial attack upon anemic areas of tissue. They were dealing with a particularly susceptible group of patients who easily succumbed to toxic influences. What happened if one relieved peripheral irritation such as nasal hypertrophy, unerupted molars, etc.? His idea (which might be wrong) was that when the peripheral irritation was removed, the ulcer disappeared, not because it was reflex in origin, but because peripheral irritation had been exciting serious disturbance which resulted in toxic formation in the bowel, causing improper metabolism and tissue changes in the body, and faulty excretion of toxins. Removal of the cause would thus affect the ulcer. That brought in another question, that of more elaborate diagnosis. He had been actively engaged in surgery for 35 years; he did not need to operate on any more ulcer cases. He would rather go fishing, but when the patient came he wished to give that person the best advice he could. Surgery might be suggested for some; for others medical means would suffice. He much preferred to have a laboratory diagnosis made and laboratory facilities applied; by that time the patient had so little money left that the surgeon could not be accused of wanting to charge him a fee. It was very necessary that all of the factors should be worked out in regard to peripheral irritation and focal infection. He had seen many patients recover from ulcer after removal of badly infected tooth roots, with *Streptococcus viridans* infection. In ten patients with this infection there might be no ulcer, but in the eleventh case the patient had become sensitized to the organism. Patients had been known to recover from gastric ulcer after removal of an infected tonsil. It required much more judgment to know just what kind of tonsil should come out, than it required skill to remove it. The psychic factor was a strong one and one that could not be overlooked. Some patients would gain in weight and spirits under any form of treatment for a while. Later they turned up in the hands of some other practitioner. At present the speaker said that he operated only where the radiograph showed distinct obstruction as the result of those "cobwebs in the attic," adhesions. Dr. Aaron had told them that the patients would get well with duodenal lavage even if the kinks were left. Good results had been gained by the Jutte tube. If operation could be avoided, he was glad to avoid it.

On the other hand, patients spent years of invalidism because of neglected operation. One patient of his in New York had made his stomach his occupation for 20 years, and after the removal of four little gallstones, he became a well man. A point to be decided in an association of this sort was to know in just which cases surgery was required. Dr. Satterlee's own case showed that there was a toxic order of events and involvement of the appendix and duodenum simultaneously, as Rosenow had shown to occur. One doctor in New York had recovered from appendicitis without operation, and from that he argued, by his own personal experience that it could be done. He was asked if the personal experience of those who died ought to be considered.

Dr. L. H. Taylor of Washington, D. C., asked Dr. Morris if he had followed up the allergic origin of gastric ulcer.

Dr. Morris said that he had not worked up any further points in the matter. He was still more convinced that allergy was a word one needed to use a great deal in regard to patients who developed ulcer from toxic effects. The patient had become sensitized.

Dr. N. P. Barnes of Washington, D. C., said that in regard to etiological factors, the focal lesion might be very far from the resulting ulcer. No matter whether ulcer occurred or not, any focus of infection, whether in tonsils or teeth, should be removed; one could, however, as Dr. Morris said, make cures by removing the focus of irritation. In regard to diet, one was apt to lose sight of the gastric physiology. Some foods would produce hyperacidity and some would not, but what should one do with the acids of the stomach? Corned beef and cabbage would burn up the acid, but they would train the glands to produce more acid; the carbondioxide, sodium chloride and water would produce more HCl again. Fats and oils lessened the hyperacidity, that was why Dr. Vander Hoof had success with the olive oil, before meals. It acted as a shock absorber. Hyperacidity was a common trouble with pregnant women and very small causes acted to produce it. One saw something bad; one smelt something bad; one got a blow on the knee with acute pain, and the effect was produced. A drug was presented before this society 2 years ago by Dr. Friedenwald, who reported the success he had had with the use of scarlet red. Good results had been obtained with this agent. Magnesium oxide had been used with good result also instead of carbonate of soda.

Dr. W. Wayne Babcock of Philadelphia said that 7 per cent. of men of the first draft were rejected on account of hernia. There were 200,000 cases of hernia sent up for repair. A very large number of men must have been rejected for duodenal ulcer and it became important to know what should be done with these men. A few weeks ago a conference was held of the chiefs of the surgical service in camps and it was stated that in none of the camps had any operation been done for gastric or duodenal ulcer. The consensus of opinion was that operation for ulcer was not to be recommended, because after the operation it would not be possible in the service to arrange the proper diet for a long enough time to make a satisfactory cure. It would not be possible to send the men back with the assurance that they were cured, yet it was possible for many patients to go back to full duty and no severe symptoms, without an operation. This was an important question for the government and for the soldier. The government spent about $200 to fit a man out, and this money was lost if he had to be sent back again. The soldier also had a right to be made as fit as possible. If ulcers could be recognized at the time the man came in, and if he could then be given specialized treatment, he could probably give certain useful service. The former ruling in the army was that if a man needed operation, and the surgeon certified that operation could be done without appreciable risk to the man, and the man refused operation, he could be brought before a court martial. One man was brought before the board for having refused herniorrhaphy and he got off. The new ruling said that if a soldier had any condition which could be relieved by operation, and he refused treatment, he could be tried and punished. Many of these men were afterwards fitted for non. com. service. In regard to ulcers, many no doubt perforated without previous symptoms. Many cases went on to cure without operation. The question of syphilis and ulcer should be considered. The dean of Atlanta medical college said that 60 per cent. of the white patients reporting at their clinics had syphilis, and 85 per cent. of the colored patients, showing that the incidence in all cases was exceedingly large as regarded syphilis. In regard to Dr. Satterlee's experience of ulcer following typhoid immunization, he would like to ask if Dr. Satterlee had had typhoid before. He had seen a case of acute cholecystitis apparently precipitated by typhoid prophylaxis. The man had had old gall bladder trouble. The technique of the treatment of gastric or duodenal ulcer was important. Often surgeons in operating made a slight longitudinal twist by suture. This would produce blocking of the peristaltic impulse with regurgitation and vomiting. If the area of anastomosis were permitted to sink into the lesser peritoneal cavity, or if the opening into the mesocolon were brought down so that part of the jejunum were permitted to get into the lesser peritoneal cavity, the same result would obtain. If the jejunum were not freed the contents would pass back into the stomach so that a large number of secondary symptoms and even deaths that followed these operations were often due to technical errors committed by the surgeon.

Dr. Aaron said that it was the old question as regarded a carbohydrate or a protein diet. He was inclined to think that every man should follow out his own best method of dieting in gastric ulcer. The cause of pain in gastric ulcer had recently been brought out by Carlson, who pointed out that the pains of gastric and duodenal ulcer were contraction pains arising in the stomach or in the pylorus. The contractions were usually not stronger than those of normal digestion peristalsis of the filled or the hunger tonus rhythm of the empty stomach. This pointed clearly to a condition of hyperexcitability of the gastric pain nerves in the ulcer patients experiencing the typical ulcer pains. Therefore ulcer pains were due to tension of excessive contractions or of normal contractions on hyperexcitable pain nerves. As regarded bismuth, the subnitrate was to be preferred to the subcarbonate. Bismuth subnitrate being insoluble in water was chemically inert under ordinary circumstances. A small part of the total quantity introduced in the stomach was decomposed in the acid gastric juice or duodenum, liberating nitric acid, and it was only after this process had taken place that the chemical action of the bismuth began. The chemical action of bismuth within the stomach and duodenum was antisecretory, astringent, and antiseptic. The bismuth subnitrate having been decomposed in the acid gastric juice, it was the simultaneously liberated nitric acid which produced the astringent effect. This astringent process was one of the mildest, but might be made to last a long time, since only a small amount of bismuth was decomposed at a time, and the total quantity remained in the stomach for hours together; the dose, however, should be repeated often enough to supply the loss from disintegration. Thus it was possible, with the aid of bismuth, to maintain a uniform gently astringent process for weeks and months. An objectionable feature of bismuth subcarbonate was that, on entering into combination with hydrochloric acid of the stomach, it released a certain amount of carbon dioxide, which under certain circumstances might give rise to considerable distension of the gastric wall and the ulcer. Besides, the beneficial effect of the liberated nitric acid was lost.

Dr. Satterlee said that he had taken up the subject of duodenal lavage, in kinked intestine with toxemia, and had used the Jutte tube in a series of cases of intestinal toxemia with good temporary result. He then thought he would control these cases by *x*-ray examination as it was not certain the tube went into the duodenum. The tube was *x*-rayed *in situ*. It was found the duodenal tube was often still in the stomach. Epsom salts were used and immediate evacuation of the bowel caused relief. Filling the stomach with fluid was then tried, and at last he came to the conclusion that he was wasting his time with the duodenal tube.

Dr. Aaron asked if the patients had any discomfort from putting fluid into the stomach.

Dr. SATTERLEE said that he thought there was more discomfort in the stomach because the fluid was absorbed in the duodenum. He thought the subject of infection should be more fully emphasized and more attention be given to treatment of tonsils and apices of teeth. The infection must not be forgotten. If ulcers could be treated by argyrol, scarlet red, silver nitrate, etc., the logical way was by local applications. He had not got a large enough series yet. It needed unusual pains, as not one patient in fifty would help in following the case up. One good feature of duodenal lavage was that it caused diuresis, the patients had to pass water at once and sometimes the bowels moved as quickly. Duodenal lavage with saline or salts cleared the bowel of toxic material in a very short time, but in his experience did not cure, any more than epsom salt by mouth cured. The reason was that the wall of the colon and especially the cecum was diseased, infected. He believed these people should be immunized against the autogenous colon bacillus. Many people had been relieved and cured after five years, by immunization by the autogenous organism. All sides of the question had been considered and it was found that the patients came back for the autogenous vaccine. They felt better for it. There was no psychological effect in that. As to operative procedure for the relief of duodenal ulcer, he thought Von Mickulicz's plastic operation was to be preferred, but many ulcers were impossible to remove; they were situated on the posterior wall. In his own case this was so and it was an inoperable ulcer. By making a short no-loop posterior gastroenterostomy with a hole across the pyloric antrum immediate relief was obtained. There was no room for bad results. The toxemia was cleared up and this would no doubt be the operation of the future. Relief of pain helped, but it did not cure. He had tried all preparations of bismuth and he believed that bismuth subnitrate was to be preferred. Magnesium oxide was also given in large doses. The minute a scab was formed there was chance for pus to collect underneath. Alkalies and bismuth should be given simultaneously. Rest would cure any ulcer, but one had to consider the economic status of the patient. If he had to be on the job he must be got into good shape as soon as possible. The question of gastric residue was no argument for or against gastroenterostomy. Many of these casese had been operated on because the surgeon did not know what else to do. The trouble was not there, but lower down. If there was stasis in the appendix or the cecum, there was good ground to work on. The incidence of typhoid in Dr. Freeman's cases was interesting. In his own case, Dr. Satterlee said he had never had typhoid. He had 3 prophylactic injections without reaction, except intestinal symptoms. It was possible that the toxin was irritating to the duodenal mucosa. This was the cause of the ulcer. He had found a vegetable diet the only one suitable to his own case. Most cases could not take meat. The effect of bismuth barium salts upon patients who were *x*-rayed, was due either to sedative or stimulative effects of the *x*-ray. With the continuous *x*-ray series, a large percentage of the patients got better. Improvement in medical treatment should certainly limit the number of operations. He did not see why frequent feedings should be given. It might help the pain but it did not cure the patient. He had tried gastric lavage, but got poor results because the patients were hungry and pain occurred when the stomach was emptied. Gastric ulcer had recurred after excision in a large number of cases, so that results in gastric ulcer had not been so good as in duodenal ulcer. Joseph C. Friedman of Chicago had stated that the pain in duodenal ulcer could be caused by collections of gas due to the spasm of that organ. In some cases that was true and it was in these cases that the free hydrochloric acid was often deficient. Administration of dilute hydrochloric acid helped here, and this was one argument against the theory that excessive hydrochloric acid was the cause of the pain in duodenal ulcer.

Dr. FREEMAN said that in regard to belladonna, he had used the hyoscyamus group. Very few of the patients had complained of eye symptoms. He had also used the drug in his private work and, as a rule, without complaint. In regard to focal infections in the mouth, dispensary cases as a rule had bad teeth. A great majority of them had some infective condition and one could not draw very definite conclusions. Symptoms sometimes failed to yield after the mouth had been attended to. As to hypermotility, any lesion in the gastrointestinal tract might be associated with hypermotility. One reason for making the 18 hour study with the fluoroscope was that in cases where there was appendix or gall bladder conditions, or peritoneal adhesions, one could eliminate these conditions by fluoroscopic study. Where there were upper right quadrant adhesions, the gall bladder was drawn to the right. The duodenum was higher. The hepatic flexure with the colon were drawn towards the gall bladder. There was practically a normal position of the stomach and no increase in peristaltic waves. The stomach musculature was in good condition.

Sera and Allied Materia Medica in War Time.—Dr. A. PARKER HITCHENS of Glen Olden, Pa., presented this subject. In war time the increased call upon physicians, nurses, and hospitals, made it necessary that the civil population be protected as much as possible by prophylaxis against typhoid fever. Prophylactic typhoid vaccine was as certain in its value as that against smallpox; it had no serious effects and it became now, more than ever, the duty of physicians to demand vaccination of all classes against typhoid fever. While the value of prophylaxis against typhoid was assured, the profession were still in a deplorable state of ignorance in regard to the action of bacterial proteins in other diseases. The writer had been studying especially the properties of a vaccine against common "colds" and was certain of its immunizing value. It had been charged that this vaccine was a "shot-gun" prescription, but this fetish could be abandoned, because the vaccines being made in this country against gas gangrene were shot-gun prescriptions in that they were intended to immunize against the *Bacillus welchii*, the tetanus bacillus and the perfringens, at one time. A composite antiserum would be produced. Though not yet sanctioned officially by the army, this was the right line upon which to work. Colds were a mixed infection caused by any organism capable of growing on the mucous membrane of the upper respiratory passages. Some of the best members of the profession at Camp Greenleaf were most enthusiastic about the use of a mixed vaccine to prevent colds, pharyngitis, and even pneumonia. Respiratory infections had been the worst troubles in the camps. Disease below the diaphragm had given no trouble at all. At Camp Greenleaf the streptococcus, the pneumococcus, and the influenza bacillus were the chief offenders. It was necessary before the approach of winter that patients be immunized against the colds that proved so troublesome. The high incidence of lobar and of lobular pneumonia at the camps rendered it imperative before the cold weather to provide a serum of therapeutic value against respiratory infections. Hemolytic streptococcus infection, the source of pneumonia and empyema, must be combated. Cerebrospinal fever was of great interest in the army camps. The value of antimeningococcus vaccine had been tried out. The 89th division at Camp Funston were vaccinated and this division followed abroad to test the immunity conferred. The diagnosis of this disease was not difficult, and if a case of headache were reported, the spinal fluid was examined at once. If the fluid was cloudy, the boy was treated as a case. Headache, vomiting, rash, stiffness of the neck, and Kernig's sign were diagnostic of the disease. Often there were no cerebrospinal symptoms, the disease taking the form of septicemia, toxemia, or joint involvement. Intravenous injection of antiserum was given early, the fluid being allowed to run out slowly, to prevent invagination of the tissues. The head of the bed was raised to get a downward flow. If the patient was extremely toxic, 3 such injections were given in 24 hours. Then the foot of the bed was raised to allow a flow into the ventricles. With early treatment the death rate had come down to 35 per cent. If the organism was very virulent, the death rate was, of course, higher. In civil life boards of health would deal with this matter, not only to save the patient, but to stamp out a focus of infection. Sanitary measures would do a great deal. In gathering men for the

army, however, it must be remembered that the government was gathering together many carriers of common diseases. Active immunization, therefore, in both civil and military life, was indicated at the present time.

Treatment of Empyema in the Army Camps.—Dr. W. W. Babcock of Philadelphia made this presentation. The empyema in the army hospital, he said, was not comparable to the cases in civil life. A 68 per cent. mortality followed pneumonia, and a 95 per cent. mortality followed empyema after measles. The organism was a hemolytic streptococcus. This relation of the organism to high mortality was borne out in all the camps. Many of the Southern troops were debilitated by hook-worm, malaria, etc. Some of them seemed to be the dregs of the population; there were even drug habitués. It looked as if the draft board had put all the undesirables into the army. There were men without fingers or toes; of the first hundred, twenty were morons. Men came with active lesions of syphilis. These men developed virulent forms of measles. The overcrowded state of the camps made hospital treatment difficult. At Camp Wheeler there were 500 beds for 1,300 patients. The venereal cases had to be put into tents. Men were not taken sufficient care of after measles convalescence. On getting out of bed they went to the mess hall, and many felt a chill and became cyanotic. They returned to bed, but the cyanosis and moist rales increased, the breathing would fill up and the case ended fatally. Medical men and surgeons tried all means of treatment. Aspiration and thoracotomy were of no avail. The post mortem showed fluid in the pericardium and the peritoneum, in other words, a polyserositis. Usually the *Streptococcus hemolyticus* was isolated. The blood cultures was positive. The cases were called pneumonia, but the pictures were of great areas of lung congestion. There was purulent peribronchial exudate, but no filling of the alveoli. The patients had a bacteriemia and were very septic. Operation only seemed to shorten their lives by so many hours. The treatment in acute cases was to withdraw the fluid to relieve pressure. Subacute cases without respiratory pressure were more easily relieved. Tuffier's method of introducing into the cavity Dakin's solution, full strength, and then closing the skin, so that the pneumothorax remained and the cavity was sterilized, was tried and in 20 cases 16 recovered. Dakin's solution seemed not to be tolerated in the peritoneum; it dissolved the tissues, but it could be used full strength in the pleural cavity. For a time it looked as if the patients would clear up after it, but many relapsed. For those cases with thick creamy pus, a trocar was used and a graduated tube was put through the intercostal space, and another tube to allow fluid to run out. 100 c.c. fluid was run in and the pus was dissolved so that drainage was free. The deep cavities, however, tended to fill up again. An instrument called the rib-spreader was used to allow of the insertion of the tubes. The conclusion was that under certain conditions it was possible to sterilize an empyema.

The Serum Treatment of Pneumonia.—Dr. F. E. Stewart of Philadelphia presented this topic. (See page 270.)

Dr. Thomas F. Reilly of New York City said that Dr. Stewart's presentation was an excellent summary of the literature of the serum treatment of pneumonia. Last winter in the Fordham Division of Bellevue and Allied Hospitals a fairly extensive use of the serum was made. It was impossible to have a special examination made for the differentiation of the different types, because the technician had gone to war and it would involve the constant use of a messenger both day and night to have the work done at the Main Laboratory, so for a period all cases of pneumonia entering the Hospital were injected with antipneumococcus serum, combined types 1 and 2 of New York City Department of Health. Of 78 patients so injected, 8 died—3 of these died within 12 hours—and 50 per cent. of the cases that died had severe kidney and heart lesions. They were the flotsam and jetsam of New York City and usually the pneumonia mortality among these approximated 30 per cent. During the epidemic because of the inability to get the serum and as a means of checking up non-treated cases, 31 cases were not treated with serum. Of these, 8 died. Usually 60 c.c. were given on the entrance of the patient into the hospital and from 60 to 80 c.c. every 12 hours thereafter. It was the impression, aside from the statistical results, that the serum was of distinct service in the treatment of pneumonia, even though one did not differentiate between the different groups of pneumococci. It was customary to give ½ c.c. under the skin one hour before using the serum intravenously for the first time in order that they might determine the presence of anaphylaxis. There were a few anaphylactic reactions, such as urticaria, arthritis, etc., but none of them were severe. This pneumonia was the ordinary type of pneumonia, such as one sees in practice—lobar in character—and without any bronchopneumonic symptoms. The speaker could not see wherein a *vaccine* could be of any service in the treatment of pneumonia, except as a prophylactic.

Dr. Ernest Zueblin of Cincinnati said he certainly appreciated these papers, but if it became necessary to enforce the giving of typhoid vaccine to all of the civil population, there was a certain amount of danger that should not be overlooked. Quite a considerable number of cases could be quoted in which active pulmonary tuberculosis followed immediately prophylactic typhoid vaccination. Furthermore, it was to be regretted that so little weight and consideration was given by military surgeons to the authentic statements of professional men of good standing attesting the successful prophylactic typhoid vaccination shortly before enlistment. Notwithstanding these statements nurses were revaccinated, and in one instance a severe septicemia was the result, which almost killed the formerly healthy nurse. In regard to pneumonias, it was very desirable that those should be classified according to the characteristic causative microorganism since the classification according to the pathological anatomy was frequently found incomplete.

Dr. N. P. Barnes of Washington, D. C., said that certainly no class of cases gave a better excuse for a death certificate than these multiple pneumonias. People were beginning to excuse the profession if their friends did not get well. The Frenchman said "au revoir," the Irishman said "pneumonia, pneumonia." The profession was coming to the serum treatment. He would like to give personal experience in regard to the dosage. One hundred c.c. of horse serum intravenously was considered the dose, but it was well to test the patient before a large dose by giving a subcutaneous injection and watching the urticarious effect on the skin. The time of operation in these lesions was of the greatest importance. The temperature would be a good guide in such cases; at a certain point of clearing up of the pleural cavity, it came down, and this might be the best time for relieving the pus pressure. Too early operation was contraindicated. He would be glad to hear other opinions as to the best time of operation.

Dr. Jacob Diner of New York said he could fully sympathize with Dr. Bastedo about the material that was being sent to camp. But, as a member of the Medical Advisory Board, he had to hide behind the instructions received from Washington. Specific infections were not allowed to be a bar to active service, whether with a plus Wassermann, or with local lesions. The man with Neisser infection had to go into the army. In fact every man with the usual number of arms, legs, and eyes had to go into the army. They had all been much instructed by the president's paper. He thought sera and vaccines were now being adopted by most surgeons.

Dr. G. R. Satterlee said he would congratulate Drs. Hitchens and Stewart. Dr. Hitchens was launching wonderful work against the *Streptococcus hemolyticus* infections. Dr. Satterlee said he had tried the streptococcus antiserum against infections in other parts of the body, particularly where there was bacteriemia. He had not, however, seen any case really benefited by this vaccine, but this was a field for much future study. He had not had personal experience with the pneumococcus vaccine but he had heard Dr. Cecil's remarks at Albany. His strep-

tococcus percentages were higher at Camp Upton than they were in Rhode Island. Dr. Cecil inclined to the idea that the streptococcus was an end infection and that a certain amount of cross immunization was obtained by streptococcus vaccination, against both streptococcus and pneumococcus pneumonia.

Dr. R. T. Morris of New York said he had had a patient, a young married woman, a fine, strong physical type, about to go on a motoring trip with her husband. She had a rapidly developing tonsillar infection and began to feel weak and ill. The right tonsil showed a streptococcic infection which was treated by argyrol locally. The young woman died in 3 days and a culture made from the tonsil showed *Streptococcus hemolyticus*. Dr. Morris wished to know if any of the members considered if he could have done anything with vaccine in such a case?

Dr. Lewis H. Taylor of Washington, D. C., asked if acroflavine was used or dichloramine-T; how did it compare with Dakin's results?

Dr. E. Zueblin of Cincinnati said he would like to know what observations were made on the tappings of the fluid. This opened a new field for discussion. The action of the Dakin solution on the lung tissue had not yet been observed.

Dr. H. B. Anderson of Toronto, Canada, asked if anyone present had any experience of the effect of vaccine on the severe type of pneumonia, such as described by Dr. Morris. In Toronto there had been this spring the most virulent type of the disease he had ever seen. One patient he had seen died in 24 hours, another in 48 hours; this was a common experience. He had used vaccine in those chronic infections associated with heart trouble, but had not seen any benefit result from their use. He would like to know what result there was from the free opening of the pleural cavity, where there was no walling off by adhesions. Was there any danger of collapse of the lung?

Dr. Babcock said that in regard to spinal puncture in meningitis he was much impressed by results obtained in brain tumor and fracture of the skull with compression of the ventricle. On aspiration there had been jamming down of the foramen magnum, with death. In meningitis there was effusion into the lateral ventricle, which played an important part in the symptoms. He would hesitate to draw fluid from within the brain and ventricle, which might end in jamming the brain down so as to cause death. In one case at Camp Beauregard, the patient was apparently dying of spinal meningitis with symptoms of ventricular distention. The needle withdrew 100 c.c. of turbid fluid and meningitis serum was injected. The patient recovered. In Cushing's cases of effusion into the ventricle, the patient was supposed to be dead. They withdrew the fluid from the lateral ventricle from a subtentorial tumor, and the patient lived for a while. The important thing was to prevent death from ventricular distention. In regard to dichloramine-T—it caused discharge and progressive healing. The destructive action of the solution on the pleura had not been noted. Granulation tissue and adhesions had occurred. There was no effect on the lung whatever. The solution had to be exactly according to the formula of Dakin. Every batch made had to be tested. A degree too much alkalinity caused irritation. If it gave pain or caused trouble there was something wrong. The danger of lung collapse, if the tubes were properly introduced, was very rare. The fluid should be drained off slowly so as not to disturb the heart. In regard to Dr. Barnes' point, as to time of operation, too early operation was not indicated. Some patients had great big walled-off cavities with the lung completely collapsed. These cases had a high mortality.

Dr. Hitchens said that the question of ill effects of typhoid vaccination had been answered by Col. Russell. Instead of being likely to be followed by tuberculosis, it was found that after typhoid vaccination, the incidence of tuberculosis in the army was less than before. Such cases as did happen, were assumed to be coincidence. If the nurses had septicemia following typhoid vaccination, there was some slip in the technique. Someone was at fault. They should not have had it. As to whether this procedure should be recommended in civil life—if there was a good water supply and very few flies, there was practically no typhoid in the community and there was no use in doing unnecessary work. But with contrary conditions, typhoid prophylaxis should be insisted upon. In former years, ten per cent. of the soldiers contracted typhoid. It was practically non-existent in the army to-day. In regard to anaphylaxis, Dr. Stewart would answer that question. Victor C. Vaughan had been studying the question of pneumonia in the various camps and had found a law in regard to the incidence of death rate from pneumonia. Pneumonia in the tropics was a very serious disease and it was more prevalent in the South than in the North. A vivid picture of conditions was presented by two southern camps, only 200 miles apart, showing different mortality and morbidity rates. This difference was based on the communities from which the boys came. The rates were, however, lower than they were in the cities from which they came. It was found that there was a variation in the death rate according to the situation in relation to the Mason and Dixon line and the Missouri River. North of this line the death rate was lower; south of it, higher. If the boys came from Florida and Georgia, the incidence of pneumonia was high. In one camp the negroes came from families who had been north for two or three generations. The death rate was no higher than for white boys, and not so high as for the white troops from the South. Col. Vaughan went back to the statistics of the Civil War and found that the death rate was 18 per thousand per year for the Northern troops, and 63 per thousand per year for the Southern troops. Therefore, it was found that the further south the location, the greater the virulence of the disease. Although the immunization against pneumonia lasted but a few months, it was believed to be well worth while.

Dr. Stewart said he would like to answer Dr. Morris. He thought that 100 c.c. of antiserum could have been employed with advantage in the case mentioned.

(To be continued.)

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, Wednesday, May 1, 1918.

Dr. Thomas R. Neilson, Acting President, in the Chair.

Report of a Case in Which the Patient Survived the Removal of a Large Tumor of the Brain for Over Thirty Years.—Dr. W. W. Keen presented this report, by himself and Dr. A. G. Ellis, saying that the case was his very first modern brain case and that it showed the then technique, being one of the earliest operations on such tumors, following by only two years Godlee's in 1885. The patient, a man aged twenty-six, had consulted Dr. Keen in May, 1887. When three years of age he had fallen out of a window, striking his head. The skull on the left side was indented and operation disclosed detachment of a small fragment of bone from the inner table without fracture of the outer. Twenty-one years after the fall violent epileptic attacks ensued, followed by intense pain in the head. Paralysis of the right arm, leg, and face had ensued in April, and by August the man had become totally blind, with some intermittence, however, of vision. Some improvement in the paralysis occurred when first seen by Dr. Keen. Operation was performed December 15, 1887, following a course of treatment of potassium iodide. The initial opening was enlarged to 3 x 2½ inches, with the upper margin ¾ inch from the midline. The tumor dipped behind the squamous portion of the temporal bone for ½ inch. The dura was adherent to the brain except at the margin of this large opening. The dura was incised ¼ inch from the margin of the opening in the bone and the tumor readily enucleated. Hemorrhage was free, but not alarming. The tumor was practically a foreign body, starting at the dura as a result of the constant irritation from the little loose fragment of the inner table broken off at the time of the accident. Every inspiration, and especially every impulse from the throbbing heart, produced a slight movement of this

fragment. The tumor weighed 3 ounces 46 grains and proved to be a pure fibroma. Eight days after the operation the floor of the cavity, which was also the roof of the ventricle, evidently gave way, thus opening the roof of the lateral ventricle, and until the fifth week the cerebrospinal fluid continued to escape very freely. At the conclusion of the operation two drainage tubes had been inserted and an abundant gauze dressing applied. The bone could not be replaced as the dura was gone. On the fourteenth day a moderate hernia cerebri, crescentic in shape, had appeared, and from two small pinholes at its middle clear fluid, evidently cerebrospinal, continued to escape until the end of the fifth week. By the seventy-first day the hernia cerebri had subsided until it was nearly on a level with the skull. On the seventy-fifth day this elevation had changed to a deep hollow 5.5 cm. in depth. Twenty-one years after the operation this depression was still present. A striking phenomenon was that whenever the man sat upright, any muscular effort or change of posture, *e.g.* leaning forward, caused this hollow to bulge about an inch beyond the level of the skull. To protect the brain against injury Dr. Keen had bent a piece of tin to fit the surface of his head, covered it with black silk, and sewed this to the inside of a skullcap which the patient always wore. Dr. Keen stated that only three cerebral fibromata appear in Bernhardt and Hale White's table of 580 intracranial tumors. An "entirely favorable prognosis" had been given at the time of operation, and thirty years had fully justified it. The patient died on January 29, 1918, and Dr. M. L. Davis of Lancaster, who had referred the patient to the author, at once advised him, and Dr. Aller G. Ellis procured the brain which the patient had promised to Dr. Keen many years before.

Dr. CHARLES K. MILLS said that he had been present at this operation by Dr. Keen, which was the second one he had seen. The first was by Dr. Weir of New York in a patient of Dr. Seguin. The long duration of life in Dr. Keen's case, with the comparatively good health of the patient, were considered of much interest. Cases of fibromata existing for a long time and not discovered until after death were on record; such a case had been reported in Edinburgh in a well-known physician. Here there had been discovered in a latent region of the brain a flat, hard fibromatous tumor. The appearance and disappearance of the hernia cerebri because of differences in the position of the patient also presented a condition of extreme interest. With the patient in the recumbent position, Dr. Mills observed that the cerebrospinal fluid found its way perhaps through the foramen of Magendie to the spaces around the spinal cord and also possibly into the extra ventricular cerebral spaces. It probably flowed back to its original position when the hernia cerebri was visible. The small amount of paralysis present in the later stage of the case Dr. Mills thought was probably explained by the occurrence of a very gradual compression of the cortex and subcortex allowing a sort of functional adjustment. This had happened in long standing hydrocephalus and offered a more likely explanation than that of compensation by the other hemisphere of the brain.

Tuberculosis in the Army.—Colonel GEORGE E. BUSHNELL, U. S. Army, Retired, said that in examination of men for the Army the welfare of the Army was the first consideration. The examination should be made rapidly with the idea of excluding manifest tuberculosis, of getting the affected men out quickly, and filling their places without delay. The idea of speed was extremely foreign to most examiners. The work was standardized in the Surgeon-General's office and a minimum of fifty examinations per day was one of the directions. The belief held by most of the examiners that it was better to wait until the cases were referred by the regimental surgeons obviously would delay the matter too long, and would, in addition, create the presumption that the disease had been contracted while in the service and was therefore pensionable. The plan created by the Surgeon-General's office tended to prevent too much weight being given to signs of slight organic change. If those believing any evidence of an old healed obsolete tuberculous lesion to be sufficient cause for rejection were afforded time for minute examination many men perfectly fit to serve would be rejected, with injurious results to the Army. As a rule, a man who entered the military service with a not too large quiescent pulmonary lesion improved in the long run in army life. It was directed in the examinations that all cases of active tuberculosis should be rejected, also those with inactive lesions of any considerable size. Quiescent lesions above the clavicle were not regarded as of sufficient size to cause rejection. A further provision was that the diagnosis must be based upon positive signs. Many examiners wished to label some of the cases arrested tuberculosis, retain the men in service, and have them frequently examined. Such a man, however, would be spoiled as a soldier although he might be of the very best physical type. Again, if labeled tuberculosis from the beginning the man would be barred from being pensioned, which would be an injustice. Two schools were represented in the diagnosis of tuberculosis: The old school, which did not make the diagnosis until the signs were clearly marked; the other group perhaps should not be called a school, because it was composed of a number of individuals who do not agree one with another. Recent official word from the French Secretary of War stated that of the 86,000 men said to have tuberculosis in the first year of the war less than 50 per cent. were found upon reexamination to have pulmonary tuberculosis. It was believed by some French authorities that 20 per cent. more truly represents this group. If, however, it were 50 per cent. it would still mean that the transcendental diagnostician was wrong, that tuberculosis could not be safely diagnosed until definite signs were present. This was a vindication of what might be called the old school. While much had been said of the danger of infection of one adult by another, a study of the cases in the French Army showed that the men who had broken down had brought the disease with them. The experience with the repatriated French civilians reported by Dr. Miller was a striking illustration of the fact that even semistarvation and hardships of all kinds did not lead necessarily to the development of tuberculosis on a large scale. In the case of the tuberculous soldier Colonel Bushnell said that the Government had provided seven institutions for the treatment of the disease. The number of men who would remain under treatment would depend upon the matter of their compensation.

Dr. M. HOWARD FUSSELL observed that in the beginning of their work at Fort Niagara he and Dr. Riesman had thought it would be impossible to examine fifty men a day, but had later found this could be easily done.

Dr. THOMAS MCCRAE said that, having had the experience of handling the men from the front in a base hospital, he believed it perfectly absurd to hold the view that a man who had had tuberculosis was probably going to be benefited by going to the front. This was emphasized when considered with the fact of the tremendous strain of being in the trenches, the loss of sleep, the crowding together in small areas, nearly all the men with some bronchitis. He questioned whether any present who had had tuberculosis and who were now in health would consider living such a life. Why then should it be said that probably the soldiers would be benefited by it? Not only in the front line trenches did this apply. It was very significant in his work, particularly with the Canadian soldiers, to find in the labor battalions, where the men were living under healthful conditions, the large number who came in with tuberculosis. Of these probably the vast majority had the disease before. None of us knew, he said, how many cases of tuberculosis in adults were instances of fresh infection and how many were the lighting up of old lesions. The examiner who passed a man with the signs of old tuberculosis was sowing the wind, and the medical officer abroad was the chap who would reap the whirlwind. From seeing the work at the other end of the funnel, he believed that, for the sake of the service and of the man, the matter of examination for tuberculosis could not be too rigid.

Dr. D. J. MCCARTHY said that in presenting to the college a short time ago a review of conditions in the Russian Army he had given figures of the rejections for tuberculosis in the recruits for ten years with the resultant relatively low tuberculosis percentage in the Army. This percentage was lower than that in civil life. Little dependence could be placed upon statistics of repatriated prisoners from Germany

and Austria in estimation of the total number of cases because only the ill were returned.

Dr. CHARLES J. HATFIELD said he should like to bear testimony to the fact that Colonel Bushnell, besides being very enthusiastic, was also very patient, because he received many suggestions from people interested in tuberculosis. Dr. McCrae he thought had given expression to a feeling held by many of the examiners relative to the difficulty of obtaining any standard by which a man with tuberculosis once diagnosed could be legitimately included in the Army. He asked Colonel Bushnell, in this connection, how an examiner, when the signs of tuberculosis had been demonstrated, could certify on paper that the man was sound, that there was no tuberculosis. His understanding was that if the tuberculosis were actually recorded, such record would follow the man, would be known to his superior officer, and that it would have an effect upon his compensation later. He felt that Colonel Bushnell's experience in military service had given him a basis for his opinion of improvement under working conditions, which opinion was to be highly considered. In connection with the National Association, it had been Dr. McCraes privilege to see how splendidly the Surgeon-General's office had considered the question of tuberculosis in the Army and to note its cooperation with outside agencies wishing to have certain conditions fulfilled. He believed that the United States Army to-day, with the various measures enforced by the Surgeon-General, was in a splendid condition.

Colonel BUSHNELL, in closing, said that the difficulty in understanding how a man who had once had signs of tuberculosis could ever be regarded as a safe man depended entirely upon what was meant by tuberculosis, how much tuberculosis there had been, how many bacilli had been present. In his opinion there was hardly a man who, if looked at closely and studied with the *x*-ray, would not show some little signs of abnormality somewhere in the lung. He believed that some examiners could find that 90 per cent. of those present had what some would call evidences of healed tuberculosis. Many men came to him with the diagnosis of active tuberculosis in whom could be found no signs at all. In others giving a diagnosis of healed tuberculosis signs were found varying from a misinterpretation of the normal signs in the right apex to a slight degree of evidence of old trouble. He was increasingly impressed with the fact that many perfectly healthy people showed slight evidences of organic change in the apices of the lungs. One of the most difficult things in medicine was to draw the line of demarcation between that which was normal and that which was abnormal in the apices, and to decide how large a healed lesion a man might have and yet safely be accepted for military service. He observed that now, after three years, it was found that in the French Army probably two whole divisions sent home did not have tuberculosis. In our own Army, of eighty men sent back in one lot, only twenty-five were found by Dr. Webb to have signs of tuberculosis. Those coming over and being sent back cost the Government $5,000. A local and temporary condition, he said, had been called tuberculosis. The same thing was seen throughout the camps. The profession did not get together better on this subject because the pathologist and hospital physician saw only the bad cases while the Army men saw also the good cases.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF MARYLAND.

December, 1917.

(*Continued from page* 222.)

PRACTICE.

1. Give the differential diagnosis between measles and scarlet fever. What complications are likely to accompany or follow scarlet fever, and give their treatment.
2. Give the symptoms, physical signs, and differential diagnosis of acute lobar (croupous) pneumonia.
3. Give the etiology, diagnosis, and treatment of cirrhosis of the liver.
4. Give the clinical symptoms, laboratory findings, and differential diagnosis of Hodgkin's disease.
5. Describe in detail how you would manage a case of typhoid fever so as to prevent its spreading; of tuberculosis; of diphtheria.
6. What is psorias? Give its symptoms and treatment.
7. Give the causes, clinical symptoms, and treatment of arteriosclerosis.
8. Give the symptoms and treatment of chorea.
9. Give the causes, symptoms, and treatment of acute ileocolitis in a child one year of age.
10. What are the chief causes of convulsions in children and infants?

ANSWERS.

PRACTICE.

1. *Scarlet fever:* Period of incubation, from a few hours to seven days. Stage of invasion, twenty-four hours. Character of eruption, a scarlet punctate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes. The eruption is brighter, is on a red background, punctiform, and is more uniform; the temperature is higher, the pulse quicker; the tongue is of the "strawberry" type, the lymphatics in the neck may be swollen, and there is sore throat; Koplik's spots are absent.

Measles: Period of incubation, ten to twelve days. Stage of invasion, four days. Character of eruption, small dark red papules with crescentic borders, beginning on face and rapidly spreading over entire body; desquamation is branny. The eruption is darker, less uniform, more shotty; the temperature is lower, pulse slower, the tongue is not of the "strawberry" type; coryza, coughing, and sneezing may be present; Koplik's spots are present.

Complications and sequelæ of scarlet fever: Nephritis, adenitis, otitis, arthritis, sore throat, diphtheria, diarrhea, otorrhea, endocarditis, pericarditis.

For the *nephritis*, milk diet, digitalis, diuretics, salines, warm baths, hot packs, and pilocarpine.

For *otitis*, application of heat and puncture of membrane.

For *arthritis*, iron, salicylates, and alkalies.

For *sore throat*, antiseptic sprays, warm applications, ice to suck.

In *diphtheria*, antitoxin, and tonics.

2. ACUTE LOBAR PNEUMONIA. *The first stage* is characterized by sudden onset with chill, a sharp pain in the side, rise of temperature, a short and sharp cough, rusty-colored, viscid sputum, and dyspnea. There may be headache, insomnia, scanty urine with diminution of urea, chlorides, phosphates, and sulphates, insomnia, and herpetic vesicles on the face, and there is always an increase in the number of leucocytes in the blood. Physical examination will reveal diminished expansion, impairment of the normal percussion note, feeble or suppressed respiratory murmur, moist or dry râles, crepitation, and sometimes a pleural friction sound.

In the second stage the dyspnea is more marked; the face is more or less livid in color: the temperature is high (104°-105° F.); and the pulse increases in rate (110-120), its tension and fullness lessening with the progress of the disease, and growing feeble and intermittent. Headache, delirium, and various other nervous symptoms may be present. Expansion is diminished and vocal fremitus is exaggerated upon the affected side. There is dullness with increased resistance over the consolidated lung, and auscultation detects bronchophony or bronchial breathing over this same area.

The third stage is ushered in by a sudden drop of temperature on or about the fifth or ninth day, followed by a natural sleep, free sweating, and relief from suffering. In this stage the crepitant râle (râle redux) is heard in the midst of the bronchial breathing, together with numerous moist râles. Dullness may persist for some time, but usually by the twelfth or fourteenth day the lung has returned to its normal state."—(Gould's and Pyle's *Pocket Cyclopedia.*)

Diagnosis: (1) From *acute phthisis:* The symptoms and physical signs of *lobar pneumonia* and *acute pneumonic phthisis* may be the same for the first eight or

ten days; at this period the fever in *pneumonia* drops by crisis; whereas in *phthisis* the fever continues for some time longer and the patient gets worse; the sputum contains tubercle bacilli and elastic fibers, and instead of retaining the rusty color it becomes purulent and greenish.

In *pneumonia*, the breathing is very rapid, the pulse-respiration rate is disturbed, the fever is usually high, and runs a regular course, crepitant râles are heard at first, then signs of consolidation follow, and crepitant râles again succeed.

In *phthisis*, the breathing is hurried and there is dyspnea, the fever is often high, but does not run a regular course, at first the signs are those of bronchitis, followed by consolidation, a softening, or excavation in different parts of the lungs; sometimes there is nothing to be heard but scattered râles.

(2) From *bronchopneumonia*:

LOBAR PNEUMONIA	BRONCHOPNEUMONIA
Generally a primary disease.	Generally secondary (to bronchitis or an infectious disease).
Age has little influence.	Generally found in very young or very old.
Sudden onset.	Gradual onset.
Fever is high and regular.	Fever is not so high, and is irregular.
Ends by crisis between sixth and tenth day.	Ends by lysis, at no particular date.
Generally only one lung affected.	Generally both lungs affected.
The physical signs are distinct, and there is a large area of consolidation.	Physical signs indistinct, and the evidences of consolidation are indefinite.
Sputum is rusty.	Sputum is rather streaked with blood.

(3) From *acute bronchitis*. *Acute bronchitis* begins with coryza; soreness and tenderness may be behind the sternum; pain may be caused by coughing; expectoration is abundant; dyspnea is in proportion to the extent of the disease; the pulse-respiration ratio is not altered; fever is slight or absent; various râles may be present; the condition is generally bilateral; ends by lysis.

Lobar pneumonia begins with rigors, sometimes also with vomiting; pain on affected side; expectoration is rusty and tenacious; breathing is very rapid; the pulse-respiration ratio is much disturbed; there is considerable fever; crepitant râles are heard in first stage, also in third stage (râle redux) usually only one side is affected; ends by crisis.

Treatment: "Consists in rest in bed, milk diet, and the administration of fractional doses of calomel followed by a saline in the early stage. The nervous symptoms and temperature may be controlled by applying ice-bags or compresses wrung out of cold water (60°-70° F.) to the chest or by the use of the warm or cold wet-pack. The heart and pulse should be sustained by the administration of alcohol, strychnine (gr. 1/60-1/20), atropine, caffeine, strophanthus, and nitroglycerin. Digitalis may also be employed. Inhalations of oxygen afford temporary relief when the dyspnea and cyanosis are extreme. In young, vigorous, and plethoric adults, with hyperpyrexia and a high-tension pulse, bleeding may be beneficial in the first 48 hours. Convalescence should be guarded, and tonics, stimulants, etc., will be found very useful in this period of the disease."—(*Pocket Cyclopedia.*)

5. *Cirrhosis of the Liver. Etiology*: The prolonged use of alcoholic stimulants, gin, whiskey, beer, or porter is perhaps the most common cause. It may also be due to malaria, syphilis, passive congestion, and irritation of the gall-ducts. The cause may be undiscoverable. It usually occurs in men past thirty-five years of age. The uric acid diathesis may be a causal factor.

DIAGNOSIS OF CIRRHOSIS OF THE LIVER.—"The characteristics of hepatic cirrhosis are the history, area of liver dullness, symptoms of portal obstruction, jaundice, and the course and termination. The distinction between the two varieties is well given by Thayer in the following table:

HYPERTROPHIC CIRRHOSIS.	ATROPHIC CIRRHOSIS.
Jaundice. Early and marked bile often absent from feces.	Late and slight, bile usually present.
Ascites. Late and unimportant.	May be early; often enormous.
Spleen. Enlarged early and markedly.	Late and less.
Alimentary hemorrhage, piles. Not common.	Common.
Liver. Large, smooth, mottled, green.	Small, rough, pale or yellow.
New fibrous tissue. In fine lines and strands between acini and cells, involving all parts equally.	In broad bands, making prominent islands in which the single acinus may appear nearly normal; distributed irregularly.

Atrophy of the liver, or the nutmeg liver, is almost always confounded with cirrhosis; the former occurs most commonly with obstructive diseases of the heart and lungs, and the surface of the organ is not nodulated, nor is there a history of alcoholism.

Cancer and tubercle of the peritoneum have many symptoms akin to cirrhosis. The points of differentiation are great tenderness over abdomen, rapidly developed ascites, rapid decline in strength and flesh, absence of jaundice, absence of long-continued dyspepsia, absence of hepatic changes on percusison, and the presence of tubercle or cancer deposits in other organs."

TREATMENT.—"The diet should be restricted to milk and similar unirritating food. Fatty and saccharine substances should be eliminated. Alcoholic individuals should be advised to cease drinking. The gastrointestinal catarrh should receive symptomatic treatment. Bichloride of mercury, gr. 1/60 to 1/30; gold and sodium chloride, gr. 1/20; sodium phosphate, ʒss to i, and potassium iodide, gr. x, three times daily, are highly recommended. The portal congestion is best relieved by salines. The abdominal dropsy or ascites will require the administration of saline purgatives and diuretics. A half ounce of a concentrated solution of magnesium sulphate taken daily before breakfast is of value, as is also the pill containing 1 gr. each of calomel, digitalis, and squill when given after each meal. Acetate of potassium may also be used. Tapping is necessary when these measures fail. *Surgical treatment*, with a view to establishing an anastomosis between the portal and systemic circulation, has been employed; but it should never be considered in the presence of complicating renal or cardiac disease."—(Hughes' *Practice of Medicine.*)

4. HODGKIN'S DISEASE.—"A hyperplasia of the lymph glands interfering more or less with their functions. The enlargement may be confined to one isolated gland, or a number may be affected in different portions of the body, causing a tumor varying in size from an egg to an orange or even larger. The spleen and liver are involved in two-thirds of the cases. 'The marrow of the long bones may be converted into a rich lymphoid tissue.'—(Osler.) The red blood corpuscles are decreased in number and altered in size and shape; the white blood corpuscles may be slightly increased in number, but there is no approximation to anything like leucocythemia.

Symptoms.—"A slowly developing anemia with isolated or diffused enlargement of the lymphatic glands. As the condition develops, fever of a remittent character occurs, with feeble cardiac action and shortness of breath. The patient grows progressively worse with all the associated symptoms of deficient blood, death occurring by asthenia.

Diagnosis.—"A study of the clinical history will prevent error, as tuberculous or scrofulous glands are accompanied with tuberculous changes elsewhere; and leukemias do not present the same blood picture as Hodgkin's disease."

5. To prevent the spread of typhoid fever: Flies should be kept out of the house as far as possible, by means of screens or otherwise; all discharges from the sick person must be disinfected; all utensils, dishes,

etc., used by the patient must be thoroughly cleansed and boiled every day; soiled linen must be soaked in a disinfectant solution before being washed; after each attendance on a patient, physicians, nurses, and others should wash their hands in a disinfectant; thorough sterilization of all bedding, etc., must be performed after the disease is over. Further, each household should boil all water that is to be used for drinking or for washing dishes, etc.; milk should be boiled also; and no ice should be put *in* water or other drink or food.

"The preventive measures which may be taken to reduce tuberculosis may be summarized as follows: (1) The compulsory notification of phthisis. (2) The removal of those conditions of domicile and of occupation which are known to promote the incidence of the disease, including the regulation of certain dusty trades. (3) The diffusion of knowledge (by medical men, leaflets, etc.) regarding the nature and modes of spread of the disease, and the precautions which should be taken in order to prevent its extension. (4) The testing of sputum and other suspected discharges, and of milk, meat, etc., supposed to be tuberculous—reports to be furnished free of charge. (5) Local authorities to undertake, without charge, the disinfection of houses recently occupied by phthisical persons. (6) The establishment of sanatoria and isolation accommodation of the cure of phthisical patients, and the isolation of those who are a distinct source of danger to fellow lodgers or workers. (7) The enforcement of measures against spitting in public conveyances and in places of public resort. (8) The efficient sanitary supervision of dairy farms, dairies, and milkshops. The periodical veterinary inspection and testing (by tuberculin) of milch cows, and the slaughter of tuberculous animals. The prohibition of the sale of milk of cows affected with tuberculosis. (9) The proper inspection of meat in public abattoirs, and the adoption of due precautions for the control of imported meat and milk."—(Parkes' *Practical Hygiene.*)

Hygienic precautions to be taken in treating a case of tuberculosis: "The patient's quarters should be free from dust, and admit of spending many hours daily in the open air in all weathers, properly sheltered, and, if very ill, lying wrapper in a hammock or reclining chair. His bedroom should be well aired at night, draughts being avoided. The room should be uncarpeted and free from hangings. It should be often cleaned and periodically disinfected. All sputum should be collected in paper spitcups, which should be burned daily. Smoking should be forbidden. Harm is done by any exercise which results in fatigue, and while fever exists it should not be attempted at all. Patients should be taught the necessity of practising lung gymnastics and breathing only through the nose, which should be kept clear and free from occlusion by secretions, or an hypertrophied catarrhal mucosa. . . . The clothing should be woolen, but not too heavy, or sweating is increased; and a flannel nightgown and loosely knit leggings should be worn at night in cool weather. The skin should be cleansed by daily sponge baths of lukewarm alcohol and water."—(Thompson's *Practical Medicine.*)

Treatment of diphtheria: The patient should be in bed and isolated; the family should be quarantined; infected articles should be soaked in some antiseptic solution and then boiled; a milk diet is indicated; the nose and throat should be kept clean by the use of some mild antiseptic solution; calomel in divided doses should be given to keep the bowels open; tincture of the chloride of iron is indicated; and early administration of diphtheria antitoxin in adequate doses (3,000 to 10,000 units) must be given at once; if there is no improvement within twelve hours, the dose must be repeated.

6. PSORIASIS.—A common chronic inflammatory disease of the skin, characterized by variously sized lesions, having red bases, covered with white scales resembling mother-of-pearl. It affects by preference the extensor surface of the body. The lesions are infiltrated, elevated, clearly defined, covered with white, shining, easily detachable scales which, upon removal, reveal a red, punctate, bleeding surface. The eruption is absolutely dry, and itching is usually absent.

The treatment consists of the internal administration of arsenic, cod-liver oil, oil of copaiba, or potassium iodide, and the use of local applications. The scales should be removed by soap and water, alkaline baths, or oily substances. Ointments containing salicylic acid (3 per cent. to 10 per cent.), tar (5ī to 5ī of ointment), ichthyol (5ī to 5ī), chrysarobin (gr. 10-60 to 5ī), ammoniated mercury (gr. 10-40 to 5ī), etc., are very beneficial, and should be used after the scales have been removed." (*Pocket Cyclopedia.*)

7. ARTERIOSCLEROSIS. *Causes.*—"The principal etiologic factors are senility, heredity, male sex, alcoholism, syphilis, lead-poisoning, diabetes, malaria, gout, rheumatism, lithemia, Bright's disease, exposure, and excesses of various kinds. The condition of the arteriocapillary system may be taken as an index of an individual's age. The main factors are 'time, tension, and toxins.'

Symptoms.—These are not always apparent and vary with the arteries involved and their distribution. When the process is general, the peripheral arteries have a hard bony feel, not unlike whip-cord. The increased resistance of the arterial system induces increased cardiac activity and consequent hypertrophy. Attacks of vertigo, pseudo-apoplectic attacks, or spells of unconsciousness in the aged or those having superficial hardened arteries, are generally due to changes in the cerebral vessels. Evidences of myocarditis and angina pectoris point to atheroma of the aorta and coronary arteries. Renal arteriosclerosis manifests itself as chronic interstitial nephritis. Gangrene of the extremities in the old—senile gangrene—point to atheroma or thrombi, the result of the fibrosis.

Treatment.—"The habits, hygiene, mode of life, diet, etc., should be most carefully regulated. When the cause or causes are detected they should be promptly removed. The secretions should be kept free at all times. Constipation should be avoided as it serves to embarrass the functional activity of the liver and kidneys. Alcohol should be interdicted. Moderate exercise is of benefit. Potassium iodide and nitroglycerin should be administered in small doses indefinitely. Overexertion of any kind should be avoided." (Hughes' *Practice of Medicine.*)

8. CHOREA. *Symptoms.*—(1) Irregular and purposeless convulsive movements of the limbs, trunk, face, and tongue, rendered worse on attempting to execute voluntary acts and in fine movements, such as picking up pins, conveying a cup to the lips, writing, or touching a particular point. The movements of the trunk, as the child lies in bed, may cause the body to be first twisted to one side, and then suddenly to the other. The movements cease as a rule during sleep, but may be so violent as to prevent it. The condition may affect one side only (hemichorea). (2) Incoordination, manifested in the movements of writing, in unsteady gait, and in irregular movements of respiration, the diaphragm and intercostal muscles failing to act together. Muscular weakness is a later symptom as a rule. (3) Irregular and rapid action of the heart, sometimes amounting to "delirium cordis." (4) Soft systolic murmurs at the apex of the heart, due to endocarditis, or hemic murmurs at the base. There may be other rheumatic phenomena. (5) Altered mental conditions are sometimes marked, the patient laughing or crying in turns on being spoken to. Increased irritability is common and, in some cases, chiefly in adults, there may be maniacal excitement.

Treatment.—(1) *Rest in bed* is the first and essential point of treatment. (2) Arsenic in increasing doses, cod-liver oil, abundant food, and careful attention to the bowels. Antipyrin or phenacetin in increasing doses is also useful. Salicylates are of value only in rheumatic complications. When the movements are very severe, chloral may be freely given. (3) As soon as convalescence seems established, allow the patient plenty of fresh air and gymnastic exercises."—(Wheeler and Jack's *Handbook of Medicine.*)

9. ACUTE ILEOCOLITIS. *Causes.*—"This form of diarrhea is always caused by microorganisms and the toxins they produce. The organisms gain entrance to the intestines by the food, and multiply with great rapidity. Milk and water are the two commonest vehicles, but fruits and vegetables may carry them into the system. As predisposing causes, unsanitary surroundings and bad domestic hygiene may be mentioned,

and attacks of indigestion caused by improper feeding prepare the way by producing an irritable or unhealthy condition of the intestinal mucosa and lymphatic glands.

Symptoms.—"The attack may begin as a mild diarrhea, and gradually pass into this more severe kind, or it may begin abruptly. The child is restless and peevish, and cries with pain in the abdomen. It looks flushed and feverish, there is more or less vomiting, and a considerable rise of temperature (103° Fahr. or so) is noted. The child wastes rapidly, and there is great loss of weight; the eyes become hollow, and the face is pale; the pulse is rapid, and a typhoid state is often reached. The dejections are thin and watery, brownish or greenish, and very irritating and offensive. The motions are generally accompanied by considerable pain, and much gas; they are usually not more than a dozen in number in twenty-four hours, and are copious. As a rule no blood is passed, except in very small quantity, but there is more or less mucus. The abdomen is considerably swollen, though not markedly tender. There may be considerable tenesmus, and prolapse of the bowel is common. In cases of greater severity the appearance of the child changes rapidly. It becomes very restless, and thirst is urgent. Drinks are frequently called for and taken greedily, only to be vomited immediately. The face is thin and pinched, and the child has an aged look.

The eyes are sunk, and look large and staring, while the skin is dry and has a muddy appearance. The fontanelle is depressed, the temperature rises to 104° or 105° F., the pulse is very rapid and feeble, and convulsions may occur, or a state of coma supervene. When the attack becomes so severe as this, death usually takes place, the fatal event being accompanied by hyperpyrexia, or sometimes by a fall of the temperature to 95° or 93° F."—(*Aids to Diseases of Children.*)

Treatment: "An initial cleansing of the bowel with castor oil or calomel is imperative, followed by starvation for twelve to twenty-four hours. Egg albumin, barley water, or beef broth may be given. Equal parts of beef broth or barley gruel (1 oz. to the pint) are sometimes more acceptable. The tenesmus is relieved by the control of the diet and by the use of codeine, gr. 1/5 to ¼, or Dover's powder, gr. ½ to 2 grains every two or three hours, until the painful symptoms abate. Bismuth subnitrate, gr. 5 to 10, or bismuth subgallate, gr. 2, with powdered ipecac, gr. 1, may be given advantageously every two or three hours for the control of the mucus and blood in the stools. Whey is permitted when the stools show improvement, and after the acute symptoms have subsided sterilized milk is allowed in small amounts well diluted with barley or wheat-flour gruel. Last pasteurized milk is permitted with jellied gruels and broths. The prostration may require hypodermatic medication in the form of atropine, gr. 1/400 with strychnine sulph., gr. 1/250. As a daily routine, one saline irrigation at 100° F. serves a double purpose, as a cleansing solution and for absorption of part of the water. Strychnine sulphate, gr. 1/300, may be given as a tonic three times a day, and astringent enemas for the control of blood and mucus. Silver nitrate (1/1000) or a starch paste in less severe cases may serve the latter purpose. They should not be given more than once daily, and discontinued if the effect is not satisfactory. Too frequent irrigations often cause irritation and aggravations of the symptoms. Removal to the seaside or cool mountain air is a great help in the management, particularly in the convalescent stage."—(Chapin and Pisek's *Diseases of Children.*)

10. *Causes of Convulsions in Children and Infants.*—(1) *Predisposing.*—Hereditary neurotic tendency, rickets, anemia, exhaustion from any cause.

(2) *Exciting.*—Peripheral irritation, as burns, scalds, or wounds, or a pin in the clothing which jags; irritation in the alimentary tract by indigestible articles of food, hardened masses of feces, or worms; dentition, earache, or a foreign body in the ear; retention of urine; sudden chill when the body is heated; fright; congestion or anemia of the brain; the poison of measles, scarlatina, smallpox, uremia, or malaria. Convulsions are common in all affections of the brain and its membranes."—(*Aids to Diseases of Children.*)

(*To be concluded.*)

Books Received.

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MEDICAL ELECTRICITY. By H. LEWIS JONES, M.A., M.D., F.R.C.P. 588 pages. Illustrated. Price, $4.50 Published by P. Blakiston's Son & Co., Philadelphia.

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THE RELATIONSHIP OF ORAL SEPSIS TO SYSTEMIC DISEASE, AND ITS BEARING ON TREATMENT.*

BY H. B. ANDERSON, M.D., L.R.C.P. (London) M.R.C.S. (Eng.).

TORONTO, CANADA.

BASED on clinical observations and investigations carried on during the past few years, I believe it may be stated that "oral infection" is the most important problem before the medical and dental professions at the present time. For years we have recognized in a vague way its serious possibilities. More intensive interest and investigation were stimulated by the writings of William Hunter on its relationship to pernicious anemia. Until the past three or four years, however, attention was centered more on pyorrhea, dental caries, and other more obvious manifestations of oral sepsis, overlooking the fact that the greatest danger was not from these but rather from apical or root infections. The devitalizing of teeth and the sealing up of infection by fillings, or under crowns and bridges, permits the development of serious pathological conditions, with neither symptoms nor obvious signs of the danger menacing the patient's health. In fact, it was frequently those patients who tried to be most careful, who visited the dentist most faithfully, and who had the most extensive and expensive mechanical dentistry carried out, who got into the most serious trouble.

The dental profession, to its credit, has been foremost in warning of the dangers in these cases. This no doubt is partly due to the fact that they were more familiar with the faults and deficiencies of dental technique, and in their routine of work had the best opportunity for observing bad local results.

It is easy to be wise in retrospect, and while evidence as yet does not warrant conclusions, still it is sufficiently suggestive to open a wide field for observation and investigation of the causes for the undoubted increase in certain diseases coincident with the development of mechanical dentistry. The frequency of severe grades of anemia, appendicitis, gastric and duodenal ulcer, gallstone disease, exophthalmic goiter, arterial hypertension, and even diabetes, has been so striking as to call for comment on the part of the laity. In what measure has oral sepsis been responsible for this increase? Sufficient data are not yet forthcoming to answer this question definitely, but they are at least so striking as to call for the fullest investigation.

The removal of teeth is a serious matter, interfering with mastication, and consequently with the kind of food the patient can eat, and, as a result, with his digestion and nutrition. The shock, the opening up of fresh areas for the absorption of pathogenic bacteria and their toxins, involved in the removal of large numbers of infected teeth, especially in the old, the debilitated, and in cases of acute systemic infection, are matters for serious consideration. I have seen two cases of cardiac disease with generalized infection by the *Streptococcus viridans*, evidently due to oral infection, in which death followed and was apparently hastened by extraction. Only a few days ago I saw in consultation a patient practically moribund with acute pneumonia who had been operated on three days previously for a small epithelioma in the floor of the mouth. He was a vigorous railway man, 46 years of age, had never been seriously ill, and the operation was considered trifling. He had marked oral sepsis, and the surgeon extracted some half dozen of the worst teeth in the upper jaw. The patient died on the third day, and cultures from the tooth sockets and the operation wound showed *Streptococcus viridans* and a diphtheroid bacillus, and from the lung a pure culture of *Streptococcus viridans*. The blood culture was sterile.

Some years ago a patient, Hebrew, about 30, was admitted to St. Michael's Hospital, under my care, suffering from an illness which followed extraction of a tooth a few days previously. He had a temperature of 102°, but did not seem seriously ill. In a few days he developed a widespread purpura, hemorrhages from the stomach, bowel, and kidneys, and died in a week.

Suppuration of infected cervical glands occasionally follows extraction. The removal of unerupted teeth, especially, is often a difficult and serious procedure.

I bring these points forward, not as arguments against extraction for the relief of infection, but that it should be undertaken with due care and appreciation of serious possibilities.

Our experience with oral sepsis appears to be, in some ways, another example of the remarkable limitation of human observation and reasoning in regard to what, studied in retrospect, was a very common and obvious cause of disease, as evident as the infectiousness of tuberculosis or the symptom group of Graves' disease, or appendicitis.

In devitalizing teeth, buttressing up infected teeth which should have been extracted, sealing up infec-

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tion under crowns and bridges, improperly filling root canals, or not filling them at all, incautiously using strong antiseptics, such as arsenic, or causing injury to tissue by direct trauma, dentists were violating scientific principles and thus treading on dangerous ground.

While there are valuable signs presented by ordinary local examination suggestive of root infection, yet in many cases these are insufficient for diagnosis even by skilled and experienced dentists and physicians. *X*-ray examination is of great value, but even this may fail. Expert radiologists frequently differ in their interpretation of *x*-ray films and their clinical significance. The *x*-ray may show rarefaction, but this does not say whether there is an active infection, or whether it is altered tissue where the infection has died out, any more than it can say with certainty whether a lung shadow is that of an active or a healed lesion. Other clinical evidence must be taken into consideration.

We must remember, on the other hand, that at an early stage of infection the bony and other tissue changes may escape detection by the *x*-ray, as they do in early osteomyelitis affecting the long bones; and that the *x*-ray shows the *minimum* rather than the *maximum* amount of trouble.

The angle at which the picture is taken and the overhanging margin of the antrum, present well-known practical difficulties in x-ray diagnosis.

In the mouth of the sick individual containing devitalized teeth, crowns, bridges, pivot teeth, etc., my own experience bears out the *presumption of infection* rather than that of its absence. Every tooth, therefore, should be examined.

A sweetish, offensive breath, swelling and local purplish-red color of the gums, the unusual prominence of certain sockets beyond the general contour of the alveolar margin, the presence of dark teeth, the escape of blood and pus on pressure, hypersecretion of the throat, tonsillitis, whitening of the mucous membrane of the mouth, and miliary enlargement of the lymph follicles beneath it, superficial ulcers, small fistulæ about the bases of the teeth, etc., are points worthy of notice in directing further, and especially *x*-ray, examination. In some cases, however, in which the most careful local examination suggested no infection the *x*-ray has shown the presence of extensive trouble.

All patients with extensive or complete extraction of the teeth have evidently suffered from severe oral sepsis at some time.

The removal of the primary foci of infection, whether in the teeth or elsewhere, does not necessarily mean cure of the condition originally dependent upon such infection. The damage already may have been done, and we may be unable to repair it or to rid the system of infection which has thus gained entrance.

The patient's failure to improve, therefore, after an oral infection has been removed, does not mean that this may not have been the original source of trouble. One should never promise results, but take his stand on the ground that an infection in the mouth, as elsewhere in the body, should be cleared up, whether by conservative or radical means, depending upon the dentist's ability to deal with it. Such dental treatment, of course, should go along with the building up of the patient's health by appropriate general measures. This is a point which is too frequently forgotten.

The importance of trouble short of definite abscess formation, which the radiologist gets around by describing as "rarefaction of bone," thickening of peridental membrane," etc., requires careful investigation. These are the most difficult cases to interpret and to appreciate their clinical significance. We all know that many cases, even with definite abscess formation, may go for a long time without producing evidence of systemic ill health. The latter depends upon the degree of systemic resistance, the character of the infecting bacteria, and the number and extent of infective foci.

Rosenow has shown in his work on gastric ulcer that insignificant foci may be the starting point for general infection. To say that the local condition in rarefaction is due to the action of irritants, such as arsenic, or to traumatic causes, does not disprove the coexistence of infection; for such causes, by reducing the local resistance, predispose to it. We know regarding infection in general that the smallest point may be the port of entry. It is not, therefore, necessary to have many or large areas in order to produce serious systemic trouble in susceptible cases. Therefore, it may not be sufficient to remove only gross lesions—a single point may be sufficient in some cases. In many cases we fail to get the maximum benefit for our patients from neglect of this.

Considered from the viewpoint of general pathology, there is reason to believe that by increasing the patient's resistance many of the slight infections may be overcome. The periodicity of attacks in gastric and duodenal ulcer, gall-bladder, infections, arthritis, etc., with longer or shorter intervals of absence of active symptoms, where the primary focus of infection has not been removed, shows that it may have been at least temporarily overcome by increase of the patient's local and general resistance. "Apparently, the resistance of a large percentage of persons is sufficient to give full protection for years, yet we must ever keep in mind the insidious development of the secondary effects and then ask ourselves if we can be ever reasonably certain that one's health is safeguarded so long as there is definite evidence of infection in the mouth." (Black.)

Rosenow's work on infections has been of the greatest importance, in that it has helped to clear up and coordinate many previously disjointed and fragmentary observations and partial truths. I refer especially to what he says regarding transmutability of organisms and selective tissue affinity. We can now more readily understand why at one time an organism may produce root abscess or tonsillitis, gastric or duodenal ulcer, appendicitis, gall-bladder infection, infective arthritis, etc., and therefore why these conditions are often interrelated and may have a common source of origin.

The recognition of the importance of this interrelationship of disease will have an important bearing not only on the prevention but the treatment of many diseases in the future. In all probability, it will reduce the frequency of operations, because it is obvious that if oral or other focal infections may cause gastric or duodenal ulcer, cholecystitis, appendicitis, or Graves' disease, in many cases our

present surgical methods are attacking the problem at the wrong end, removing the results rather than the cause. If the primary source of trouble remains, the removal of an organ or tissue secondarily infected does not go to the root of the pathological process.

In the preparation of this paper I have studied two hundred and fifty-seven private cases, all seen in office practice, of which I have full histories, and have been able to follow more closely and for a longer period than in hospital practice. They were patients naturally representative of a higher social grade than those found in hospitals. Minor degrees of oral sepsis are not included, owing to the difficulty of appreciating their significance.

I have tabulated these cases, noting the principal disease condition present and also other morbid conditions from which they suffered at the time of consultation or during the course of their illness. From the etiological standpoint this association of diseases is, I believe, of the greatest importance, and one which has not received the attention which it deserves. The frequent association of certain pathological or clinical conditions itself suggests an etiological interrelationship and not accidental occurrence. Autopsy experience impresses one strongly with the fact that pathological conditions found post mortem are usually so related. Clinical observation points the same lesson of a common causative factor, as noted in the complications and sequelæ described in the systematic outline of various diseases. It is a clinical axiom that one should not predicate the existence of two or more unrelated pathological conditions if one is sufficient to explain the symptoms. The more frequently we find two or more pathological conditions associated the stronger is the *prima facie* evidence of their common origin.

Studied from this point of view, cases of oral sepsis present many interesting and instructive features. Various clinical and pathological interrelationships have been recognized for years, as tonsillitis and nephritis; tonsillitis and rheumatism; tonsillitis and appendicitis; tonsillitis endocarditis, erythema multiforme, and chorea; appendicitis cholecystitis, gastric and duodenal ulcer; exophthalmic goiter, and diseases of the other glands of internal secretion, scleroderma, arthritis, etc.; Raynaud's disease, arthritis deformans, scleroderma, purpura, and urticaria; oral infection, tonsillitis, nephritis, and arterial hypertension in some instances.

Oral infections are usually of a low grade of virulence, sealed in, and extend over a long period. To study the evolution of such infections and to appreciate their various clinical manifestations they must be followed for a long time, the same as syphilis and tuberculosis. Private patients, therefore, offer a more favorable opportunity than hospital patients.

Another point I wish especially to emphasize is that if oral infection is shown to have a definite casual relationship to any one disease, as tonsillitis or exophthalmic goiter, it may also be, *per continuum*, the cause of other conditions of which the latter are known to be a starting point.

It is characteristic of oral infections that, as a rule, they do not produce a single systemic lesion, but a group of allied conditions, not all being manifested one at a time. This is shown by the diseases presented in my series of cases, as follows:

Classification of Diseases Associated with 257 Cases of Oral Sepsis.

	Occurring Alone	Associated with Other Diseases	Total
1. Anemia	13	35	48
2. Gastric and duodenal ulcer, appendicitis, gall-stones, etc.	22	25	47
3. Hypertension, albuminuria, kidney disease	27	36	63
4. Mucous colitis	2	3	5
5. Neuritis, lumbago, sciatica, etc.	27	47	74
6. Psychasthenia, nervousness, etc.	28	45	73
7. Raynaud's disease	1	4	5
8. Skin diseases	18	13	31
9. Tonsillitis	4	31	35
10. Goiter	5	22	27
11. Diabetes, miscellaneous	..	....	69
	147	251	477

The associated diseases were usually various groupings of the classes above mentioned.

Mrs. P.
Oral sepsis (the worst case I have ever seen).
Tonsillitis.
Rheumatism, sciatica.
Double antral suppuration.
Eczema.
Urticaria.
Nervous exhaustion.
Exophthalmic goiter.
Anemia, 70 per cent hemoglobin.

Mrs. D.
Oral sepsis.
Tonsillitis.
Migraine.
Raynaud's disesse.
Anemia, 65 per cent hemoglobin.

Miss D.
Oral sepsis.
Tonsillitis.
Nervous exhaustion.
Cystic mastitis.
Rheumatic pains in chest.

Mrs. A.
Oral sepsis.
Tonsillitis.
Quinsy.
Appendicitis.
Neuritis.
Mucous colitis.
Neurasthenia.
Anemia.

Miss T.
Oral sepsis.
Tonsillitis.
Anemia, 70 per cent hemoglobin.
Hypertension, 165.
Erythema multiforme (nodosum et papulatum).
Sciatica.
Albuminuria.

Mrs. Ar.
Oral sepsis.
Chronic appendicitis.
Gastric ulcer (confirmed by operation).
Goiter.

Charles S. D.
Oral sepsis.
Tonsillitis.
Duodenal ulcer.
Sciatica, lumbago.

Miss Au.
Oral sepsis.
Anemia, 65 per cent hemoglobin.
Acne.
Membranous colitis.
Neurasthenia.

John L. B.
Oral sepsis.
Peripheral neuritis.
Arterial hypertension 160-115.
Lymphangitis, edema of legs.
Cardiac decompensation.
Arthritis (feet).
Pleurisy (1916).

Miss L. V. C.
Oral sepsis.
Parotiditis.
Uveitis.
Optic neuritis.
Double facial paralysis.
Secondary glaucoma.
Myocardial weakness.
Anemia.
Intermittent fever.

Miss U.
Oral sepsis (teeth all gone but 2).
Small goiter (Graves' disease).
Tonsillitis.
Laryngitis, bronchitis.
Hypertension, 170-120.
Albuminuria.
Nervous exhaustion.
Arthritis (knees).
Sciatic neuritis.
Brachial neuritis (2 yrs. ago).

Miss J.
Oral sepsis (staphylococcus aureus and streptococcus.
Tonsillitis.
Infective arthritis.
Raynaud's disease.
Erythema multiforme.
Anemia.

Mrs. A.
Oral sepsis.
Psychasthenia.
Colitis.
Sequelae of gastric ulcer.
Appendicitis.

Mrs. B.
Oral sepsis.
Cholecystitis.
Chronic interstitial nephritis.
Arterial hypertension.
Corneal ulcers.

W. R. D.
Oral sepsis.
Tonsillitis.
Appendicitis.
Arthritis (rheumatic, attack o fever).
Brachial neuritis.
Neurasthenia.

Mrs. G.
Oral sepsis.
Anxiety neurosis.
Infective arthritis (knees).
Mucous colitis.

Mrs. G.
Oral sepsis.
Tonsillitis.
Exophthalmic goiter, pulse 120-129.
Infective arthritis (knees).

Mrs. R.
Oral sepsis.
Eczema.
Anemia, 60 per cent hemoglobin.
Glossitis.
Pruritus.
Exophthalmic goiter, pulse 120-150

The above examples from my series of cases are typical pathological interrelationships met with. These various conditions did not, as a rule, appear

at one time, but as phases of a long period of ill health, of which oral sepsis appeared to be directly or indirectly the cause.

Among the diseases before mentioned of which oral sepsis may be the cause there are some to which attention has not been so commonly directed, and which deserve careful observation and further investigation. Among these one may mention exophthalmic goiter, of which I have seen a number of cases where there was very conclusive evidence that oral sepsis was the cause of acute symptoms developing:

Case I.—Ida G. Sept. 7, 1917. Operator, Toronto Carpet Company; robust girl; 2 sisters have goiter, but no toxic symptoms. Patient also has had simple goiter for years. Three or four weeks previously patient complained of pains in upper dorsal region, general malaise, and fever up to 102°-103°. Since illness has been very nervous, emotional, and tremulous. Her mother volunteered the information that her illness followed the filling of a tooth that had been allowed to go too long; her face was swollen and tender after it. At time of my examination patient was exceedingly nervous and excitable; eyes glistening, but not protruding, marked tremor; pulse 120 to 130; gums about upper left molars were red, tender, swollen, and bled readily on pressure; tonsils were inflamed; large firm goiter, not tender; apex beat normal and heart sounds clear; no joint involvement. I suggested tooth as the cause of trouble, and Dr. Fawns had dentist drill it open, when a lot of pus was evacuated. Immediately temperature dropped to 99° and pulse to 88. The opening discharged freely, and she remained well for 5 or 6 days. One day she chewed some gum, which plugged up the opening. Immediately, temperature went up to 100° and pulse to 110. Tooth was then extracted, allowing free drainage, and temperature dropped, but pulse kept up as high as 120. This was afterward explained by the fact that patient was given 5 gr. thyroid extract in place of thyrodectin. As soon as this was discontinued she rapidly improved, thyroid decreased in size, nervous symptom disappeared, and on October 18 she was practically well. This might be considered as an experiment on the production of Graves' disease by oral infection.

Case II.—Mrs. P., age 36, first consulted me on Dec. 1, 1916, complaining of neuralgic headaches, mostly on left side; suffered from bad colds; numbness and heaviness on right side of body; attacks of urticaria; rheumatism; sciatica; was depressed and nervous. At time of examination, patient was pale, Hb 70 per cent., skin dry, tongue very coated, breath offensive; had chronic pharyngitis and tonsilitis; teeth very septic. Dr. McDonagh made *x*-ray examination, and reported left upper second bicuspid, left upper cuspid, lateral and central, all septic, and left first bicuspid should be tested for vitality. There were sinuses opposite the left upper lateral and the posterior molars through which pus could be expressed by pressing on the left side of the roof of the mouth internally, and on the left side of the nose; about the angle of the eye, externally. On removing the tooth the antra on both sides were opened up and discharged pus; *x*-ray examination also showed extensive necrosis of the alveolus. The antra eventually closed up satisfactorily. During early part of treatment, after extended extraction of teeth, etc., patient's health deteriorated, she lost weight, became very weak, scarcely able to walk, but began gradually to regain her health. Wassermann was negative.

March, 1918, wt. 117, Hb 95 per cent., sleep fairly good; still complains of tiring out readily. Considerable involvement of bone still remained, but it was deemed best to temporize, as she was improving. On my advice, she went to Atlantic City. While there she became very nervous, did not sleep, and on her return to Toronto I examined her on May 1, when her weight was 112 pounds, and she complained of numbness in the whole of the right side of the body, jerking and twitching. Her eyes were bright, and slightly prominent; she had distinct tremor in the fingers; pulse 120; marked thyroid enlargement, mostly the middle lobe. May 11. Feeling better, pulse still 120°, very nervous, very marked tremor and thyroid enlargement. Tonsils small; buried; pus readily expressed from crypts. *S. viridans* in cultures. June 18, tonsils removed by Dr. Wishart.

Associated diseases, oral sepsis, tonsillitis, double antral suppuration, rheumatism, sciatica, urticaria, anemia, nervous exhaustion, exophthalmic goiter.

Case III.—Miss A., age 25, nurse in training, not robust, but never suffered any acute illness except recurring attacks of tonsillitis, following last of which she developed rheumatic pains, grating in both knees; ankle joints are still so stiff that she walks with difficulty. Tonsils were removed in Minneapolis some months ago, but no improvement. Thyroid gland is moderately enlarged, uniform in outline, quite firm. Eyes glistening, but not especially prominent. Slight tremor in fingers, general nervousness; pulse 120; *x*-ray examination by Dr. McDonagh showed left upper first molar and right lower first molar to be septic. Oral sepsis, infective arthritis, Graves' disease. On removal of septic teeth, rheumatic condition cleared up, as well as symptoms of Graves' disease.

Some years ago I saw in consultation a patient with slight thyroid enlargement and symptoms of a mild type of Graves' disease, also neuritis. She had extensive crowns and bridge work with marked evidence of infection, but as she had paid a large sum of money for the dental work she refused to have it disturbed, and submitted to thyroidectomy. In the light of recent investigations surely this was not the proper treatment.

Recently I was consulted by a physician, age 42, suffering from severe exophthalmic goiter, marked cardiac dilatation, enlargement of the liver, with jaundice, albuminuria, and casts. He had marked oral sepsis associated with numerous gold crowns. His condition was such as to preclude extensive extraction at the present time, and yet I do not believe he will improve appreciably until the oral trouble is cleared up.

In my series of cases, 257 of oral sepsis, I have had 27 of exophthalmic goiter, in 5 cases alone, in 22 associated with other disease conditions. In one patient there was marked tenderness on pressure over the gland. My own experience fully confirms that of others that oral infection is one of the causes activating the thyroid in exophthalmic goiter, and, like tonsillitis and other focal infections, should be carefully considered in the treatment of this disease.

In diabetes the evidence is not so conclusive, yet the interrelationship of diseases of the ductless glands is well recognized. This has usually been put down to the action of hormones, but could as readily be explained by infection attacking tissues similar in structure. It is well known in the treatment of diabetes that infection will at times cause return of glycosuria without change in diet.

Oral sepsis has long been recognized as an accompaniment of diabetes, but has generally been considered *a result* of the constitutional condition. I believe experience warrants our considering it as a possible cause of the disease. In my series of cases was one showing marked oral sepsis, goiter, acromegaly, arterial hypertension, hemiplegia, and bulbar symptoms.

In certain skin diseases, as the erythema group, purpura, urticaria, eczema, and, I believe, in some cases of lymphangitis, scleroderma, and Raynaud's disease, oral infection should be borne in mind as a possible cause. In my series there were five cases of Raynaud's disease, four of which were associated

with other diseased conditions commonly found accompanying oral sepsis.

Oral infection may be contributory to the development or aggravation of arterial hypertension in some instances. There is no clinical doubt that it may be responsible for nephritis and infections of the urinary tract.

Case IV.—W. I. C., May 22, 1917, railway conductor, age 45. Had always enjoyed good health, and applied to the Imperial Life Insurance in May, 1917, for insurance. Urine ws found to contain large amount of albumin, considerable number red blood cells, and large number of pus cells. Was referred to me for examination on June 5, 1917, by Dr. F. J. Farley. Found his teeth to be in horribly septic condition; general physical examination was negative; skin dry, and he looked anemic. Examination of urine showed spec. grav. 1007, moderate amount of pus, distinct trace of albumin; bacteriological examination and inoculation were both negative. Phthalein output showed right kidney 1½ hrs. 10 per cent., left kidney 1½ hrs. 10 per cent. Practically the only treatment carried out was removal of the teeth. After three weeks he called to see me, and reported himself 50 per cent. better, and by autumn had entirely recovered, the urine being quite normal.

Apart from gall-bladder infections, involvement of the liver itself, with recurrent attacks of chills, fever, hepatic enlargement, and jaundice, occurs at times, as illustrated by the following case:

Case V.—R. S. N., August 11, 1917. Age 62; judge; best weight 176, present 146. Moderate in all habits, working under severe strain, prostate removed by Dr. S. Hay three years ago; also stones in bladder. The latter has been irritable ever since; recurring attacks of cystitis. Past winter has been having recurring attacks of chills, slight jaundice, loss of appetite and weight, weakness, etc. At the time of my examination the patient was distinctly jaundiced; much emaciated; lips cyanosed rather than pale, skin dry and parchmentlike; mouth contained many crowns, bridges, and fillings, associated with an extreme degree of sepsis. The heart sounds were weak. Blood pressure 95-99 systolic, 75 diastolic. Abdomen was very soft, relaxed, and pendulous; liver markedly enlarged, lower margin palpable to near umbilicus. Never any distinct tenderness over gall-bladder area. Urine contained distinct trace of albumin, also pus and bile. Heart was exceedingly weak, impulse practically imperceptible, and sounds scarcely audible with stethescope. Cultures from the blood at this period were negative.

On September 1, 1917, teeth were all removed, which was followed immediately by an extreme degree of collapse; patient was pulseless, cyanosed, and for a few days his condition was exceedingly critical. Within a short time, however, he began gradually to improve. While chills occurred, they were less severe. His weight had been reduced to 127 pounds. During the next few months the patient continued to have recurring attacks of chills, fever at times rising to 103°, remaining up perhaps 48 hours, or less, accompanied by slight jaundice; general weakness.

On January 18 he wrote me: "I weigh 135 pounds, living almost normal life so far as eating is concerned."

February 6, 1918, weighed 141 pounds; systolic blood pressure 108, color good, jaundice cleared, skin softer and more elastic; hepatic dullness at costal margin; heart sounds clear and of very good quality; mouth in good condition. He was attending to his official duties, feeling very well.

May 20, 1918, he weighed 148, looked perfectly well, and was following his professional duties; he still had slight cystitis. His liver was normal in size, and there was no jaundice. This patient evidently has suffered from a diffuse cholangitis and myocardial weakness due to oral sepsis; cured by extraction of teeth and general treatment.

Tonsillitis and cervical adenitis are commoner and more obvious results of oral sepsis, which should be borne in mind. The tonsils frequently are small and buried, so that evidences of infection may be readily overlooked on superficial examination. Tonsillectomy should not be done until the oral infection is cleared up.

It has definitely been established that inflammations of the uveal tract are frequently due to oral infection. Billings and others have reported cases with the clinical picture of disseminate sclerosis; also cases of iritis presumably due to this cause.

In addition to cases where there is a definite regional localization, others of a more general character occur in which there is more or less malnutrition, with dryness of the skin and nervous symptoms of the neurasthenic type, such as insomnia, fatigue, palpitation, flatulence, etc., where oral sepsis appears to be an exciting cause or at least to play a part.

In conclusion, I would caution against too hasty and sweeping generalizations, but urge that each suspected case be carefully and critically investigated, to determine if oral infection is responsible for or contributory to the symptoms. In my opinion, teeth should not be sacrificed on the advice of the physician; a competent and experienced dentist is best qualified to advise as to the applicability of limitations of dental treatment. In many cases the interests of the patient will be best secured by consultation between dentist and physician.

In connection with the preparation of this paper, my thanks are due to Dr. R. W. Mann for bacteriological examinations and Dr. Harold M. Tovell for assistance in the *x*-ray investigations.

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SURGERY IN ITS RELATION TO THE PSYCHOSES AND THE PSYCHONEUROSES.*

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Horticulturists who have developed a fine variety of plant are sometimes discouraged by the appearance of a blight which undoes the work of many years. Freud is a blight, appearing in the midst of our success with the Virchow method of objective teaching. Virchow taught that every disease depends upon objective factors which may be discovered by an observer sufficiently well equipped. He was the great Liberator, the man who took us away from superstition and from metaphysics in relation to disease. Freud, coming upon the scene as a blight, takes us back into metaphysics and superstition. There is no doubt but Freud has opened the way for new observations and classifications, many of them of value. When a new form of blight strikes the potato crop the phytopathologists have an abundance of material with which to work and to construct new theories. The Freudean conception of mental derangements as being due to repressed desires and conflicting emotions is directly opposed to the surgeon's point of view based upon Virchow's objective teaching.

The surgeon assumes that mental derangement is a symptom, not a diagnostic entity—a symptom like a cough, for instance, which may be produced by many fundamental causes. The delu-

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sions and hallucinations of typhoid fever, puerperal septicemia, alcoholism, and melancholia, let us say, are not very different in character when considered purely from the standpoint of hallucinations and delusions. The four different causes for the same kind of "cough" are apparently far apart, and yet perhaps not so far after all. We assume that the hallucinations and delusions of typhoid fever are caused by certain enzymes resulting directly or indirectly from bacterial influence. In puerperal insanity we likewise assume that the mental symptoms depend upon enzymes of bacterial origin, directly or indirectly. In alcoholism we make the same assumption, the microbe in this case which furnishes the primary enzyme being saccharomyces. In the case of melancholia the surgeon again makes the assumption that the hallucinations and delusions are from an enzymic source. Why do we not speak of typhoid fever as an insanity, and of melancholia as an infection? In typhoid fever the symptoms run an acute course marked by liberation of energy in the form of heat in unusual degree, and for that reason we get to look upon typhoid fever as an infection rather than as an insanity. In puerperal insanity we are one step nearer to the case of mental derangement in which heat does not happen to be liberated in unusual degree. A step nearer still when we come to alcoholism. When we have arrived at a consideration of melcholia the comparative slowness of its development and the absence of the feature of liberation of energy in unusual degree of heat has had the effect of turning our thoughts far away from any classification of melancholia and of typhoid fever as being cousins german in the family of microbic diseases. Many of the other insanities belong in this same group from the surgeon's point of view, but in order to concentrate attention upon the main point let us speak for the moment of melancholia alone.

Hippocrates and Galen seem to have given more thought to the enzymic nature of melancholia than do our modern observers. They referred to symptoms as being due to "humors proceeding from the bowel"—the same locality from which the "humors" proceed in typhoid fever. Aretaeus, one of the best observers after Galen, gave a great deal of attention to the question of melancholia as a disease of intestinal origin.

Let us now take up another point, that of the nature of the enzyme producing certain symptoms similar to those produced by typhoid fever, by puerperal sepsis, or by alcoholism. Melancholia may supervene upon sudden mental shock. It may result from a long continued peripheral irritation like that of loose kidney. "Surely this does not mean the same enzyme," some of you are saying. If the sudden shock and the long continued peripheral irritation both have the effect in common of so disturbing the sympathetic and autonomic nervous centers as to result in disturbance of the digestive apparatus, such disturbance may lead to the development of an excess of certain bacteria in the enteron. If we look on the matter in this way we shall gradually be nearing the surgeon's point of view that a focus of infection may enter into an unusual degree of activity as a result of many factors which lessen resistance of the individual toward bacterial invasion. We need not even assume that it is always the same bacterium which gives rise to symptoms like those of melancholia. Various antibodies and various metabolic by-products called out by the presence of bacterial enzymes may be the particular poisons causing the "cough" known as melancholia.

Why should one patient develop symptoms of melancholia when the next ten people exposed to what would appear to be the same disease factors do not have melancholia? Our newer surgery of to-day assumes that one individual is sensitized, allergic, makes anaphylactic response, whatever one may choose to call it, while the other individuals do not happen to make that kind of response. This, it seems to me, is the keynote of the whole subject of the psychoses. Someone will ask about hereditary influence. In certain families there is hereditary tendency toward "rheumatism" of the sort now known to be bacterial in origin. Certain families may be susceptible to the influences which lead toward mental derangement as other families are susceptible to influences leading toward arrested development of some structure. The surgeon of to-day aims at the removal of peripheral irritations and of focal infections on general principles for improving the status of general health of the community. Surgery aimed directly at cure of the psychoses and the psychoneuroses will be a failure because so many factors are involved, but surgery which removes peripheral irritations and focal infections among the insane and among the psychoneurotics will have many spectacular recoveries from the insanities to its credit.

In this brief paper there is no need for my giving detailed description of cases of my own in which there has been recovery from psychoses and neuroses, but these are sufficient in number to lead me to feel that one of the greater new vistas in the whole new field of medicine is about to be opened.

Laboratory facilities which are required at the present time entail so much expense that public benefaction must stand behind the men who are at work in this field.

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DRUG ADDICTION AND ITS TREATMENT.*

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History records that the aborigines had recourse to drugs for the purpose of making them less amenable to sensations of disturbances or pain to which they were subject by reason of occupation or by reason of the climate in which they sojourned.

The drugs which have been used for that purpose are numerous. We of to-day, however, have to take into consideration only a select few. There is, to begin with, opium and its derivatives, among which morphine and heroine stand out preeminently as the drugs of choice of the addict. Next to these cocaine, hyoscyamus, cannabis, paraldehyde, and to a lesser extent alcohol, have

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found their place for similar purposes, but it can hardly be said that the last named are narcotics in the true sense of the word, at least not in so far as habit formation is concerned, unless we perhaps except alcohol, which, however, does not come up for discussion. Admitting, to begin with, that drug addiction is a disease, we should as scientific men, consider it from the same aspect from which we consider other diseases. That is, we must divide it into predisposing and exciting causes, into the phenomena or pathology associated with the disease itself, the prevention of that disease, and last, but not least, the cure of the immediate affliction and the after treatment The predisposing causes leading to drug addiction, no doubt, must be looked for, first in the social condition and conditions of labor which obtain among the civilized people. We all know that as civilization progressed the demands upon man became more and more insistent. Greater energy outlay is demanded daily, and to meet these requirements stimulation, either mental or physical, becomes obvious, nay, becomes almost imperative. Some of us obtain that stimulation by change of work, by vacations, by hobbies which we enjoy and which give us a mental or physical rest or both. Others, less careful perhaps in the choice of their relaxation, have recourse to the handy but injurious drug.

Once in a great while the members of the medical profession are the cause of the contraction of the drug habit. It is quite often a relatively easy matter to relieve a suffering patient from pain by the administration of a narcotic. While I fully realize that it is the duty of the physician to allay suffering and cure disease, yet I believe we should lay more emphasis on the latter part of the sentence, that of curing disease rather than to allay suffering. It is for this reason that I wish to emphasize the wrong which the physician commits when he has recourse to the administration of a narcotic for the purpose of easing suffering rather than attempting to analyze the cause of the suffering and removing that cause.

Another and perhaps a most important factor in the promulgation of the use of narcotics has come into vogue recently. As long as the sale of narcotics was not surrounded with so many restrictions and as long as the legitimate use of narcotics was made relatively easy and the obtaining of narcotics for legitimate purposes was within the reach of the suffering public on the one side and within the scope of the prescribing practitioner on the other, there was no special inducement for any man or class of men to increase the use of narcotics. But within recent years, whether necessary or not, a number of laws, intended of course honestly to reduce the abuse of narcotics, have been passed both in the State legislative body and in Congress, and thus the obtaining of drugs has been made relatively, I say relatively, more difficult.

Because of this increasing difficulty those people who think they have to have the narcotic are willing to pay almost any price in order to obtain it. Commercial history has proven that wherever there is a demand there will be the supply and so, in the case of narcotics, the demand being there it was but a short time before the supply was available. Naturally, of course, that supply was there merely because of the profit there was in it, and the more difficult it was made for the general public or even for the physician to use the narcotic or to prescribe it, the more lucrative was it made for those people to handle it; in fact, it became an inducement for them to increase the use of narcotics by illegitimate means in order to increase their profits.

Summarizing, then, the various factors leading to the contraction of the drug habit we have first the inclination or the desire of people to obtain relief either from mental or physical disturbances; secondly, the need of the drug to overcome suffering associated with pathological conditions, and lastly the vicious habit contracted either through environment or by the activity of the nefarious underground channels, whose object it is to increase their clientele and thereby to increase their profit.

The pathology of the drug addict is rather complex. We do know that while at first the use of the drug diminishes sensation and makes them less susceptible to the discomfort incident to whatever it may be, the sequelæ are a disturbed metabolism and an ever-increasing desire for the drug. The fact that there are actually no demonstrable histopathological lesions does not alter the conditions in any way; it remains a disease associated with certain phenomena and certain symptom-complexes. The principal thing for our consideration, however, is the treatment of the disease itself. This must be divided into prophylactic, immediate, and after treatment.

The prophylactic treatment of the drug addict, or rather against the use of the drug, will resolve itself in making the drug inaccessible to the public excepting where it is needed and advised by a legitimate practitioner for legitimate purposes. The present laws do not accomplish it for various reasons.

To begin with, each State has a different narcotic law. While it is true that we have a Federal law, the Harrison antinarcotic law, it is equally true that it is not a prohibitive law, but rather a revenue law or a registration law. Any physician, and legitimately so, may obtain the drug and use it. Any pharmacist or manufacturer may obtain the drug. But it does not in any way prevent the dissemination of the drug throughout the United States, even though its production and its distribution are fairly well regulated, for the reason that it does not prohibit the importation of the drug into the United States from adjoining countries. So, for instance, Canada on the one side, Mexico on the other, Cuba, and even far-distant countries, are enabled to ship the drug into this country.

It is true that the legitimate importation would necessitate the registration of this drug when imported. But because of the great inducement offered to underground dealers through financial returns which they can obtain therefrom, it has opened up a considerable traffic in these narcotics, and I might say that at least half of the drugs that find their way into this country are smuggled in. Therefore the only way in which such impor-

tation or smuggling into this country can be stopped is by international agreement with other countries, requiring them to exercise as careful and thorough a supervision over the manufacture and export of the drug into foreign countries as we do in this country. Thus every bit of narcotic produced anywhere in the civilized world should be placed under government supervision and every grain manufactured or exported would have to be registered and accounted for. This would be a step in the right direction and is, as I said before, a matter of international agreement.

Furthermore, the general practitioner should exercise considerably more care in the prescribing of narcotics. This would do away with some, I will admit a small, part of the abuse of the drug, but one which is however worthy of consideration. And finally, when a physician finds that he has to use the drug, it is perhaps as well that the patient receive it in such a manner that he will not know that a drug of this type is being administered. Therefore, I advocate the discontinuance of the hypodermic syringe whenever possible and the administration of the drug either by the mouth or in the shape of suppositories by the rectum, or through other body surfaces. Now as to the treatment of the drug addict himself this is quite a chapter and well worthy of consideration.

There are relatively few, if any, of the drugs now in use, the withdrawal of which will not cause untold suffering. Theoretically, we could use the physiological antidote, as for instance atropine, to antagonize the effects of the drug. But we must bear in mind that we are not dealing with the effects of the drug physiologically, but with the pathological conditions induced by the abuse of that drug. Therefore, eliminating of course those conditions in which the need of the drug is prompted by other pathological conditions and suffering incident thereto and considering only the conditions emanating from the abuse of the drug itself, we must concentrate on two things: first, to teach the patient that he can get along without the drug; secondly, we must combat the symptoms which arise with or as a result of the withdrawal of the drug. First of all, as in all other conditions, resort must be had to the elimination of the cause leading to the use of the drug. Secondly, the physical condition of the patient is of great importance. Therefore, we should give the patient a reasonable amount of cathartics and at the same time build up his physical resistance by training, by exercise, by proper employment and the right food, so as to enable him to stand the suffering with greater composure and eventually to help himself to overcome the disease.

In this, of course, we must consider that we are dealing with two kinds of patients: those who are anxious to get rid of the affliction and those who only pretend. With the latter I feel that we can do nothing. But given a patient who is honestly anxious to shake off this nefarious addiction, then we must stand back of him and in every way encourage him to do without the drug, by gradual reduction and by building up his resistance. In order to overcome some of the symptoms a purely symptomatic treatment will, of course, have to be resorted to.

Assuming, then, that we are dealing with a case of frank drug addiction, willing to be cured, we must bear in mind that the first thing to do is to put the patient in a position where he would be unable to obtain the drug except through our own channel or by our own administration. We know that with the best intentions in the world the ability to obtain the drug might lead one into the temptation to get more than the physician treating the case deems necessary. So that we must at once dismiss from our consideration the ambulant treatment of the drug addict. That has been proven repeatedly to be a failure and, therefore, if we are honestly endeavoring to cure the patient we must put him either under the supervision of intelligent and trained nurses at home or in an institution where we can thoroughly and absolutely rely upon our orders being carried out. The first thing to do with a case of that kind, after securing proper nursing, would be elimination. Such elimination should be carried out intelligently and should not tend to weaken the patient's condition. Excessive catharsis is not to be countenanced for a moment.

Among the drugs offering themselves for our consideration magnesium sulphate and pilocarpine are the remedies of choice. Magnesium sulphate, as we know, will effect the desired result either promptly or delayed, according to the dilution in which it is given. If we wish to obtain a delayed effect we must give it in concentrated solution, a 25 per cent. solution without the addition of more water. If we wish to obtain immediate result, as we often do in these cases, we must give it in a dilution not to exceed a concentration of 5 per cent. Plenty of water even beyond that may be given. Pilocarpine may be administered in the form of tablets in doses of 1/10 to 1 5 of a grain two or three times a day. The surroundings should be pleasant. The nurse in charge should be selected with a view of being in harmony with the patient, and all outside disturbances should be excluded, even to the point of forbidding the visits of friends and relatives. The drug itself, whatever it may be, whether it be morphine or heroine, should then come up next for consideration. As an initial step a reduction of the dose to 75 per cent. of the previous dose should be resorted to. This can be continued for twenty-four hours, when a further reduction bringing it down to one-half the previous dose should be applied and within a few days the patient ought to be down to a dose of 5 per cent. or even 2 per cent. of the original dose. When we have reached the minimum which he will stand without any marked discomfort we may continue that for a week or ten days and then try to have him get along without the drug altogether. At all times our personal contact with the patient should be one of cheer and one of physical, moral, and mental support. The food should be nutritious but not rich. The diet should be measured with a view of giving him physical support rather than with a view of over-indulging in his desires. At the same time excessive deprivation of food should not be encouraged.

Should mental symptoms make themslves felt

then we will have to follow the usual rules obtaining in therapeutics; that is, to stimulate when depressed and to depress when overstimulated. In our choice of the stimulant it is well not to indulge or introduce a habit which will take the place of the previous one and which might be just as injurious to the patient. Small amounts of strychnine will answer the purpose admirably. Alcohol should not be given under any circumstances. As a depressant, or rather as a sedative, bromides or hyoscyamus may be used, but in no greater doses than is absolutely necessary to bring about the desired result. Thus the elimination, the symptomatic treatment, the food, the reduction of the drug, and the surroundings or rather the cheerful surroundings are the important matters in the treatment of the addict. But at all times the psychic influence on the patient should be borne in mind. We must be an instructor, a mental instructor, a psychical instructor as well as a physician. We must at all times emphasize the fact and bring it home to the patient that he can get along without the drug, and we must also bring it home to him that he is doing most of the work and can do all of the work necessary to break himself of the addiction. A word to his friends and family, who are familiar with his condition, is also essential. No reference should be made by them to his condition unless it be one of cheer and comfort and encouragement. When we have reached a point where the patient can get along without the drug for some time we must outline a régime of physical exercises, occupation, and pleasure together with the proper diet which will keep him in good physical and mental trim. With the wealthier class this is relatively easily accomplished. But with the mass of the poorer people we must provide that the conditions which primarily drove them to the use of the drug are not repeated again so that they may perchance again have recourse to the drug. In other words, we must provide the after-treatment. For this purpose the State or Federal authorities should take care of the after-treatment of the addict just as they are now taking care of the insane. In fact, if the so-called addict is provided for we will have less need for the insane asylums. An organization similar to the Big Brotherhood is the thing that I have in mind—people who will look after the cured addict, who will more or less regulate his amusements, his entertainments and employment. It is the duty of the medical profession to recognize the condition of this evil and to advocate proper measures, both for the prevention of the treatment and the after-care of the drug addict.

Conclusion.—I have endeavored to draw a bold outline of the causes, treatment, and after-treatment of drug addiction. I wish to emphasize that no definite rule or set of rules can be laid down. Each case must be considered as a distinct entity, offering problems which the physician must solve individually and intelligently. No "cure" exists for drug addiction. But the drug addict can be cured if the physician takes the time and trouble and possesess the intelligence and the patience to carry out some of the principles laid down in this discussion.

THE TRAINING OF PHYSICIANS FOR PUBLIC HEALTH SERVICE.

A PLAN SUGGESTED.

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1. *General Considerations with Regard to Health Administration.*—In a recent report by Franz Schneider, Jr., former sanitarian of the department of surveys and exhibits of the Russell Sage Foundation, on the activities of municipal health departments in the United States, the author summarizes conditions found in the 163 cities studied as follows: "A fifth of the cities made no inspection of school children; over a third did not offer the ordinary laboratory diagnosis for the commoner communicable diseases; over a fourth made no effort to educate in health matters; nearly three-fourths had no housing law; nineteen-twentieths had no concern with the hygiene of industry; over six-sevenths had no program against venereal disease; over a half had no proper organization to combat infant mortality, and less than a quarter had a coherent program against tuberculosis. Surely, these facts argue for a surprising amount of neglected opportunity. . . . The conclusion becomes inevitable that public health work in this country is in its infancy, certainly as far as application of established scientific methods is concerned."

The picture here presented of municipal health service in the United States is a discouraging one, it must be admitted. Is it not pertinent to inquire why such a situation exists in many municipalities otherwise progressive? The first answer which springs to mind is that health appropriations for municipal health work are inadequate. Unfortunately, this is true.

The following table, taken from the Report of the United States Bureau of Census on Statistics of Cities, 1916, shows the per capita and percentage of total expenditures devoted to health conservation, including health department administration, vital statistics, prevention and treatment of communicable diseases, conservation of child health, and food regulation and inspection in the 213 cities of the United States of more than 30,000 population.

Group	Number of Cities	Population	Per Capita Health Conservation	Per Cent of Total Expenditures for Health Conservation
I	9	Over 500,000	$0.55	2.5
II	10	300,000-500,000	0.55	2.5
III	44	100,000-300,000	0.33	2.1
IV	64	50,000-100,000	0.25	1.9
V	86	30,000- 50,000	0.24	1.8
All cities	213	Over 30,000	0.42	2.3

As shown in the detailed analysis of these figures in the report mentioned, which space does not permit us to reproduce, health conservation receives a smaller percentage of the sums spent by cities for governmental purposes than any other major function of government. That a larger expenditure of money for health service is essential to health efficiency no one can doubt, but appropriations for health service must be spent intelligently. It is not invariably true that the community which spends the most per capita for health work gets the most for its money. Other factors, having to do with

the manner in which health appropriations are spent, play a most important part in determining that efficiency. Among the most important of the factors essential to health efficiency is the training of those charged with the expenditure of health appropriations. It will probably be agreed by all who have had an opportunity to see and study municipal health service in the United States that next to adequate appropriations for health work our municipalities need trained and competent health officers, able to appreciate relative values, and with a clear understanding of the practical problems of municipal health service. The part-time physician, untrained in municipal health work, and devoting a small portion of his time to municipal health service, is still found at the head of many of our municipal health departments, and it is in such health departments that inadequate and inefficient service is usually most evident. The first step, then, in improving municipal health service—even before increased appropriations are demanded—should be the selection of full-time trained public health officers who will know how to plan and carry out the work for which increased appropriations may be necessary, and how to develop existing services with economy and efficiency.

Medical training undoubtedly forms the best foundation for public health work, and in the future, as in the past, the medical profession will be chiefly drawn upon to supply public health officers and workers. It is apparent, also, that with the emphasis on the prevention of disease the demand for physicians in public health work will be increased tremendously in the next decade. The burdens which have been placed upon us as a nation by reason of our active participation in the war have had a decidedly salutary effect in stimulating public health interest. As never before in our history, we have been required to take stock of our health resources. The results of the physical examination of the millions of our citizens who have been called into the service of the Government have opened the eyes of all of us to the pressing need of more adequate and efficient health supervision and health conservation. We realize, as never before, just what part is played by tuberculosis and venereal diseases in sapping our national vitality, and we realize, too, the importance of conservation of child life and the reduction of infant mortality and morbidity, to the end that our resources of health may be made as great as possible. The insistent demand for more satisfactory working conditions in industry is shown in the growing volume of provisions for industrial welfare. It is certain that if the age-old differences between labor and capital are ever to be conciliated, there must be also greater concern on the part of private employers as well as the State and municipality for the health of workers.

At a recent meeting of the New York Academy of Medicine resolutions were adopted urging that the need for special instruction in recognition, treatment, and prevention of occupational diseases be brought to the attention of the authorities of the medical schools of New York City; that special clinics for such diseases be organized under the auspices of the medical schools; that the establishment of similar special clinics be urged upon the authorities of the neighboring towns in which large manufacturing plants are located; and that representatives of large hospitals and dispensaries be impressed with the importance of obtaining all possible information regarding occupational diseases. These recommendations were indorsed by the Associated Out-Patient Clinics of the City, and some of the institutions have already taken steps to compile detailed records of the occupations of clinic patients.

Present tendencies indicate, therefore, that municipal health departments will have to consider all of these problems more seriously. Every progressive health department will be required to meet the demands of its citizens for the better protection of child health, the prevention of communicable diseases, particularly tuberculosis and venereal diseases, and the protection of the health of the workers. Since the results hoped for in health conservation are so largely dependent upon the education of the public, municipal health departments will have to develop also more adequate health educational services.

If, as we have assumed, the physicians of the country are to be called upon to meet the tremendously increased demands for public health work, it is certain that our facilities for training in this field must also be increased. Furthermore, the opportunities for training physicians for public health work will have to be developed in such a way as to economize in time and money of physicians desiring to prepare themselves for it. The physician who has been graduated from a medical college after perhaps three or four years of academic work prior to entering the medical school, and who has, in addition, further extended his period of training into the hospital for one or two years, does not look with enthusiasm upon still further extension of his student days into the post-graduate training school for public health. He wants to begin earning and to break the shell of financial dependency in which he has been confined for so long a time. The post-graduate training schools for public health are, of course, to be preferred for those who can afford them—but they do not and cannot meet quickly and economically the need for the training of the large number of young physicians required for public health work.

In order to definitize the problems of training physicians for public health service, there are four questions which must be answered. These are:

1—What is the nature of the training which physicians desiring to enter public health service should receive?

2—What are the existing opportunities for the training of physicians in public health work?

3—How can such training be provided most economically and efficiently for the citizen and the community, and how can it be made so attractive as to draw young physicians from private practice into the field of public service?

4—What are the opportunities of employment for a physician adequately trained in public health work?

Let us consider in detail the first of these questions—that of the nature of the training which physicians should receive to equip them for public

health work. Public health work deals with practical and palpable problems. Efficient public health service requires on the part of the health officer and his subordinate executives first-hand knowledge of the practical problems of the field. His training must therefore be designed with that in view. A sound and thorough grounding in theory is, of course, indispensable to the health officer, but unless that theory is backed up by sound judgment and good common sense in dealing with the work problems of the field—and these attributes can only be tested out through actual experience in the field—it avails little in making one an efficient health officer.

To put the blame for inadequate health appropriations where it really belongs—municipal health officers are certainly responsible to a very considerable degree, in that they commonly fail to produce for the edification of their appropriating bodies sufficient evidence of the need for the activities which real public health service demands. In short, they do not have a program, supported by facts as to field conditions, which is convincing to men unfamiliar with public health work. The health officer who can come before his appropriating body with a clear, concise statement of what needs to be done—backed up by an array of facts as to exact conditions in the field, and who can demonstrate to the appropriating body and the public in general that he knows what he is talking about, usually has little difficulty in securing the financial support necessary. There are scores of municipal health officers in this country who have little real knowledge of the practical problems of inspection for preventable diseases, industrial hygiene, prevention of infant mortality, medical school inspection, and other field work. If efficiency in public health work waits upon more adequate appropriations, practical field experience for the health executive is essential in order that he may plan field work intelligently and be prepared to show the layman clearly what the cost and benefits of his proposals may be.

Assuming, then, that practical field work is an essential for the training of the physician desiring to become a public health executive, what are the practical problems with which he should be familiar? In order that the problems may be illustrated by services with which physicians, particularly physicians of New York City, are familiar, the services offered by the New York City Health Department have been used as a basis since this department has perhaps reached a higher plane of development, in extent of service at least, than any other municipal health department of the country. These services are, briefly, as follows:

I—Control of preventable diseases as exercised through: (A) Diagnostic and research laboratories; (B) Hospitals for contagious diseases and tuberculosis; (C) Clinics for tuberculosis, venereal diseases and industrial diseases; (D) Field inspection and supervision of contagious diseases in the public and parochial schools; (E) Field inspection and supervision of all communicable diseases in the homes of patients and in institutions; (F) Field inspection and supervision of the health of industrial workers.

II—Promotion of child hygiene and prevention of infant mortality as exercised through: (A) Prenatal home visiting and instruction of expectant mothers; (B) Inspection, supervision and education of midwives; (C) Inspection and health supervision of children in institutions; (D) Infant milk station work; (E) Supervision of the health of children of pre-school age; (F) Medical inspection of school children—and the correction of physical and mental defects through home follow-up; (G) Clinics for school children; (H) Physical examination and health supervision of children applying for working papers.

III—Protection of the food supply as exercised through: (A) Inspection and supervision of the production, manufacture, handling, storage, and sale of foods, other than meat and milk; (B) Inspection and supervision of meat in abattoirs, cold-storage plants, wholesale and retail establishments; (C) Inspection and supervision of milk production and distribution in dairies, shipping stations, transportation facilities, receiving stations, pasteurizing and bottling plants and places of local sale; (D) Supervision of the sale of drugs and pharmaceutical preparations, including patent medicines; (E) Laboratory analysis of milk and other foods and beverages.

IV—General municipal sanitation as controlled by: (A) Investigation of citizen complaints and correction of conditions causing them; (B) Inspection and supervision of sanitation in premises, including homes, lodging houses, hospitals and institutions, hotels, etc., *i.e.* housing inspection; (C) Inspection and supervision of other premises where nuisances are likely to exist as barber shops, laundries, public baths, and comfort stations, stables, etc.; (D) Inspection and supervision of sewage and refuse disposal plants and methods; (E) Fly and mosquito prevention work.

V—Vital statistics—compilation and research, including: (A) Methods of collection, tabulation, analysis and interpretation of records; (B) Methods of checking and improving accuracy and completeness of records; (C) Use of graphic methods in interpreting results.

VI—Public health education by: (A) Preparation and publication of annual reports, bulletins, pamphlets, etc.; (B) Lectures, exhibits, newspaper publicity, posters, lantern slides and moving picture films.

As we have said, the services indicated in the preceding outline are those illustrated in the New York City Health Department, but they are services which are offered or should be offered in every large municipal health department and with few exceptions in *every* municipal health department. They represent a wide field of training but a field of training which, in the light of modern knowledge of what public health service demands, should be made available to every physician desiring to enter public health work.

At the present time excellent courses in public health are offered at the University of Michigan, University of Wisconsin, Detroit College of Medicine and Surgery, Tulane University of Louisiana, University of California, New York University, Ohio State University, University of Pennsylvania, University of Colorado. Similar courses are to be opened at Johns Hopkins this fall. All of these schools provide for a certain amount of practical

field work and the courses vary from one to two or more years. The limitation of time, however, makes it necessary, in all of these institutions, to curtail field work somewhat in order that a sufficient amount of classroom and laboratory work can be given. In all courses it is essential that the student be in residence during the period of instruction, and the smallest item of cost to the physician desiring to avail himself of instruction is therefore the tuition fee, which is nominal in most instances.

Admitting all the advantages offered by these various courses in public health, there are certain limitations to the usefulness of these institutions in training physicians for public health work. We have already spoken of the difficulty which certainly exists of inducing physicians who have already gone through a long period of student dependency to continue their studies still further at cost of time and money. Unquestionably, the physician who can afford to spend more time and money in his education for public health work should be encouraged to do so, but there are thousands of young and able physicians who would like to do so but cannot. Furthermore, it is not believed that the post-graduate training schools offer as wide a range of practical experience as is desirable, and practical experience is, as we have said, a most essential part of the training. How, then, can we make available to physicians practical experience as training for public health work and at the same time conserve for them their time and money—our third question.

The "Learn-and-Earn" Plan.—Health service functions are the same in every municipality—the same things need to be done and the ways of doing them have been more or less uniformly established. Almost every large municipality has contagious disease hospitals, field inspection and supervision of cases of preventable disease, medical school inspection, food and milk inspection, laboratory service, etc. If all of these services could be made available as fields of practical training for physicians already in the service, and for those desiring to enter it, the problem of practical training in public health would be solved for a great many physicians who are unable to attend the post-graduate schools. It would be possible, under such a plan, for the physician to learn and at the same time earn, provided he were given an opportunity by rotation of service to obtain experience in all the field services of a health department. We venture to say that if such a plan were adopted there would be little difficulty in recruiting able young men for public health service. Nor would the community suffer in its health protection or be required to spend more money for health service. In fact, the community would benefit considerably in that the service which such physicians would give would be far better than that now given. We have learned in hospital work that the teaching hospital, *i.e.* the hospital which by cooperation with the medical school provides opportunity for the training of physicians in practical bedside work, gains in efficiency in proportion to the extent of its cooperation with the educational institution. There is every reason to believe that municipal health departments would gain also in direct proportion to their development as training schools for public health service. Furthermore, one of the great evils of present medical municipal health service, namely, that of part-time service by physicians would, it is believed, be eventually done away with. The young physician given an opportunity to earn a salary of perhaps $1,000 or $1,200 a year and at the same time become experienced in all branches of public health work would probably be more than willing to give all of his time to health work.

Under the present plan the physician who enters public health service is in most municipalities a part-time employee. He often accepts such employment because "It pays the office rent." He must divide his day between private practice and public health work, and since in the majority of instances he is more interested in building up his private practice than in becoming a public health expert he leaves public health work as soon as his private practice will sustain him satisfactorily. Then, too, as is usual in municipal health departments, the medical inspector finds himself in a comparatively limited field which becomes more and more monotonous as time goes on because the work which he does is routine work, leaving little to his imagination and offering little opportunity for the broadening of his public health vision. In the New York City Health Department, for example, the medical inspector of schools, once appointed by the civil service commission and assigned to that field, remains a medical inspector of schools for as long a time as he remains in the department, unless by some fortuitous reorganization or readjustment of force he may be transferred to another branch of service. But his public health experience is in any case limited not only by the scope of his special work but also by the part-time performance of an increasingly uninteresting routine.

The working out of a plan of rotation of physicians in municipal health service through all branches of service would not be difficult even if part-time medical service were continued, although the most satisfactory plan for the future would be to make full-time service a requirement with the understanding that such full-time service would mean broad practical training in public health. Let us imagine a course of practical training for a physician just entering the municipal health service in New York City. First, he would be attached for a period of perhaps three months to a contagious disease hospital of the Department of Health. Here he would learn by practical experience the diagnosis and treatment of cases of contagious disease, particularly intubation in diphtheria cases, and also something of municipal hospital administration and procedure—a most valuable part of the training that a municipal health officer should have. Next he should have perhaps six months' service as a field medical inspector in the home visiting, diagnosis and supervision of cases of communicable and industrial diseases, and during this period he should also be assigned to the clinics for tuberculosis, industrial diseases, and venereal diseases. If practicable, some experience in the diagnostic and research laboratories would be of value in rounding out the six months' period. For the next six months he should pass through all the various services of the bureau of child hygiene, including prenatal work, midwife inspection, inspection of child-caring institutions, medical inspection of school children, and

the health supervision of children applying for working papers. Three months more might be spent profitably in food and milk inspection work and another three months in general sanitary inspection. Finally, to round out a two or three years' course of training, he should be assigned as opportunity arises to work in connection with the public health education service in preparing exhibits, delivering lectures, etc., and in vital statistics, compilation, and research. In all of these services physicians can be employed to advantage and if full-time service instead of part-time service were required, far greater work accomplishments would be possible than is now possible with part-time service, and fewer physicians would be required.

The advantages of such a plan would be not merely that a large number of physicians would be well trained in public health work, but that the physicians would have an opportunity to find out for themselves the work for which they are best fitted. A poor medical inspector of schools might be an excellent inspector of industrial diseases, and he would probably wish later to specialize in that work; an unsuccessful clinic physician might find that he could make field investigations of contagious diseases more effectively, and he would undoubtedly direct his attention to epidemiological work. This sifting out of men by virtue of their special predilections or adaptability would eventually mean a generally improved health service for the entire department.

Finally—our last question—what opportunities would be available for men so trained—not only within municipal departments of health, but in other services. The opportunities for trained men—men with broad public health training and experience, are especially good in the health department of New York City and other large cities. In New York City, with but few exceptions, positions of large responsibility in the department of health as directors or assistant directors of bureaus, and as supervisors of various branches of medical field work have been filled by promotion from the ranks—and under the prevailing civil service rules in New York City decided preference is given to the promotional method of filling the higher position. The proposal by the New York City Department of Health in 1917 to extend the district plan of health administration beyond the experimental districts, opened the way—if the plan had been adopted—to the promotion of a great many physicians to positions as district health officers. Under this plan the district health officer would have become in fact a municipal health officer with practically all the duties and responsibilities of a health officer of a city of at least 100,000 population. It is significant that when the New York City Health Department contemplated the extension of the plan of district health control, the number of physicians qualified to act as district health officers was so small that special training courses under the supervision of its own specialists had to be established by the department to qualify and select men who could act as district health officers. The very fact that health department physicians, many of whom had been in service a number of years, were not, in the opinion of the Department, qualified by experience and training to act as executives indicates the weakness of the present plan of assignment of physicians to routine service. Had such a plan as this paper suggests been in effect for a few years, competent trained physicians to act as district health officers could have been found, it is believed, without great difficulty.

As regards opportunities for physicians in public health service in other cities we have only to scan the "Help Wanted" column of the public health and medical journals. For example, in a recent issue of the *American Journal of Public Health*, there were calls for:

A chief social worker with experience in venereal disease propaganda. Salary to start $1,400.

A live health officer for a town of 8,000. Salary $1,800.

An executive secretary for a public health association in a large Western city. Salary $2,000.

A county health officer in a south Atlantic State. Salary $2,500 to $3,000.

A statistician (physician) for a central State health department. Salary $2,000.

A hospital superintendent for a tuberculosis hospital in New York State. Salary $1,500-$3,000 and maintenance.

Medical men for administrative positions, preference being given to men with a year of hospital or public health work. Salaries beginning at $3,000 and promotion to $4,000 and $5,000.

A medical man familiar with hospital and public health problems for editorial work in Chicago or New York City.

These are but a few of the many demands for trained medical men in the public health field, but they illustrate very well the wide range of service in which trained workers are needed. Opportunities are now being offered by industrial corporations for men having experience in industrial hygiene to organize and carry on industrial welfare work; private health associations, chambers of commerce, bureaus of municipal research, and other agencies are seeking trained men with public health knowledge; the United States Public Health Service and state and county health organizations need trained men to direct their work, and if in the future a national department of health is developed, still more trained physicians will be needed. Not only in this country is there a constantly growing need for men with practical experience in public health—a demand which after-the-war health problems will greatly increase—but there will be the widest possible field for such trained men during the reconstruction period in other countries after the war. As yet the salaries paid public health officers and health experts in Allied lines of civic work are not what they should be. But the surest way to hasten the tendency already evident to a higher salary rating of public health workers is to qualify the men who enter public health service so that their services will be worth more. The broader the vision of public health service which its workers receive through the more practical training here recommended, the higher the salaries they will command. The time is coming, and indeed is not far distant, when the health officer's wage will be in direct proportion to his competence.

The plan of practical training of physicians for health work which this paper suggests is offered

chiefly to stimulate discussion as to the practicability of such training in large municipal health departments, such as that of New York City. It is admittedly merely a sketchy outline of principles rather than a nice drawing of the machinery needed.

There are, of course, many difficulties apparent in applying such a plan to municipal work, and perhaps a brief statement of some of these difficulties will assist those interested in crystallizing a more perfect plan. First, there will be encountered in most cities some political opposition to the utilization of a municipal health department as a training school. The argument will be raised that it means waste of the taxpayers' money. There will be also opposition on the part of some part-time physicians already in health department service to any scheme of rotation through various fields of work because it will mean more work for them—already adjusted as they are—to a certain part-time routine. Some other physicians will, of course, be unwilling to change from a basis of part-time to full-time work, and the plan will not, therefore, appeal to them, although, as we have said, full-time service, though desirable, is not absolutely essential to the plan. Then, too, the adoption of such a plan would mean for New York City, at least, a changed civil service procedure, and a changed budget procedure. Physicians would have to be assigned to the health department merely as "health physicians" and their assignment determined by the health authorities instead of being assigned as medical inspectors to certain special fields of work which the budget defines from year to year and for which special civil service examinations are held. The civil service difficulty might be obviated by considering physicians under training merely "probationers," their appointments to be confirmed at the termination of the training period. Their experience while in training and their adaptability to special work should under such circumstances be a factor in determining their civil service ratings and appointment.

But none of these difficulties is insurmountable. If the plan is found to be a sound one and worthy of adoption in the Health Department of the City of New York, all of these difficulties might be eliminated through the proper cooperation of everyone concerned. Its successful operation in the Health Department of the City of New York, which is considered a leader in public health work throughout the country, would mean its adoption in other municipalities and eventually a much higher standard of municipal health service than is evident at the present time. The facilities for the practical, efficient training of public health workers are at our very doors and the men for the work will be ready when the facilities are so organized as to train them without unnecessary sacrifice of their time and money. Is it not practicable to bring facilities and men together on a "learn-and-earn" basis?

Potato Exposition in Germany.—A potato show was held in Berlin, February 19. A new species, named for Hindenburg, is said to surpass all competitors. Potato dishes of all kinds were demonstrated and even potato whiskey. Everything possible was done to promote the cultivation of the tuber, yet the crop has failed.

THE PSYCHIC ELEMENT AS AN IMPORTANT FACTOR IN THE DEVELOPMENT AND TREATMENT OF PEPTIC ULCER.*

By JACOB KAUFMANN, M.D.,

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A RATIONAL and successful treatment of peptic ulcer may be expected only when we are able to clear up and eventually eliminate those causative factors which, in a given case, provoked the ulcer.

Clinical observations have convinced me that in different cases different factors come into consideration, either more or less combined, or with one cause as the principal one.

To-day I wish to single out for discussion the fact that in one group psychic influences—great emotional display, nervous shock, unduly prolonged or intense mental strain, and overexertion play a prominent causative rôle in the development of the ulcer.

As a rule we are dealing here with high-strung, excitable individuals who are prone to indulge in overactivity. Not infrequently they are strongly built, energetic people who lead a very active life in many respects, and in whose histories we find that periods of mental or emotional excess regularly precede the periods of gastric suffering and ulcer symptoms. In the histories of other cases the mental exertion and the emotional strain do not stand out so prominently as unduly great, but they are relatively so for the given individual. It often happens that smaller psychic annoyances, over a certain period of time cause only a milder form of gastric disturbance until the advent of some greater psychic taxation acutely aggravates the condition, provoking pain and other signs of more severe gastric irritation, eventually leading up to the fully developed ulcer picture.

When we take the trouble to inquire into the mode of living of our patients, we can hardly overlook the fact that a causal relationship exists between psychic activity and peptic ulcer formation. Not so obvious, however, is the mechanism of this causal relation and we enter upon unsafe grounds when we try to explain its working. I shall not venture too far into theoretical fields, but shall restrict myself to the brief sketch of some considerations which may, possibly, yield the basis for an explanation.

The intimate connection between the mental state and digestive activity and its disturbances, long known to the laity as well as to medical observers, was experimentally demonstrated by Bidder and Schmidt, Schiff, and later more extensively by Pawlow, Bickel, Cannon, and others. For our question I refer especially to the part of Cannon's work which deals wtih the influence of emotional states on adrenalin secretion and the influence of adrenalin on the activity of the alimentary tract.

Attempts have been made to correlate the effect of adrenalin on the function of stomach and duodenum, with peptic ulcer formation. Some investigators succeeded in producing gastric and duodenal ulcer in animals by repeated injections of adrenalin while others achieved the same re-

*Read before the American Gastro-Enterological Association in Atlantic City, May 6, 1918.

sult by adrenalectomy.* Clinically it may be pointed out that the type of duodenal ulcer which is observed after extensive burning of the skin may be the result of the destruction of a great part of the chromaffin system in the burned area.

However, not only the adrenals get disturbed by psychic irritation, but with their intimate interrelation, other endocrine glands become involved, especially the thyroid. Experimental research also records the finding of ulcerations in the stomach and duodenum after partial thyroidectomy. I quote these experiments to indicate the trend of opinion of investigators who try to show that dysfunction of the endocrine glands may create the basic conditions for the formation of ulcers.

In speaking of the endocrine function we should bear in mind that it is closely interlinked with the function of the vegetative nervous system, the tone of which on the one hand is said to depend upon the secretion of the endocrine glands, while on the other hand, the activity of the endocrine glands is regulated through stimulation by the vegetative nervous system.

It must be admitted that there is still a scarcity of facts which would support the theoretical claims by demonstrating that internal secretory disorders and the correlate derangement of the vagus and sympathetic nervous system may be responsible for such functional disturbances as spasm, increased secretions of gastric juice with diminished amounts of mucus† which we consider essential elements in the pathogenesis of peptic ulcer.

Furthermore, before we can fully utilize this conception in explaining the causative rôle of psychic influences, other problems will have to be solved; for example, the question why the same emotional and mental upsets provoke in one patient peptic ulcer, in another, bilious attacks, in a third, bronchial asthma, in a fourth, arterial hypertension, in a fifth, Graves' disease, and so forth. It seems that the examination of constitutional characteristics and anomalies, which has lately been greatly stimulated by the study of endocrinology, is throwing a good deal of light upon this intricate question. Without taking up the discussion of this topic we may say, in a general way, that the combined disorders of the endocrine function and of the vegetative nervous system, when provoked by psychic irritation in individuals of a certain type or under certain conditions, react particularly on the stomach and duodenum. This reaction, which manifests itself in spasm and secretory disturbances, may produce erosions. I would like to emphasize that it is the frequent repetition of the reaction which gradually changes the growing initial, anatomical lesion of an erosion into an ulcer, and which finally accounts for the chronicity of the ulcer.

While we may leave it to future investigators to define more specifically the manner in which psychic influences act in bringing about the formation of peptic ulcer, about one point there can be no doubt and that is, that once the causal relationship is recognized we have to take it into account in laying out a plan of treatment.

Whatever other medical or surgical treatment may be indicated, according to the condition which the case presents, the final result, especially the prevention of recurrences, depends to a high degree on the possibility of eliminating further periods of display of harmful psychic influences. With this object in view, we must enlighten the patient on his shortcomings, we must advise him to avoid emotional excesses and to redress faulty habits of mental activity. This may involve a thoroughly revised mode of living and eventually necessitate a change of occupation.

One of my patients, a young lawyer, was subject to periodical mild attacks of gastric hyperacidity. While he was trying an important case in court the gastric disturbance became more and more pronounced as the proceedings drew out over a longer period of time, until one particularly hard day repeated attacks of violent gastric pains occurred, followed by a profuse hematemesis, in court. After a strict medical ulcer treatment the patient fully recovered from the severe anemia and since he remained free from subjective symptoms, he forgot the advice given him, and a year later again conducted a difficult long drawn out case in court, when he met with the same experience of quickly increased gastric suffering winding up with a profuse hemorrhage. This time the advice held good for two years when the perfect recovery led him to think that he now could stand up under the strain of a prolonged court trial. The third hemorrhage coming on under the same circumstances finally convinced him, and after abstaining from the exacting and exciting court work and restricting his activity in law to office work he escaped further attacks of severe gastric suffering and bleeding.

It is certainly not always possible for patients to give up an occupation for which they are temperamentally unfit, nor is it an easy task for them to modify their mental and emotional habits. But the difficulty encountered here is not greater than with other diseases, the treatment of which calls for a different mode of living and a change of occupation. With proper direction a good deal can often be accomplished and when a change is feasible, as in the case quoted, a favorable result may be obtained. On the other hand, experience has made it clear to me that it is the utter disregard of primary causative factors, such as harmful psychic influences, which accounts in many cases for the frequent recurrences with which we are so familiar in peptic ulcer. This applies not only to patients who are treated medically, but just as much to those who undergo operations.

I have the records of a number of patients who, in spite of several successive gastric operations, had recurrences because, in the after treatment, no attention whatsoever was paid to the mental and emotional upsets, which, after a more or less extended interval invariably brought on a renewal of the ulcerative process. One of these patients, a highly neurotic trained nurse, had not less than four gastric operations performed for attacks of ulcer symptoms and hemorrhage. Then another attack with profuse bleeding occurred, a surgeon

*For literature and discussion of the topic, see G. A. Friedman, *Arch. of Diagnosis*, Jan., 1917.

†J. Kaufmann: Lack of Gastric Mucus and Its Relation to Gastric Ulcer. *Amer. Jour. of Med. Sciences*, Feb., 1918.

proposed a fifth opertaion which the patient declined. A study of her history showed that she was very ambitious and periodically indulged unreasonably in overwork, gradually getting more and more excited, and that such periods of mental and emotional excess were usually followed by pronounced gastric suffering often associated with hematemesis.

We must realize that operative measures are not essentially causal methods of treatment. Surgery may deal successfully with the sequelæ of ulcers, with stenosis, perforation, and so forth. A gastroenterostomy may prove helpful in combating the ulcerative process by disrupting a vicious circle; but no kind of operative proceeding, not even the complete resection of the ulcer, will prevent recurrences so long as the original causative factors which provoked the formation of the primary ulcer are allowed to come into play again.

As we have seen, psychic elements may form an important and, we may add, a frequent primary cause.

I stated in the beginning that other exciting causes may provoke the development of peptic ulcers. Among these the reflex irritation from diseased abdominal organs is at present over emphasized; while other causes of irritation, for instance, those due to errors in diet, alcohol and tobacco are disregarded to an astonishing degree. Every one of the various causative factors will have to be taken into account if we wish to secure a more lasting effect than is usually afforded by the customary set methods of medical and surgical treatment.

From my own experiences I have reason to believe that the proper consideration of all causative factors during the initial stages may serve as a prophylactic measure in preventing the full development of the ulcer.

52 East Fifty-eighth Street.

HYSTERIA VERSUS NEURASTHENIA.*

By SIEGFRIED BLOCK, A.M., M.D.,

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There are few more bewildering and indefinite series of symptoms that go into a single medical entity than those that form the groups which are designated by the above title. The general practitioner often calls any illness he cannot diagnose, unless there be a large physical deformity, a functional neurosis. In fact, from a rather extended experience it does seem that many practitioners are not decided, often, into which category to place a given case. This thought prompted the subject of this evening, which the writer hopes will be of much value to us all.

As an introduction, let us not forget to distinguish an imaginary illness from a functional disorder. An imaginary illness is an hallucination of sickness. A functional disease is a disease whose organic cause we are unable to elicit, yet something real is wrong. An imaginary illness is not real. It is a true hallucination. Neurasthenia and hysteria are functional diseases. A neurosis is a functional condition of the nervous system. A psychosis is a functional condition of the mind. A neurasthenic patient is more of a nervous patient, while a psychasthenic is a sufferer from a mental condition principally.

It is not difficult to conceive that an hallucination may take any form, hence paralysis, aphasias, etc., are quite common. In hysteria we also get any kind of symptoms, but neurologists use this term only when definite signs, called stigmata, are present. In this way we have an entity presented just as distinct as typhoid fever or pneumonia. But as in typhoid and in pneumonia, doubtful cases do exist.

An easy way to distinguish to one's self the difference between hysteria and neurasthenia is to conceive the idea that a neurasthenic is hypersensitive to external stimulation, while an hysteric is hyposensitive to the same stimulation. This is not true so much in the physical sense as in the psychological conception of stimulations. For example, sticking a needle into the arm of a neurasthenic make him jump, often before the needle touches the arm. The thought makes him shriek. The hysterical person cares so little that he presents areas of anesthesia. The point I desire to present is a rather original conception of these conditions. A highly neurotic individual has lost control of his power of inhibition. The highest power in man is his self-control. The brave soldier has a high type of nerve makeup, unless he happens to belong to the foolhardy, daredevil type, in whom a question of proper mental development is involved. If he is unemotionally aroused by his fellows in an attack, if he does not care what becomes of himself, he is apt to suffer from hysteria. If such a soldier, of the hysterical type, should be subjected to a sudden shock from a shell or other cause which is strong enough to overpower his "I-don't-care" disposition, he may show a condition which, for the want of a better name, is at present termed shell shock. In other words, shell shock is hysteria caused by the stress of battle. Neurasthenic persons are the least likely to get genuine shell shock.* These two states of make-up are diametrically opposed. When a diagnosis of hysteroneurasthenia is made, it is fair to assume that the diagnosis is unknown positively, and, as in the use of typhopneumonia, or some other combination of illnesses, the term is employed to hide ignorance.

If the mental levels are divided into conscious, unconscious, and subconscious, the hysterical states must be placed in the subconscious class. That is to say, these patients are mostly in a state of mind similar to the dream state. Pierre Janet claims that somnambulism and hysteria are synonymous, and many of the amnesias can easily be compared to a somnambulistic state. When such cases begin to regain their memories they wake up as if from a sleep. So may also be explained many cases of dual personality. As dreams have no influence over the conscious mind, and are frequently forgotten, so a dual personality may have no bearing on the normal working mind. To relate an interesting case which I saw with Dr. Eastman, to illustrate this point, may be in order.

*Read at a meeting of the North Brooklyn Medical Society, Tuesday, May 28, 1918.

*Just now almost every nervous or mental disorder developing in battle is being termed shell shock—from paresis up or down the whole line of nervous disorders.

A foreman of painters in Philadelphia was out of work for several days. He bought a morning paper and saw an advertisement for work. Then he took a Market Street car and was not heard from again until eight months later when a letter was received by his wife from the Cook County Hospital in Chicago stating the man was about to be discharged from the Institution as cured. A few days later he returned home as well as ever. He did not know how he came to this hospital. He had a large abdominal scar for which he could not account. After a time he moved to Brooklyn and we succeeded in getting the following history from him. He was surprised when told what we gathered from our many talks. We succeeded in verifying our story.

It seems on his way to work he saw an auction room where he spent his loose change. Being afraid to tell his wife of his extravagance he pawned his watch and with the money he bought a ticket for Chicago where he obtained employment in a varnish factory. After a time he was seized with what he thought was painters' colic. Anyway he went to a private hospital and was operated on for appendicitis. When his funds gave out they told him he would have to leave and with his wound not fully healed he went to the Cook County Hospital. A letter we received from the hospital stated the man came there, with stitches not removed and fresh dressings on an abdominal wound, and applied for admission. They state that he did not know his name, address, or from whence he hailed. After his stay in this hospital for three months he awoke one morning, expressed surprise to find himself in this institution and gave his Philadelphia address as his home, for which he left very soon thereafter.

This patient had all the symptoms and stigmata of hysteria. These stigmata are so well described in textbooks that I will mention only the most prominent ones. Before doing this as each one is mentioned let us consider it in the light of first intimated as the outstanding element of an hysteria; that is to say, not absolutely conscious in the strict sense of the term—as if the mind were covered with a veil or haze. The right thigh and leg were entirely anesthetic. This anesthesia terminated in a straight line on the level of the scrotum; that is, it was a stocking or legging anesthesia, without any connection with nerve distribution. Pins could be introduced, hot test-tubes applied to this area, and the man said he did not feel them. There was no atrophy, no limping, and no difference in knee or ankle reflex between the two sides. Although the man consciously did not state it, subconsciously he did not appreciate the sticking, etc. He did not care much what we did to him.

His palate was anesthetic. He would not gag nor would the pillars of the fauces move when the pharyngeal reflex was examined. We could put almost any kind of instrument into this area without result. This may be explained in the same way as the leg anesthesia.

His visual field was contracted. Whatever he perceived through his eyes he did so as if he looked through a pipe or a tube. He did not see sideways or in the vertical plane as well as most normal persons do. His retina was partly anesthetic to visual stimuli. The contraction was very concentric, even in both eyes, regardless which colors were used for the test.

His memory was quite normal. His only complaint was general weakness, irritability of temper, and a lack of ambition to work. The tests proved that an imaginary sickness was not his lot, but a real genuine hysteria.

Another case seen with a physician some time ago was that of a lady who became lame one night rather suddenly. She passed under the shadow of an electric light. When she stepped into the round, dark spot she thought it was a hole for a moment and has been paralyzed since. She cannot move her right lower extremity. There is quite some atrophy from disuse. When asleep, if the sole of her foot is tickled she draws it up and turns it, showing that the power of motion is intact.

This lady was brought to the hospital in a carriage by her son. She is now dying from infected bedsores. From lying on her buttocks in the bed which she wets continually she has so worn out her gluteal regions that both ischial tuberosities are exposed. She has been told that by pressing on a certain point along the tibial shaft her paralysis will disappear while pressure is made and that then she would be able to move her foot and leg. She responds very well but she claims she cannot find the place herself although we have marked a spot with iodine. We have tried plaster casts, etc., but have had no luck with her. She also has some of the characteristics of hysteria.

The hysterical persons are always hysterical, but some nerve strain is necessary to bring about a symptom which is severe enough to direct medical attention to the patient.

Neurasthenics are of a different type. These persons suffer from a nervous system which is especially susceptible to exhaustion. They constantly live in a state of nerve tension. They are always at top notch, and it is easy to conceive how much less strain it takes to wear them out who are already overworked than it does to wear out an even-tempered normal individual. They are never at rest. Even when they get up in the morning they complain they do not feel rested from the night's sleep. Many of them have insomnia and do not sleep at all. They worry over trifles, so that when a cause for real worry comes they cannot combat it well, and often get what is called a nervous breakdown or nervous prostration. Thus these people become incapable of prolonged physical or mental work. They become envious of others who are able to accomplish things, they become unhappy, and often give up their occupations in disgust, and at times commit suicide. They always complain of their troubles; even little inconveniences hamper their already partially exhausted condition.

On February 26 of this year Dr. Lippman asked me to see a man who had not worked for several months on account of a nervous condition which he could not make out definitely. The man, about fifty years old, an Englishman, complained of every conceivable symptom of a subjective character. He had headache at times, was constipated, had tremors he said, suffered from insomnia, and was always tired. He had an exceptional opportunity for getting government contracts for work but he did not feel that he should undertake such work in his condition. I saw the man three times at my office. At the first visit after a thorough examination I told him I could see no reason for his feeling so ill and he gathered new hope. He returned in a week and I told him he was somewhat improved. The following week the same thing was repeated and he again returned feeling better. At this latter visit I explained to him that I did not think it was necessary to come so often and that his whole condition was more subjective than anything else. He took this to heart and the same evening committed suicide.

This case is a fair example showing how wrong it is to take away the least bit of hope that these patients have.

Another neurasthenic sent by Dr. H. H. Morton was a man who claimed he could have sexual relations with any woman except his wife. He could not get an erection when he attempted the sexual act with his wife. If he dressed another woman like his wife it was quite satisfactory, but if he dressed his wife like another woman with whom this act could be consummated it was a rank failure. No matter what method he used he was unable to satisfy his better-half. This man is now well after going through the enforced rest-treatment described at the close of this paper.

Doctor X., a physician, with a very large practice among the poorer class of patients, was a patient for six weeks. The principal points of interest in this case are that he made on an average of thirty calls daily. He saw forty or fifty people in his office and had calls regularly each night. He not only acted as physician to his

clientele but was the adviser for what they thought were important matters. He became a nervous wreck, irritable, lost his appetite, was always tired out, and felt his inability to work any longer. He knew he needed a rest, but he was so nervous and impatient that whatever he did he could not remain quiet long enough to get properly recuperated. He was in two different sanatoriums looking for treatment but they "got on his nerve" as he expressed it.

This was a typical case of neurasthenia. Milder types are very commonly encountered in medical practitioners, lawyers, school teachers, ministers, business men, etc.

A lady, the wife of a prominent business-man many years older than herself, had three daughters. The husband treated the wife as a child. The daughters had been in college and are bright, active young ladies with ideas of their own. The father died a few years ago leaving the mother who is about forty-five with these girls over twenty. They were all companions when the father was alive—treated as children of an old gentleman. Now the mother wants to be the ruling factor and the clashes which have been occurring regularly have caused the daughters to seek aid for the mother who was suffering from a fatigue typical of neurasthenia. She was in Florida to recuperate physically, but mentally she was at home and her trip was next to useless. It was necessary in this case also to resort to the enforced rest treatment before a desirable result could be realized. It may be stated that although the daughters moved from the home previous to the enforced rest treatment, mentally they were living in close quarters.

Summing up the cardinal points of difference in these two conditions, they may be briefly tabulated about as follows:

HYSTERIA.	NEURASTHENIA.
Areas of anesthesia.	No areas of anesthesia. Hyperesthesia more common.
Contracted visual field.	No contracted visual field.
Anesthetic palate.	No anesthetic palate.
Most symptoms are *objective.*	Most of the symptoms *subjective.*
Subconscious state of mind predominates.	Conscious mind predominates.
Dreams, somnambulistic states, fugues, dual personalities, etc., common.	Insomnia from disturbed peace, no dual personalities, etc.
Mental apathy to surroundings for objective reasons.	Mental apathy because patient is taken up so much with his own suffering.
Fake attempts at suicide.	May commit suicide when no one is watching.
No especial tendency toward fatigue.	Fatigue an important symptom.
Convulsions common.	Convulsions rare, practically none.
Excessive suggestibility.	Almost incapable of receiving suggestions.
Heredity very common.	Heredity of no importance.
Onset of many of the symptoms abrupt.	Gradual onset.
Cures often abrupt.	Cures very gradual.
May imitate almost any sickness.	No imitation of another disease entity.
More common in females.	More common in males.
Essentially a psychoneurosis.	Essentially a nerve exhaustion.

Treatment.—The treatment of hysteria depends entirely on the individual case at hand. No definite rules can be laid down. If a cause is suspected it should be removed, if possible; especially if there is a familial tendency toward this condition the environs must be altered. These people are very open to suggestion, and any form of treatment appealing to the fantasy of life is valuable. It is for this reason that electric baths, Christian Science, New Thought, chiropractic, osteopathy, magnetic healing, and the thousand and one other kinds of suggestive therapeutics have cures to their credit. The general hygienic procedures, as cleanliness of all the emunctories, simple, healthful diet, moderate exercise, and a correction of all physical defects, must be rigidly insisted upon in each case.

Neurasthenia is treated in a very different way. As in other forms of disease, it is necessary to seek a cause, and remove it, if possible. *Rest* is the essential point to be thought of in every case—rest in diet, rest from irritating environment, rest from physical and mental labor, rest from ordinary forms of medicines which did not bring about the results which were desired. In many cases the patient is too worn out to submit to a quiet life. He cannot go away for several months or a year. He has become so irritable that he cannot be without some form of excitement for any extended period of time. He is impatient. For these and allied conditions the author has devised a new line of treatment which has been in use now about five years in a large number of cases. The results have been very gratifying, and many patients have returned to their former occupations cured.

In a paper of this kind it would take too long to outline the whole treatment, which was first read in detail at the Brooklyn Neurological Society on November 1, 1916, and published in the *New York Medical Journal* the following February. The principle of the treatment is to *enforce* the rest upon the patient. Gradually, in a hospital, or with a trained nurse, mail, newspapers, friends, telephone inquiries, food, etc., are all stopped. Even the room is made dark. By the fourth or fifth day in a hospital these restrictions can usually be enforced. Now the patient is subjected to a course of narcotic medication which keeps him asleep, or at least drowsy. This continues according to the case, and the much sought after rest is obtained. In most cases, two weeks in a hospital are worth more than months at a resort where healthful waters are drunk or a vegetarian diet given as a panacea for all bodily ailments. Before the patient leaves the hospital eliminatives and restorative treatments are ordered. One point to be remembered is that the narcotic drugs must be so altered that the chance of habit formation is eliminated.

In conclusion we must make a proper diagnosis, and not treat an organic condition as a functional disease. As time progresses, many of the so-called functional disorders are being more definitely classified, and what we cannot properly diagnose should not be classed as functional. The author is desirous, also, of emphasizing the fact that the great idea of a sexual background of so many nervous conditions is rapidly waning. Dream interpretation, of course, is an interesting study, and it may have a slight connection with some of these conditions; but in the present state of advancement of medical science it is too abstract to be of much real scientific value.

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THE BROADENING FIELD OF MENTAL MEDICINE.*

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I have undertaken this paper to discuss the present survey and help[illegible] psychiatry and to attempt to indicate what greater opportunities the near future seems to hold in store.

First, however, let us contrast the conditions generally found a few years ago, but now rapidly disappearing from view. Less than two decades have passed since the practice of psychiatry was almost exclusively limited to the hospital for the insane, or asylum as it was almost universally termed. Psychiatry was separate and a thing apart from general medicine. There were several factors which produced this divorcement. First, the isolation of the hospital, usually built seven miles from nowhere and consequently difficult of access, and effectually removed from social and medical centers and general hospitals.

Second, was the general attitude held toward psychiatry and mental diseases by both medical profession and public, which combined apathy or antipathy, ignorance, and superstition. In the medical schools there was very little psychiatry taught, and often none at all. Small wonder then that few young physicians were attracted toward it as a specialty and that those who were came often poorly prepared, or attracted merely by salary and free maintenance as a stepping stone to other branches of medicine. Some, however, were inspired by a sincere effort to live up to high ideals of medicine with hopes of successful research and new discovery. To the latter group let us pay our respects and pause a moment to see what happened irrespective of motive in the majority of instances. Once on the asylum staff the process of divorcement from general medicine and its stimulating interests began and quickly settled into humdrum routine; in a year or two the young psychiatrist became thoroughly institutionalized with ankylosis of initiative and stasis of medical advancement—a life member of the institutional lotophagi. It is interesting to note the development of a definite institutional type among asylum physicians, the product of the old-time routine and lack of sufficient outside interests, as well as the reaction of the generally hopeless and helpless feeling that nothing could be done for the majority of patients.

But fortunately for both patient and physician there has been a psychiatric renaissance. After many dormant years this country at last awoke to the advantages of the European psychiatric clinic in close touch with the university and general hospital, and we note the establishment of the Psychopathic Hospital at Ann Arbor, Pavilion F at the Albany Hospital, Boston Psychopathic Hospital, and the Phipps Psychiatric Clinic all within a decade. It is difficult to realize what a great advance all this represents, so rapid has been the march of events. With new ideas and new hopes, asylums became hospitals, physical restraint began to disappear, and the application of individual treatment as for many other sick patients was inaugurated. With diversional occupation in great variety and a general employment of a large majority of patients, life in a hospital took on new interest for patient, nurse, and physician and gave far better results in recoveries and improvements. The establishment of clinical and pathological laboratories meant greater accuracy in diagnosis, better study of cases, and a more rational and effective therapy, and medical school, general hospital, and mental hospital were brought closer together.

The psychopathic clinic in proximity and cooperation with the medical school and general hospital has stimulated and facilitated the teaching of psychiatry and is greatly increasing the number of medical students who choose it as a career. The psychopathic clinic, easy of access with voluntary admittance, has also done much to dissipate popular superstition and misconception concerning mental disease. But the psychiatric renaissance has reached out beyond the institution, and here the field broadens.

It is now about ten years ago since the first organized effort to supervise and assist discharged or paroled mental cases was made in New York. The value of after-care was at first slow to be appreciated, but of late it has gained in Massachusetts, New York, and Maryland an impetus that will give it widespread application. The hospital residence of an average case is hardly more than a biographical cross-section of the life history of the patient, and no longer is it good practice or good policy to neglect what has gone on before, or to withdraw our interest and assistance as soon as the patient steps out over the hospital threshold. Organized first as a private charity, the State of New York several years ago took over the after-care work that had been begun in 1906; and it is now a regular part of the hospital routine. In 1915 New York and Massachusetts State Hospitals greatly increased their sphere of usefulness by inaugurating dispensary clinics for mental and nervous cases held sometimes at the institution, but often in some city within the hospital district. This innovation, added to the placing out and after-care service, marks a new epoch in psychiatry that will prove to be also an important factor in prevention and will bring the hospital still closer to the public.

The great modern trend of medicine toward prevention has been shared in prominently by psychiatry with large forces actively working in this direction. In addition to the State Hospitals and its newer ramifications above referred to should be mentioned the social service departments of psychopathic hospitals of which Boston, Johns Hopkins, and Bellevue are excellent examples. Mental Hygiene Societies, notably in Connecticut, Illinois, Maryland, and Massachusetts and the National Committee for Mental Hygiene are doing a great public service in disseminating the knowledge gleaned from the hospital, clinical laboratory, and other research agencies. Of the latter, two in particular should be mentioned, the Eugenics Record Office and the Vineland Labora-

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tory. Both have performed most valuable services in the study of heredity, particularly in strains exhibiting insanity and feeble-mindedness.

It is particularly noticeable how in recent years the focus of interest of psychology and sociology has been toward the deviate and subnormal, and we hear much of practical economic and medical psychology, the latter sounding very much like psychiatry. The Binet-Simon measuring scale for intelligence, the production of two French psychologists, since its advent in this country has lent new impetus to the study of the feeble-minded and delinquent and at once furnished a new field which has attracted many workers. One of the results of this field of endeavor has been considerable overlapping of the psychologist and the psychiatrist, or as some would have it an overstepping on the part of the psychologist into the domain of medicine. If such has been the case the psychologist is not to blame as there has been no one else to do the work. However, the situation has created a demand for the psychiatrist with training in laboratory and applied psychology, such a physician being far better equipped to meet the needs of the situation than the psychologist with no medical training. The study of the feeble-minded and the delinquent seems to offer common ground for both the psychiatrist and the psychologist, but the latter's particular domain lies in experimental and laboratory psychology, while clinical work with the mentally abnormal and subnormal, whether they be found in the school, dispensary, or hospital should be the province of the psychiatrist. The spectacle of the non-medical psychiatrist making a medical diagnosis and suggesting treatment should never again be witnessed. The situation calls loudly for a new brand of psychiatrist with sufficient training in applied laboratory psychology to apply intelligence tests intelligently and be able to analyze and interpret the findings in the light of which remedial measures and suitable occupation may be supplied.

Occupational diagnosis, as it is carried on to-day in a few factories and other industrial corporations, seems to be more properly the sphere of the psychologist, although the need of medical training is often manifested even here, but occupational diagnosis among the subnormal is the function of the psychologically trained psychiatrist.

The school systems are gradually appreciating the need of particular care for the backward and deviate child, and we are on the eve of a rather widespread imitation of the Child Study Bureau of the Chicago Board of Education. Progress seems slow, however, when we realize that this particular bureau has been in existence twenty years. The value of such work in placing the child in the proper special class or school cannot be overestimated, if indeed, the bureau was not the active agent in obtaining this special means of training. Then, too, such a bureau can quickly detect the feeble-minded. It is now generally appreciated that it is best for the child and most economical for the State that this condition, if present, should be discovered early in the school course. Such a child should be registered or recorded as feeble-minded, and never lost sight of. With the proper supervision applied the State would be saved great sums now required for police, penal, and custodial institutions and the reproduction of the feeble-minded would be greatly diminished.

The discovery of the moron and the realization of the economic loss that is entailed through the antisocial conduct of this class is [illegible] grounds of suggestion credit. The matter. The problem of the "corrective" institutions, "rescue" homes, and "industrial" schools is in the majority of cases the problem of the moron, although not very frequently recognized as such. Indeed, this class of trouble makers even to-day goes generally unrecognized. From judges on the bench down to the ordinary layman there is a startling need for education and appreciation of what these subnormals do and do not do.

The recent work of Stearns and Rossy in the Massachusetts State Prison shows what a large percentage of the convicts (22 per cent. in the first 300 prisoners examined) are definitely morons, and in addition there are 11 per cent. "borderline" cases. These figures point the way. There is no question that when the moron is better understood a new criminology will be written. At present the law takes no cognizance of and makes no provision for him. Goddard's book, "The Criminal Imbecile," will arouse great interest as it shows how important is the psychiatric examination of the antisocial. Already a few courts have made such provision, notably the Chicago Municipal Courts where Judge Olson several years ago established a psychopathic laboratory in which suspected cases may be examined prior to trial. There is not the slightest doubt that Judge Olson's far-sighted innovation will be copied in all large courts throughout the land. In the domestic relations court particularly are the services of a psychiatrist required. Probably in no other court does disease of the central nervous system occur with greater frequency. Alcoholic psychosis, paranoias, and feeble-mindedness are the common types witnessed, and the spectacle of a husband suffering from one or the other of these being sent to jail or the House of Correction on non-support charges is frequently seen.

The day will come and it may not be far off when the law will make it impossible for the feeble-minded and unfit to mate legally, and in determining who shall and who shall not marry the services of the psychiatrist will be indispensable. Not only will a new criminology be written but a new penology. Each year shows a greater use of the indeterminate sentence and an intelligent application of this measure means a thorough study of each case and this requires adequate history-taking, a social investigation, and medical survey, the most important part of the latter being the psychiatric examination.

The problem of the delinquent boy and girl generally speaking is very imperfectly understood. In the attempt at solution many juvenile courts have been established in this country, but only those which have provided for psychiatric and medical examination can approach adequate results and these are very few and far between. Good examples of what should be done in detention examination

and study are the Juvenile Psychopathic Institute of the Chicago Juvenile Court and the Detention House of the Philadelphia Court. The lack of proper handling in the juvenile court is responsible not only for the "repeater" there, but elsewhere. Wherever found the delinquent boy or girl should [illegible] benefit of a medical and psychiatric survey and largely by the results thereof should the question as to permanent detention be determined. This assumes that the necessary laws for such a course are on the books. As a matter of fact, however, very few States make any provision for the permanent detention of the defective, the new Illinois law being a notable exception. Massachusetts has a law but it has not been enforced. As conditions are now almost universally the delinquent is not in custody, no effort being made to determine his mentality, he is turned out among the people at 21, just the age when most antisocial difficulties begin; and even if it is known that he is feeble-minded, in many States nothing else can be done at the upper age limit, for admission to institutions for feeble-minded is usually much under this. For instance, it is 16 in Maryland—can there be anything more absurd? Just at the time when the feeble-minded girl becomes most dangerous to society through her liability to propagate feeble-mindedness, she either cannot be segregated or if she happens to be in a custodial institution she cannot be detained.

A prominent social worker the other day said, "I believe nearly all our cases are more or less 'borderline' and subjects for psychiatric study." The work of the Mental Hygiene Society in Baltimore during the last three years shows how true this is. The society cooperates with all the charity organizations and employs a psychiatrist who is at their call. The advantages gained thereby in suggesting a solution and treating the case have met with widespread appreciation, and the mental survey has become an indispensable part of charity work. The financial saving to the community pocketbook is a very large item, but is secondary to the importance of helping formulate community plans for prevention of inefficiency, mental disease and feeble-mindedness. The study of the vagrant, the petty offender, the sexual delinquent, and many other types and combinations made possible only by the cooperation of many agencies will no doubt be duplicated elsewhere, and whether carried on in similar or modified methods, offers a large and new field for the psychiater.

There is probably no branch of medicine which has made greater strides into prominence than psychiatry. Within a few years, from the obscurity of institutional isolation it has emerged to become of widespread value and application in the community. The future seems to promise an even greater field of usefulness.

New Clinical Form of Tetanus.—Bérard and Lumière report the existence of a so-called cerebral tetanus in which cerebral symptoms are slow to develop—from one to two weeks after the appearance of the contractures. These consist of hallucinations, delirium, agitation and a phobic state and last at least eight days, after which there is a slow involution. The form is apyretic.—*Bulletin de l'Académie de Médecine.*

Medicolegal Notes.

Employer's Implied Promise to Pay for Medical Services to Servant.—In an action on an employer's implied promise to pay for medical services rendered his servant, the Alabama Supreme Court held that the evidence, consisting largely of detailed conversations between divers persons and the defendant, was sufficient to warrant the trial court, sitting as a jury, in drawing the inference of assent or agreement on the part of the employer to liability for necessary and reasonable medical attention to the injured man. The court quoted Curry v. Shelby, 90 Ala. 277, 7 So. 922, as follows: "Though the evidence is not conflicting, it is oral, and manifestly inferences are to drawn therefrom upon consideration of all the facts and circumstances. Every person who may go for the regular attending physician when needed by his patient, or who, from considerations of friendship or humanity, may require him not to discontinue his attendance, does not render himself responsible for the services of the physician. Whether he does or not depends upon the attendant circumstances. However well satisfied the court may be as to the proper inferences, if there be any evidence, however weak, from which an adverse inference may be drawn, the case cannot properly be taken from the jury. * * * Both express and implied contracts are founded upon the actual intention and agreement of the parties; the only distinction between them being as to the mode of proof, or evidence by which they are substantiated. * * * There are, no doubt, some cases so free from ambiguity or opportunity for inference, as that the court itself could legally presume such intention; but in all cases of doubt, it is well settled to be a matter proper for the determination of the jury, who would have a right to consider all the relevant circumstances of the case throwing any light upon the question of such intention." If the services were rendered by the plaintiff on the sole credit of the defendant, the promise of the latter was held original, and without the statute of frauds. Judgment for the plaintiff was affirmed.—Weil v. Centerfit, Alabama Supreme Court, 78 So. 885.

Question of Proper Care for Patient Held for Jury.—In an action to recover damages for alleged negligence on the part of a physician in failing to give proper attention to a patient it appeared that the defendant was employed by the plaintiff, the father, to attend his child, five years old. Evidence was produced to the effect that the defendant called as requested the first time, and, after rubbing his hand across the back of the child and taking him by the arm, diagnosed the disease as scarlet fever. No other examination was made, nor were instructions given as to the care to be given the child, except that some pills were left with the mother to administer, with directions to bathe the child frequently. Witnesses also testified that the day following the first visit of the physician he was requested to call and see the child again; that he failed to do so, making the statement that the disease must run its course; that on the next day he was called upon to visit the child in the morning, in the afternoon and in the evening, and on each occasion declined to make the visit, but later, after urgent request, came to the house, the child dying shortly after his arrival. There was also testimony to the effect that the defendant expressed regret for not having visited the child when first called that day, and in effect admitted that had he done so the child's life might perhaps have been saved. The defendant introduced testimony contradicting specifically and in detail every material matter relied upon by the plaintiff for recovery, thus making issues of fact, the determination of which by the jury the appellate court refused to disturb. The questions whether the defendant gave the case the attention necessary and proper under the circumstances and also whether such negligence, if such existed, was the proximate cause of the patient's death, were also held for the jury. The court held the evidence sufficient to show that the defendant made no effort to inform himself of the condition of the patient or of the progress of the disease. There was no claim that the defendant did not possess skill, knowledge and experience in his profession, or that he made an error in diagnosing the ailment.—Tadlock v. Lloyd, Colorado Supreme Court, 173 Pac. 200.

Military Medicine.

THE "BIG PAROTIDS" OF THE SOLDIER AT THE FRONT.

Under this title Mattei describes in *La Presse Médicale* for June 13 a condition which may be termed false mumps. Of the total number evacuated for mumps, 40 per cent., he says, are genuine cases. The remainder comprise cases of parotitis, which occur as complications of various infectious diseases other than mumps, such as typhoid fever, scarlatina, and icterohemorrhagic spirochetosis. These cases make up about 10 per cent. of the total. There now remain 50 per cent. of cases which are not infectious nor dependent on any constitutional condition. In other words, they suffer only from enlarged parotids. The organs are enlarged and lobulated. There are no adhesions, there is no pain, the function of the lower jaw is not compromised. The other salivary glands do not participate. The history shows clearly that the process begins insidiously. As a rule, the cases duplicate one another closely, and only in a few was there anything like a casual factor brought out; thus one patient had had measles, but not until after he had noticed the enlargement. Another patient noted the coincidence of the engorgement of the glands with an emetine cure of chronic dysentery. The fifty men were not long away from their commands. The lesions are believed to represent a hypertrophic sclerosis of quite unknown origin. Most of the victims were over 30 years of age. Orchitis was never seen, before or after the enlargement. It is known, Mattei says, that certain Asiatics are subject in the spring of the year to similar swellings which have no apparent cause, and such enlargement may be of the same nature as the one under consideration.

This article is interesting in connection with an investigation previously made by Capt. D. W. Wynkoop, M. R. C., regarding the prevalence of pseudo-mumps among the Indo-Chinese laborers in France. The results of this investigation were embodied in a report by Captain Wynkoop dated June 1, substantially as follows:

Mumps seem to be a disease indigenous with all of the Indo-Chinese, and it would appear to be a most common condition with them, occurring in the same individual in many cases every year. It is looked upon as being contagious by some, but others consider it a natural occurrence.

With the Indo-Chinese the inflammation of the parotid gland produces greater sensitiveness than that found in similar diseases among our own race. They shrink from the lightest touch of finger, although under ordinary conditions they are moderately stoical to pain. The swelling of the gland is small in comparison with mumps found among Europeans. In many cases at the camp at Chaluy (580 laborers) the swelling of the gland subsided in twenty-four hours from onset. In returning cases from the French Hospital for Infectious Diseases with corrected diagnosis of "no mumps," the French surgeon there made the statement that in his experience with this race in their own country a diagnosis of true mumps could not be made until after the parotid gland had shown its inflammatory condition for three days. In his own experience, Captain Wynkoop discovered that after one local application of iodine painted over the inflamed part, the swelling entirely subsided within a day or two. Anatomically the gland is always in evidence in the Indo-Chinese regardless of health. This is contrary to what is noted regarding the parotids of many of our own race. Constitutional disturbances are practically nil with this swelling of the parotid in the Indo-Chinese. It does not appear to be contagious in this mild disappearing form.

If there is a pseudo form of this disease, and this ideopathetic form of mumps among the Indo-Chinese is such as described, it would be useless to overburden our hospitals with them, Dr. Wynkoop believes. During his service at this Indo-Chinese labor camp at Chaluy he saw but three cases of orchitis (all non-traumatic or gonorrheal), but they had no apparent relation with the parotid gland. In connection with suspected cases of mumps, a delay of at least three days might be made before an elaborate diagnosis, and they should not be sent to a hospital, nor should any attempt be made to isolate them during this time. The treatment suggested by Captain Wynkoop would be a local application of tincture of iodine and a dose of castor oil.

REEDUCATION OF THE BLIND SOLDIER.

"The ophthalmologist is the typhlophile par excellence," said a French specialist in 1902, and since the war began the ophthalmologists of France have made this saying good. Since 1916 a periodical has been devoted to the welfare of the eye-wounded soldier (*Journal des blessés aux yeux*). In *Le Progrès Médical* for June 8, Ginestous asks when should reeducation begin. The answer is, "at once, while the soldier is still in the hospital." Small workshops for the blind are recommended for the vicinity of the various ophthalmological centers, and the soldier even if not hopelessly blind should prepare himself for the worst. Absolutely nothing is risked by this course, while much may be gained. In these little studios and workshops he at once learns reading and writing as well as some trade like brush making. He also has his diversions and pastimes. Ginestous has had much experience in the Eye Center at Angers. Every one of his patients has been able to read and write and the ease of learning these accomplishments is remarkable. Each one has begun some gainful occupation and is ready for the special institutions for reeducation. At Bordeaux, Professor Lagrange has had a like experience. Not only the hopelessly blinded but those threatened with blindness master their Braille and receive their initial training in carpet weaving, brush making, new soling of shoes, small gardening, etc. Reading and writing are among the great consolations of the blind and the Braille system holds its own against all innovations. Intellectual culture enables him to turn his misfortune to good account by becoming learned in many subjects which with vision retained would perhaps never have appealed to him. In the Lescure school for reeducation French classics are studied, especially those which relate to chivalry. It is held in some capable quarters that a blinded man must by all means continue at his occupation when this is in any way practicable.

In his professional labors the blind is not inferior to the seeing man in quality but is behind the latter in output, which handicaps him in supporting himself. It is well for him to have at least two occupations. The latter naturally fall under two heads: first, tried occupations, which have been proved successful for many blind men, and second, untested callings in which individual success might or might not be possible. Under the first head come time-honored trades like brush making, which are universally taught in schools for the blind. If, however, there are 2000 blind soldiers to look out for, all should not be made brush makers. Two other occupations almost as common for the blind are chair caning and basket weaving, which are better in rural districts than brush making. But none of these occupations is lucrative enough for a blind man—at most 2 or perhaps 3 francs a day is the limit of income from this source. A blind cobbler can resole two pairs of shoes daily, which gains his livelihood. The cooper's trade requires 12 to 18 months' apprenticeship, but the daily income varies from 6 to 10 francs—quite respectable. An excellent outlook is also present in agricultural activities.

American Army Makes Health Records.—For the week ended July 26 the combined reports of the American Expeditionary Forces and the troops stationed in the United States show an annual death rate from disease of 1.9 per thousand. The rate for men of military age in civil life is 6.7. This rate is based on an approximate strength of 2,500,000, and includes men living under abnormal conditions, the overseas record being made while the men were fighting in the Marne salient when they were frequently compelled to eat and sleep under the most primitive conditions. During the Mexican War the annual death rate from disease was 100 per 1,000; during the Civil War the rate, in 1862, was 40 per 1,000; in 1863, it was 60 per 1,000. The rate for the Spanish-American War was 25 per 1,000. The lowest figures heretofore recorded was 20 per 1,000 during the Russo-Japanese War.

Hospital for Shell Shock.—A base hospital for the treatment of shell shock has been established at a chateau in Lorraine to which American soldiers suffering from shell shock are hurried in the shortest possible time after the symptoms of this condition appear. A special ambulance service has been organized which makes an effort to get the shocked soldiers to the hospital within forty-eight hours after symptoms are manifested, since it has been found that many cases are curable if they come under treatment at this early date.

Correspondence School for Pharmacists.—A correspondence school for naval pharmacists is being conducted by the Bureau of Medicine and Surgery of the Navy, the course being in charge of Surgeon Henry L. Dollard, U. S. N. The benefits of the school are available to all pharmacists and chief pharmacists, permanent, temporary, and of the reserve. The course is so conducted that every pharmacist taking it gets the benefit of the experience of the other students.

Still More Nurses Needed.—Surgeon-General Gorgas announces that 50,000 nurses will be needed by July 1, 1919, to assist in the care of the sick and wounded of the American Army. Young women whose husbands are fighting in France will be accepted as hospital aids, but the vast majority of the 50,000 women must be trained nurses and available for overseas service. Fully 15,000 women can be used as hospital assistants in the United States.

Course for Laboratory Aids.—A special three months' course at the New York University and Bellevue Hospital Medical College has been arranged for those who wish to qualify as laboratory assistants in bacteriological work for immediate service in the camps and hospitals. The course is arranged by Dr. William H. Park, Director of the Laboratories of the New York Health Department, and Dr. Anna M. Williams, Assistant Director. It will open September 4.

Typhoid Fever Among Interned Germans.—Four hundred well-defined cases of typhoid fever have developed among 2,200 interned German merchant sailors at Hot Springs and other cases are under observation. Military authorities in charge have asked the aid of the United States Government in providing hospital care.

Red Cross Aids Many Hospitals.—The hospital supply service of the American Red Cross in France is providing surgical instruments, equipment, drugs, bedding, clothing, and amusement for 4,361 hospitals in 1,500 places in France. More than 12,600,000 articles were packed and shipped from the distributing station in Paris since January, 1915.

Grand Central Palace to Be War Hospital.—It is reported that negotiations are under way looking to the taking over of the Grand Central Palace, in New York City, for a war hospital. Certain of the tenants state that they have been told that they must give up their leases and prepare to vacate by September 15. The building has twelve floors, each having a floor space of 30,000 square feet.

Attacks on Hospitals Continue.—A despatch from the American Army on the Vesle Front states that on August 17 German bombarding machines made two separate attacks upon an American field hospital south of the Vesle, but were driven off by the Allied air-craft guns. There were no casualties.

Perfection of Plans for Care of Wounded.—A resumé of the great machine that has been created in this country for the reception and care of our wounded men from overseas shows that the normal hospital capacity for the care of wounded men at the end of a year's preparation is 90,095 and the maximum capacity 99,243. This includes the capacity of general, base, embarkation, and debarkation hospitals. It is expected that within a few weeks the first of the seriously wounded whose injuries will incapacitate them for further military service will arrive in New York. Mobilized and ready to minister to the needs of these soldiers are 529 officers of the medical, sanitary, and dental corps, 2,649 trained hospital attendants, ambulance drivers, and other enlisted men of the Medical Service, 342 graduate army nurses, and 65 civilian helpers. The general plan of handling

the men as they arrive, which is under the direction of Colonel James F. Kennedy, is to transfer the men as soon as possible to one of the three debarkation hospitals, one of which is at Ellis Island, the other two being the Fox Hills Hospital on Staten Island, and the hospital located in the old Greenhut department store building. From the debarkation hospitals the men are transferred to the receiving hospitals of which three are now ready. At the earliest moment consistent with proper care and treatment the men will be sent from the receiving hospitals to the proper reconstruction hospitals, usually to the institution nearest the home of the patient. For the transportation of wounded men in New York City the Medical Corps has organized a fleet of six hospital boats. Picked crews man these ships and the Red Cross has supplied the nurses. The hospital trains for transportation to distant hospitals consist of ten cars each, and represent the latest word in railroad construction. In all there are about eighty hospitals engaged in the care of soldiers and sailors. The enormous expansion that has taken place in hospital facilities during the past year can be appreciated when the fact is taken into consideration that the normal capacity of the general hospitals which are to receive the overseas patients is 14,733 beds, and the emergency capacity is 17,447 beds. Additional general hospital construction now under way will add 7,027 beds to these totals of over 90,000 beds. These figures do not include the accommodation furnished for convalescent soldiers and sailors in the homes that have been turned over to the Government to be used as convalescent hospitals for the duration of the war and as long after as they shall be needed.

Neustadter Convalescent Home for Government.—The construction of the convalescent home in South Yonkers, which is provided for under the will of Mrs. Caroline Neustadter by a fund of $1,000,000, will be started within a few weeks. The building will cost $250,000, and will be located at the corner of McLean Avenue and Central Road, South Yonkers. The trustees plan to make it a fitting testimonial to the philanthropy of the donor by offering the building when completed and fully equipped to the Government for use as a hospital for officers. Although the plans provide for the accommodation of 75 patients, the building can be turned into a hospital of much greater capacity.

Convalescent Hospital Opened.—The new $2,000,000 convalescent hospital at Colonia, N. J., for wounded men from overseas and for invalids from army cantonments in this country is now ready to receive patients. The site of the hospital is the estate of Charles D. Freeman, who has leased his land and his house to the Government for $1 a year. Seventy-two buildings have been erected since February 2, which provide accommodations for 1,607 patients, 160 nurses, and a medical corps numbering 550 men. Reconstruction work will play an important part in the program of the institution. Lieutenant-Colonel Alfred P. Upshur, M. C., U. S. A., is in charge and Major Fred H. Albee is to have charge of the surgical work.

New Training Schools for Nurses.—A new training school for nurses is to be opened in September as an adjunct to Base Hospital No. 1, The Bronx. The first training school established by the War Department in connection with base hospitals in this country is at Spartansburg and a third will soon be opened in connection with the United States Debarkation Hospital at Fox Hills, Staten Island.

A Third Unit for Women's Overseas Hospitals.—At the request of the French Government a third unit of the Women's Overseas Hospitals, which is to specialize in the handling of gas cases, has been started for France by the National Woman Suffrage Association. Dr. Marie Louise Lafort of New York City is to be at the head of the gas hospital. Her associates on the staff will be Dr. Adab McMahon of Lafayette, Ind., Dr. Irene Morse of Clinton, Mass., Dr. Elizabeth Bruyn of Brooklyn, Dr. Alice Flood of New York City, and Miss Clara Paquet of the New York State Board of Charities. The hospital is to be a mobile unit with a capacity of 300 beds. One ambulance has been donated to the unit by the children of the Cortelyou School, and another by the Sorosis Club of Brooklyn.

German Agents Sell Narcotic Drugs to Soldiers.—Reports of surgeons in widely separated army camps of the use of habit-forming drugs have led to a Federal investigation which reveals a concerted attempt by German agents to supply soldiers in army cantonments with habit-forming drugs. Two arrests have been made and more are to follow. According to the Federal authorities these drugs have been sold at surprisingly low prices.

Lieutenant Max Philip Cowett, interne and house physician at Bellevue Hospital, New York City, from 1915 to 1917, has been awarded the Croix de Guerre by the French Government for gallant work in the trenches.

Deaths in the Service.—Lieutenant David Robertson, M. C., a graduate of Edinburgh University and a surgeon in the United States Army almost continuously since the beginning of the Civil War, died in his quarters on Governors Island, on August 15, aged 87 years. Lieutenant Robertson was on the retired list but reentered the Medical Corps upon the entry of this country into the present war.

Major David Everett Wheeler, M. R. C., U. S. A., of Buffalo, was killed during the allied counter offensive on August 13 while attending the wounded under fire. He was a graduate of the College of Physicians and Surgeons, New York, in 1898, and was 46 years of age. Major Wheeler went to Europe during the first year of the war as a Red Cross worker. He enlisted in the Foreign Legion as a soldier on February 15, 1917. In the Champagne fighting, on September 28, 1918, he was wounded in the right leg, and while trying to crawl to the rear stopped to attend to wounded and suffering men about him. For this he was awarded the French War Cross. He later joined the Canadian Army, receiving the rank of Captain. When the United States entered the war he was transferred to the American Forces. He served as Regimental Surgeon in Lorraine, at Cantigny, and Chateau Thierry.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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AN EPIDEMIC OF THREE-DAY FEVER IN EUROPE.

PROFESSOR SAMPIETRO, writing in the *Annali d'Igiene* on the so-called Spanish influenza, which is now recognizable throughout Europe, believes that it is nothing more or less than three-day fever. The Spanish medical men have variously pronounced their epidemic influenza, dengue, three-day fever, pappataci fever, and trench fever. Our real knowledge of three-day fever goes back only to 1909, when it was studied in Dalmatia and Herzegovina. An old popular designation was "dog sickness," because the prostrated patient was thought to resemble a dog during very hot weather. Another name was "Dalmatian fever." The latter was not exactly new along the Mediterranean, for such designations as "summer fever," "summer influenza," exist in popular language. Even the expression three-day fever appears to have been an old one resurrected. All of these and other terms were purely military rather than civil, showing that the troops were those who chiefly suffered from the visitation. The term barrack fever has even been used when the affection has occurred in barrack life. As far back as 1888 Saggini, a military physician, called the attention of his superiors to this type of fever. Numerous descriptions of three-day fever show a notable resemblance to the present epidemic, but there are unexplained differences. For example, the Spanish epidemic was most certainly a four or five-day fever, and there has been nothing adduced to show that it is insect borne. Three-day fever, on the other hand, is believed to be transmissible by the sand fly, *Phlebotomus pappatasii*, and to be the same as the pappataci fever. The latter occurs in the three-day fever belt but is by no means limited to it. As a distinct affection pappataci fever has been regarded as very like dengue, but without exanthem. In recent years the three affections seem to have been badly confused, especially on the Oriental front. Castellani has seen a two-day or three-day fever in the Orient, in which an exanthem was present, and which he believed to be transmitted by a species of phlebotomus.

To uphold his contention that the Spanish epidemic is three-day fever Sampietro has his work cut out for him. He asserts somewhat against the evidence that the latter is of two or three days' duration—or at least that the high temperature does not last beyond that time, and he also contends that the Spanish disease is not influenza as we know it. In order to show that insects play at least a partial rôle in its transmission he seems to rise again above the level of facts, for it has been definitely stated by a Madrid physician that insects have been excluded in this connection. Recently it has been shown that the phlebotomus exists in parts of Spain and the appearance of the epidemic late in May can harmonize with the hypothesis of insect transmission, and therefore the author thinks that it remains only to connect the Spanish epidemic with the fly, which may escape observation in part because of its minute size.

THE OPERATIVE TREATMENT OF CANCER.

NOT only professional statisticians but learned physicians themselves have deplored the fact that men of our profession, failing to realize that statistics is in itself a profession, do not hesitate to draw the most varied conclusions from their amateur efforts along these lines. Even the figures of Hoffman on the increase of cancer, which may be supposed to have the force of actuarial computations, have been attacked on one ground or another, in so far as they are alleged to connote this increase. For example, it is said by a professed statistician that in all countries with alleged low incidence of cancer there is a paucity of physicians—the fewer the cancer deaths per population unit the fewer the number of medical practitioners per unit of population to make diagnoses and report deaths. This fact invalidates the argument of increase of cancer almost *in toto*, for the adherents of the cancer increase theory assert that the increase is due to the increase of per capita wealth and luxury. Unless it can be shown that the inhabitants of certain backward countries do *not* die of cancer but of other affections the entire argument falls to the ground.

In the *Correspondenz-Blatt für Schweizer Aerzte* for June 22, Dr. Aeby shows by statistics that the knife does not cure cancer and that the sufferers from that disease live practically as long, although not longer, if they are not subjected to operation. He is a former student of Professor Krehl, than whom there is no greater contemner of amateurish medical statistics. His figures were limited to cancer of a special locality, as the female breast or cervix uteri. As a rule the tenure of life is reckoned from the time that operation is performed, or refused, but according to Aeby there is a source of fallacy here, for the term of life must date from the time of first recognition of the disease. Of several ways in which survival may be computed the following seems least open to objection. One starts, as already stated, with the first appearance of the disease and computes the percentage alive after successive intervals. Thus one-eighth of a year later 100 per cent. were alive irrespective of whether an

operation was performed or not, although at so early a period it is not likely that any were submitted to operation. One-quarter of a year after first recognition 100 per cent. of the unoperated were living but only 95 per cent. of the operated. This would ordinarily be explained by primary operative mortality. From one-eighth year to fifteen months the survivors at each three months' interval were more numerous among the unoperated; but at this juncture the operated subjects took a slight lead, only to lose it again after two and a half years. At four years' total duration the operated subjects regained the lead and held it, but by this time the percentage of survivors among the operated had also dwindled almost to the vanishing point. When the two curves are plotted together, the complete lack of superiority of operated over unoperated is only too apparent and the margin of survivors after operation is so small as to be quite insignificant.

Certainly no partisan of the knife would have expected such an anticlimax. It is of course true that in the clinic we are not governed by the results of statistics but by the need of doing something to rid the patient of distressing symptoms. We are not to suppose that the author is seeking to discourage operation in the individual case. It is, however, certain that the knife will never relieve the community as a whole of its cancer, no matter how early the diagnosis or how experienced the operator. Space does not permit of an analysis of these figures in order to detect the fallacy in the usual method of computation. The figures may be supposed to speak for themselves and agree with those of Krönig, who found that but 5 per cent. of his cancer subjects were alive after the lapse of ten years following operation—a conclusion which has led him to abandon the knife in favor of radium and *x*-rays.

ACTION OF SUGAR ON THE SPUTUM IN TUBERCULOSIS.

The recently published experience of Professor Lo Monaco regarding the action of cane sugar on the bronchial secretion has led Lucherini to make a trial of the remedy in the tuberculous (*Giornale di medicina militare*, May 31). Lo Monaco has worked on this problem since 1914 and has shown that injections of carbohydrates activate many of the secretions. His results have been amplified by other men. Thus while small doses increase the amount of milk in nursing women, large ones produce the opposite action. These injections have also been shown to possess hemostatic powers. The local action of saccharose on wounds is believed to be due to vasoconstrictor action.

The author's work consisted in studying the influence of injections of sugar on the bronchial secretions of consumptives and upon the principal symptoms of the disease. We know from the work of Berendes in 1910 that injections of 5 to 7 per cent. aqueous solutions of saccharose are well tolerated. The first patient was under observation for several days before the injections were begun. His sputum had ranged in amount from 10 to 20 c.c. in 24 hours. After the first injection it increased until on a number of days it reached 30 c.c. and was never below 20. He received one daily injection. After six days of increased sputum there was a sudden drop to 8, 10, 5 c.c., etc., the daily injections being maintained. The frequency of the injections was now somewhat abated and the daily amount of sputum showed a certain average increase, but after resumption of the daily schedule the amount lessened and then ceased outright. During this period local conditions were unchanged, fever showed no decline, cough was lessened, but there was a little improvement in the night sweats and general condition. The arrest of expectoration was the one striking feature of the experiment. The second patient raised from 80 to 130 c.c. sputum daily. Under a prolonged course of daily injections the amount was decreased to from 50 to 90 c.c. On the day following that in which the injections were first intermitted the quantity increased to 110 c.c. Daily injections were at once renewed and the amount again fell to from 50 to 90 c.c. Numerous other consumptives were treated, including one who raised about 100 c.c. daily. This patient at first showed improvement, but despite injections his sputum increased on certain days to 210, 220, 270 c.c., etc., although on odd days the average was low. After suspension, his amounts ran up to 400, 500, and above. The sugar seems to have retarded the expectoration, but to no purpose.

Medicine and Democracy.

It is not easy, at first sight, to appreciate a relationship between medicine and democracy. However, upon closer consideration it would seem that of late years the practice of medicine has been greatly revolutionized in some countries. And curiously enough, this change began in Germany, one of the most autocratic of lands. The system of providing medical treatment for the poor at a very small cost was inaugurated by that most undemocratic of countries, and moreover was made law not from democratic but from exactly opposite motives. A similar system has been put into force in Great Britain, in this instance with the support of public opinion, without which the enactment of laws is impossible in that country. These schemes of a like nature providing for a cheap medical service have been brought into vogue recently in a strictly autocratically ruled country and in an essentially democratic land, the motive in Germany being by making the people beholden to the State to keep them in subjection to the powers that be and in Great Britain the system was brought about by a radical government anxious to promote good health in the community and incidentally, perhaps, to earn the good will and votes of the people benefited. Democratic countries, generally speaking, appear to be averse to any kind of State aid, be it medical or otherwise. For example, the obviously democratic countries, the United States and Canada, have up to the present held themselves aloof from plans

whereby the poorer parts of the population shall have the right to demand free medical or surgical attention or, at any rate, such attention at a small cost. While there is much to be said on both sides of the question, it is undoubtedly a fact that there are certain diseases which cannot be stamped out unless there is earnest cooperation between the public and the medical profession, and unless, also, means are taken to educate the population as to the gravity and nature of these diseases and if necessary to enforce laws to ensure prevention and treatment. The venereal diseases are the most conspicuous examples in point, and it is being impressed upon the minds of medical men and legislators that the only way by which these infections can be exterminated or checked is by the enforcement of laws. In evolving schemes by which disease may be prevented and more certainly cured, care must be taken to avoid too great paternalism as in Germany. Plans based on democratic principles must be formulated and the medical profession must retain its independence.

Hooverizing Hot Water.

It is an old truism that there is nothing of which we are so unconscious as water and nothing we miss so greatly when deprived of it. As the flat-dweller of the present era turns on his hot water luxuriously no image crosses his mind of men staggering across deserts in pursuit of mirages, or of our immediate forefathers, only a generation back, with their laborious heating of dishpans over the stove for the periodical bath. The present war, however, has made us realize that back of all the luxury of the present time are expense and waste and that a dispensing with some of what we have been taught to call necessities might be beneficial to health as well as pocket-book. An English writer, Dr. Gerald W. Maw, believes that the too lavish use of hot water for bathing is a practice to be deplored, not only on account of the waste of fuel which it implies, but also for hygienic reasons. The immediate effect of a hot-water bath is a relaxation—a pleasant feeling of warmth and lassitude. There is a great temptation to remain much longer than is necessary in the tub. Very easily the daily bath can be prolonged until ten, fifteen, or even twenty minutes are spent immersed in hot water, enjoying the luxurious feeling of relaxation. Unfortunately, however, there is no corresponding reaction and inevitably persistence in such habits must result in loss of tone. Soon the individual begins feeling tired and has difficulty in accomplishing the daily tasks. There is a lessening, too, of resistance to infection. The present then, with its economies and sacrifices in every direction, is a good time to educate the public to correct and helpful habits. A cold bath in the mornings for those whom it benefits and a tepid bath two or three evenings a week will be the program for the average person rather than the somewhat Oriental indulgence in hot water *ad libitum*. Not only will the physical condition of the patient be greatly improved under this regime, but the doctor will be doing his bit toward preserving the coal supply and preventing heatless days and nights next winter.

Chinese Immigration in Mexico

The Mexican Bulletin of Public Health for May 31 protests vigorously against the continued immigration of Chinese into that country. It demands either abolition or restriction of this movement of race. The memorial, which is signed by Valenzuela, chief of the disinfection service of the department, is dated April 3, 1918, and begins with a reference to the classical period of the world's history, when the peoples were intelligently striving to keep intact the purity of racial sources. This feeling was an instinctive one of self-preservation. The great biologists of the nineteenth century gave to this sentiment a scientific backing. They showed how races may deteriorate and how such deterioration may be antagonized. The science of human breeding had its beginnings. But the artificial selection applied by breeders cannot be transferred to mankind. Freedom of sexual choice flourishes in the human species and is but feebly checked by laws against mixed marriages. The author appears to dread sexual contact between the Mexicans and Chinese. A number of countries have preceded Mexico in excluding the latter from citizenship and equality with the natives. From its geographical and climatic situation, its great variety in altitude and productions, its lure to emigrants from all countries, its absence of restrictive laws, Mexico has become a dumping ground for the offscourings of the earth. Mixture of blood has already gone on without the least check. Invalids, idiots, anarchists, criminals—all of these undesirables have been made welcome and have married. Valenzuela says it is now time to call a halt. As in the past, Mexico is still menaced by an indefinite immigration of Cantonese who can subsist where the native would perish, but who also know how to employ intensive methods to productive soil and who are bound to win out in either case. This immigrant can bring with him cholera, bubonic plague, beriberi, and trachoma. He mixes freely with the Mexican women, for he does not bring his own females in anything approximating a sex ratio. Of all of the evils, the author appears to regard miscegenation as the worst for the remote future; for a new mixed race would be unhealthy and of low morale and ideals.

A Cancer Platform.

The weekly Bulletin of the Department of Health of the city of New York for July 27 contains an apparently official article entitled "Concerning Cancer—a Platform upon which to Unite in the Campaign of Education." This platform is composed of twenty-one planks, fifteen of which are most commendable. Thirteen of these fifteen are lifted, for the most part bodily, and without credit, from "The Cancer Problem," by Dr. William Seaman Bainbridge, published in 1914. We are particularly pleased to note that nowhere in the article is the advice given to cut into suspected neoplasms in order to get specimens for microscopic examination. This omission of the invitation to biopsy which was promulgated by a former commissioner is most heartening, and doubtless will lead the original author gladly to forgive the omission of quotation marks.

News of the Week.

"Spanish Influenza" Arrives in New York.—During the week ending August 17, three steamships from European countries have arrived at the Port of New York having aboard cases of so-called Spanish influenza. One of these vessels came from Norway, one from Scandinavia, and one from Holland. The ships were not held in quarantine as influenza is not a disease against which marine quarantine is instituted. Those aboard the ships who were suffering from influenza were transferred to the Norwegian Hospital, Brooklyn, and cultures from their throats were submitted to the Board of Health for study. The term "Spanish influenza" is, of course, a misnomer for, as we stated several weeks ago, the disease is probably identical with the influenza with which we have long been familiar in this country, and which prevailed here very extensively last spring. The Health Department has instituted a campaign against influenza and all similar communicable diseases. Every ship reporting a case of influenza will be registered with the Health Department, and Health Department inspectors will obtain from the immigration authorities the destination of the cases reported. Those remaining in this city will be located and placed under the supervision of nurses of the Health Department who will see that they receive proper treatment and are isolated when such a course seems advisable. All physicians of the five boroughs are requested to cooperate with the Health Department by reporting cases of influenza and seeing that the regulations regarding the treatment and prevention of communicable diseases are carried out. The fight against public "spitters" will be renewed. Sanitary inspectors have also been instructed to keep a close watach on all soda water fountains to see that the regulations regarding the washing of glasses are rigidly enforced.

Control of Venereal Diseases.—The Federal Government will expend during the fiscal year ending June 30, 1919, $1,000,000 in the control of venereal diseases. This sum has been made available for expenditure under regulations established by the Secretary of the Treasury, by an act of Congress approved July 9, 1918. The work will be carried out through the various State Boards of Health. The activities will include securing reports of venereal infections; control of those infected, so as to prevent further spread of the disease; establishment of free venereal clinics; suppression of vicious conditions which favor the spread of venereal infections; the carrying out of a systematic educational program for the general public as well as for those who are infected. The act gives authority for the establishment of a new division in the Bureau of the Public Health Service, to be called the Division of Venereal Diseases. Such a division has been established and a chief appointed. The act also grants authority to the Public Health Service for the regulation of the interstate travel of venereally infected persons.

Infant Mortality Rate of New York Lower.—The records of the New York Health Department show that from January 1, 1918, to date there have been 7,532 deaths of infants under one year, as compared with 7,543 for the same period last year. The infant mortality rate this year to date is 85.84, as compared with 86.42 for 1917. The week ended Aug. 10 showed 289 deaths of infants under one year of age, as compared with 313 deaths in the corresponding week of 1917. It is believed that the educational propaganda concerning the care of children is proving its efficiency.

State Hospital Pay Too Low.—In the annual report of Dr. John R. Ross, superintendent of the Dannemora State Hospital for Insane Criminals, a plea is made for a living wage for hospital attendants. It is pointed out that the problem of obtaining and retaining satisfactory hospital employees is causing vital concern and that the difficulty can only be overcome by giving adequate remuneration. The salary of hospital attendants is pitiably below that of prison guards, yet it will not be denied that equal tact and intelligence are expected of employees in an institution housing the criminal insane. Dr. Ross believes that the dearth of help in the hospital is not due to war conditions so much as to inadequate wages, and that to expect to get good service for $45 a month is not consistent.

Enlargement of the Philadelphia Roosevelt Hospital.—The sum of $300,000 is to be raised for the erection of a new building for Roosevelt Hospital in Philadelphia. The proposed structure is to be 150 feet long and 42 feet deep, five stories high, with a roof garden and basement, fireproof, with concrete floor. It will have a capaciiy of 118 beds distributed over a number of small wards. The main operating will be on the top floor and an emergency operating room in the basement. Isolation units will be placed on the first floor, a diet kitchen, three maternity wards, three children's wards, service rooms, lavatories, bath rooms on the second floor, diet kitchens, seven rooms with baths and nine single rooms and six wards on the third and fourth floors.

Hospital Appoints Woman Interne.—The Brockton (Mass.) Hospital, owing to the fact that all medical students have been immediately taken for war service by the Government, has for the first time in its hostory appointed a woman as interne. The woman is Dr. Mildred Haynes of Bennington, Vt.

New School for Crippled Children.—The School for Crippled Children, for which Mrs. Frederick S. Coolidge of New York gave her country place near Lenox, was formally opened on August 14. Mrs. Coolidge's gift includes a beautiful villa, thirty acres, and $200,000 as an endowment fund. At the opening exercises memorials to Mr. and Mrs. Albert A. Sprague, Mrs. Coolidge's parents, and to her husband, the late Dr. Frederick S. Coolidge, were unveiled.

War's Effect on Eugenics.—An Italian scientist just published a book in which he expresses the opinion that eugenically the war will cause an improvement. He says that if the war ends next year there will be in England 121 women between the ages of 24 and 44 years to every 100 men between the same ages; in 1910 the proportion was 108 to 100. In France there will be 124 women of the above ages to every 100 men. In Germany

there will be 199 women to every 100 men. His reason for asserting that this condition will lead to eugenic improvement is that every man will have a larger selection of women from which to choose and he will be likely to choose the healthiest and strongest.

Dr. William C. Fowler, for many years assistant health officer, has been appointed health officer of Washington, D. C., to succeed Dr. William C. Woodward, who was recently appointed health officer of Boston.

Dr. Frank B. Knause, Deputy Health Commissioner in charge in Brooklyn, has resigned in order to join the Medical Reserve Corps of the United States Army.

Dr. Frank J. Monaghan has been appointed Deputy Health Commissioner in charge in Brooklyn to succeed Dr. Frank B. Knause.

Dr. A. P. Richmond has been appointed city physician of Manchester, N. H., to succeed Dr. Roland J. Bennett, resigned.

Dr. Robert Howland Chase has resigned the medical superintendency of the Friends' Hospital for the Insane of Philadelphia after an incumbency of twenty-five years, and he has been succeeded by Dr. Albert C. Buckley, for many years his assistant.

Retreat for War Workers.—Mrs. S. T. Davis, Jr., has turned over her country home at Ardsley-on-Hudson to the United States officials in charge of the United States Gas Defense Plant at Long Island City as a recreation center for women employees. Owing to the urgent demand for masks the women get no vacations and can take advantage of the opportunity for rest only during week ends. If a woman employee becomes ill arrangements are made for her to recuperate there.

Athletes Not Short Lived.—Mr. C. E. Hammett, a veteran physical director, in a study published in the *Scientific Monthly*, shows that the belief that the athlete so strains his heart and lungs as seriously to affect his longevity is fallacious. He takes the men who have rowed in the Harvard crews between 1852 and 1892, and finds that out of 152 only two died of heart disease and but one of tuberculosis. These Harvard athletes were, on the whole, more successful professionally and in business than the graduates whose only aim was scholastic attainment. Similar results came of the investigation of the after careers of Yale students who won fame as members of the crew, of the baseball, football or track teams, between 1855 and 1895. Of 807 who underwent hard physical training during their college years only four developed heart disease within half a century, and two of these were between 68 and 70 years of age at the time. Another study of hard distance runners showed only three cases of injury in 167 men. Mr. Hammett states that a consular investigation of the jinrikisha men of Japan showed that in 1907 there were 1,200 such men over 55 years of age, actively in service in Tokio, most of them still strong and healthy.

The American Board for Ophthalmic Examinations.—The American Board for Ophthalmic Examinations, whose function it is to establish standards of fitness to practice ophthalmology, to investigate and prepare lists of medical schools, hospitals, and private instructors recognized as competent to give the required instructions in ophthalmology and to confer certificates upon those meeting the established standards, will hold its next examinations at the New York Eye and Ear Infirmary, New York, October 25. Further information may be had, upon request, from the, American College of Surgeons, 25 East Washington Street, Chicago, Ill.

New Club for Red Cross Nurses.—A Red Cross house for nurses passing through New York City on their way to the front will be opened early in September at 129 East Nineteenth Street, under the auspices of the New York County Chapter. At first, accommodations for but twelve nurses will be afforded. The establishment of the house was called for by Colonel J. M. Kennedy of the Medical Corps, surgeon of this embarkation port.

Obituary Notes.—Dr. LUTHER HALSEY GULICK died at South Casco, Maine, on August 13, at the age of 52 years. He was born in Honolulu, and was graduated from the New York University Medical School. He was appointed director of physical training in the public schools of New York City in 1903, remaining in this position until 1908. He was director of the Department of Child Hygiene, Russell Sage Foundation, 1907-13; president Camp Fire Girls from January, 1913, to the time of his death; editor *Physical Education Review*, 1901-03; president American Physical Education Association, 1903; vice-president Y. M. C. A. Athletic League of North America, 1903-06; Fellow New York Academy Medicine, Fellow A. A. A. S., and president Playground Association of America. He was secretary of the Public Schools Athletic League of New York, 1903-08; president Public School Physical Training Society, lecturer on school hygiene, personal hygiene, physical training and play, New York University, 1906; member Olympic Games Committee, Athens, 1906, London, 1908; United States delegate second International Congress on School Hygiene, London, 1907; received from Y. M. C. A. Training School, Springfield, Mass., degree of Master of Physical Education; consultant of Hospital for Deformities and Joint Diseases, and member of permanent committee International Congress of School Hygiene. Dr. Gulick had recently returned from a trip to France, made in the interest of the Y. M. C. A. for the purpose of making a survey of the moral environments of the American Expeditionary Forces.

Dr. WILLIAM H. LAWRENCE, a graduate of New York University Medical Department, in 1877, and a former sheriff of Union County, N. J., died at his home in Summit, N. J., on August 5.

Dr. CHARLES H. MANN died as a result of cerebral hemorrhage at Bridgeport, Pa., on August 3, at the age of 66 years. He was graduated from Jefferson Medical College in the class of 1872. He was president of the Bridgeport National Bank; at one time resident physician in the Children's Hospital of Philadelphia; Surgeon to the Norristown Hospital; a member of the Montgomery County Medical Society, of the Medical Society of the State of Pennsylvania, and of the American Medical Association.

Dr. FRANK HARPER ROSS, a graduate of Bellevue Hospital Medical College, in 1880, died at his home in Brooklyn on August 10, aged 62 years.

Dr. Rudolph Berendsohn, a graduate of the Long Island College Hospital, in 1881, died at his home in Brooklyn on August 16, aged 78 years.

Dr. William Houston Greene of Philadelphia died at his summer home at Wenonah, N. J., on August 8, at the age of 66 years. He was graduated from Jefferson Medical College in the class of 1873, and later became assistant to the professor of chemistry in his alma mater. In 1879 he was appointed demonstrator of chemistry in the medical department of the University of Pennsylvania, and in 1880 he became professor of chemistry in the Central High School for Boys. He was a member of the Philadelphia County Medical Society, and of the Medical Society of the State of Pennsylvania, and a Fellow of the American Medical Association.

Dr. Mary Anna Allen Howell died at Camden, N. J., on August 9, at the age of 71 years. She was graduated from the Woman's Medical College of Pennsylvania in the class of 1891.

Correspondence.

A VOLUNTEER'S REASONS.

To the Editor of the Medical Record:

Sir:—There has recently come into my hands a letter from a young physician which it seemed to me might help some other physician to decide more readily whether he can afford or not to enter the national service. This letter was written by a doctor to his young wife, who up to that time had scarcely been willing that he take the sacrificial step which meant so much to them both.

"As time goes on, it seems to me more and more that I ought to 'get into the game,' even with the sacrifices that such a step will necessarily entail for both of us. With our youthful health and strength we ought to be able to make a new start after the war; and who can say that this crisis was not ordained to be a turning point which is to be of the greatest value in shaping our lives anew to greater and fuller usefulness. I feel quite sure, when I look over the map, that the struggle is to last a long time yet, for there is no jot or tittle of a sign that the Germans have changed their minds as to the issues at stake or as to their divine right to rule the world and ride rough shod over all civilization. After all, the whole matter is one of an uncompromising difference of ideas. We cannot convince them by argument of word, and therefore they must be convinced ultimately by argument of the sword. As much as we in America dislike to engage in legalized or wholesale murder, we are driven by the first instinct of all life, as exemplified in biology—the instinct of self-preservation—to defend ourselves and those dear to us, as well as those who shall come after us, against the common enemy, the aggressor who attacked our sacred institutions, founded by the fathers for the benefit of all mankind, and who would make a shambles of the whole universe in securing his ends. There can be no greater nor higher nor holier purpose than to go to the aid of those who are crying out amid blood and tears for the helping hand of him who can bind up their wounds and assuage the last agonizing hour. To this great purpose the medical men of America are called, not to fight with mere physical weapons, as necessary as that is for others, but to minister to the needs of those brave defenders of the faith that is in us, who are calling us, perhaps at this very hour, to 'go over into Macedonia' and help them in their pain and grief. That is my conception of my duty, and, dear girl, I believe it is yours, too, to fit yourself for the great work in a nursing school, from which you might emerge clad in the armor of strength for the fray, and with the credentials of the U. S. as your talisman. That would be so much better and finer than an R. N. now held by many who are not doing their full duty by mankind. We shall talk all this over when I see you."

Can there be a finer inscription for the tomb of him who now lies in Flanders fields? How many of us have beheld such a vision and have faced it quite as manfully?

Irving Wilson Voorhees, M.D.

New York.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE DIRECTIONS OF MEDICAL REFORM—THE RATIONING OF INVALIDS—THE OXFORD OPHTHALMOLOGICAL CONGRESS—THE SUPPLY OF DOCTORS IN THE FUTURE.

London, July 26, 1918.

The Government is being pressed in so many directions to proceed to the immediate formulation of its views in regard to a ministry of health that despite the enormous pressure of public affairs during a critical position of the world war time will probably be found for the early introduction of a bill into Parliament. It is of good omen that the public as well as the medical profession are preparing to receive this measure with deep attention, and it would seem that a real union of interests may be effected by it. The day has gone by in this country when the medical profession can resent lay assistance in medical matters, for it is recognized that, inasmuch as medicine plays an intimate part in the whole of social life, there must be many departments in that life where the lay element posseses more special information than any medical man can pretend to. But on the other hand, the day has equally gone by when the medical man is regarded by the public as a person full of traditional knowledge which may or may not stand the practical test of application to real problems—a person, moreover, who is ready to shelter himself, whenever his omniscience is called in question, behind some mysterious code of ethics called medical etiquette. Only cranks, whether with or without a medical qualification, hold either of these views, and at the present moment the British public is as ready to welcome the hearty co-operation of doctors in the institution of a ministry of health as the medical profession is willing to acknowledge that only with intelligent lay help can anything useful to the nation be placed on the statute book. That this is the popular feeling is indicated by the selection as candidates for the representation of the Labor party in the House of Commons of various medical men; the proletariat see that in medical science lies the best chance of improvement in the material conditions of life, and that on such vital questions as the housing of the poor, the prevention of widespread and common diseases, the care of the parturient mother, and the protection of infant life, the voice in Parliament

which is inspired by medical knowledge will be listened to.

In an open letter to the medical profession that veteran democratic reformer, Mr. Sidney Webb, has presented his views on the desirable relations of medicine to the State in response to the invitation by the Labor party to stand for Parliament for the University of London, where he is a professor. In a description of the ideal connection which he considers should exist between the medical profession in its various branches and the State, he suggests the institution, in association with the new ministry of health, of a statutory advisory committee composed "not of the existing bureaucracy or of the nominees of the great corporation, but of duly chosen representatives of the medical profession outside any area of Government service." The functions of such a committee, as Mr. Webb foresees them, would be to advise the officiate created by the ministry of health, and to report, with freedom from all censorship and directly to Parliament, whenever it thought fit. Now it is undoubted that a body like this would be extremely useful in keeping the lay side of any bureau fully informed on the medical side, and the fact that such a committee was only constructed for advisory or critical purposes would be no drawback if it should receive the power of direct communication with the House of Commons. There would be considerable difficulty in devising the machinery for "due representation" upon this body, but the significance of the suggestion lies in the fact that we have here the organization of a body of medical critics to deal with lay administrators, which is suggested, not by medical men or by academic circles in a university, but by a typical democrat standing for parliamentary honors as a Labor candidate. The spirit thus displayed is becoming a common one, and it would inevitably have a great effect on the national health of the future as well as on the position of the medical profession.

The Food Control Committees have received recently considerable extension of their powers in respect of the rationing of invalids. Extra rations can now be granted far more freely and the list of suitable cases for the concessions is much less closely limited. The Food Control Committees can give, in rationed proportion, additional meat, butter, margarine, milk, sugar or white flour on application in their localities, but these extra rations can only be obtained on the authority of the committees—that is to say, that the retailers of food cannot act on medical certificates alone. The medical profession is far from resenting the fact that complete discretion as to the diet of invalids has not been left in their hands; on the contrary, the demands by patients, and especially by the relatives of patients in behalf of the latter, were frequently very embarrassing. Many a doctor has felt that to order the extra rations which the patient asked for was unfair on the food supply system of the country; but while refusing to be complaisant he has felt that it is the resolve of the patient to seek medical advice in other directions if the request for indulgence is not granted. Except in the cases of extra rations for expectant or nursing mothers, the applications to the Food Control Committees must be accompanied by a certificate signed by the medical men in charge of the case, and this certificate sets out the diagnosis and specifies the minimum weekly amount of the particular foods required. There is, therefore much left to medical decision, while the ultimate responsibility is assigned to the Food Control Committees. The following are the diseases or pathological conditions in which special concessions are made in respect of *meat, butter,* and *margarine:* Active tuberculosis, diabetes, exophthalmic goiter, pernicious anemia, malignant disease, senile dyspepsia, a convalescence after severe illness, major operations, and difficult childbirths. In respect of *white flour* the Food Control Committees still hold that no ordinary disease can be held to require bread made from white flour, but a ration will be granted for the limited period of six weeks, and up to a maximum total of 14 pounds, to the following cases: Senile dyspepsia, intestinal or gastric ulceration, and chronic diarrhea. "Senile dyspepsia," by the way, is the term used to describe the form of indigestion accompanied by flatulence and often associated with chronic pulmonary or cardiac conditions among the aged. Extra rations of *sugar* cannot be granted to patients while in receipt of additional meat, butter, or margarine; while it is suggested that for the present *milk* should be ordered rather than meat.

The annual ophthalmological congress was held this month at Oxford, and, as usual, Keble College hospitably offered their beautiful buildings for the general purposes of the meeting, while the scientific sections met in the Anatomy Schools of the university. The first debate was opened by Sir William Job Collins, senior surgeon to the Royal Eye Hospital, formerly chairman of the London County Council, and now member of Parliament for Derby. Since the outbreak of war Sir William Collins has been ophthalmic surgeon to that immense war hospital, King George's Hospital, and it was fitting that he should be selected to start the proceedings upon such a topical theme as ophthalmology during the war, and in a practical and learned way he did justice to the theme. Alike on the pathological and the clinical sides, ophthalmology has made many new departures under the stimulus of new and sinister conditions, and Sir William Collins' words, which were reinforced by distinguished colleagues from the services and the colonies, showed clearly the direction in which progress has been made. Among those who took part in the proceedings were Colonel R. H. Elliot, late professor of ophthalmology in Madras University; Major H. C. Purchas of the New Zealand Medical Corps, Staff Surgeon Hanson, R. N. V. R., and Mr. Bernard Cridland, the secretary. Among important contributions to the proceedings may be mentioned a paper by Captain Percival Hay on the implantation of cartilage after evisceration of the eye, and a paper by Sir William Barrett, F. R. S., late professor of physics in the Dublin College of Science, upon "Entoptic Vision." This is a subject much neglected, at any rate to-day, by ophthalmologists, and Sir William Barrett's demonstration with the entoptoscope attracted much attention. Captain Hay's paper included a demonstration of a very neat piece of cosmetic surgery in connection with the eye. The procedure was devised recently at the Queen's Hospital, Sidney, and has given good results in cases where the ordinary methods for the adjustment of an artificial eye are impossible.

I have several times alluded to the mistaken policy

followed at the beginning of the war which led to the conscription of medical students for combatant purposes, and the complete denuding of the medical schools of all but their female or physically feeble scholars. A tabular statement has just been issued by the General Medical Council showing the number of medical students now in actual attendance at the various medical schools and in preparation for degrees or diplomas. The figures refer to the month of May, 1918, and show pretty clearly that the recent policy of allowing medical students to return to their work, if they could prove that they were seriously engaged upon it, is bearing good

Topical Distribution.	First Year. Due to Qualify in 1923.			Second Year. Due to Qualify in 1922.			Third Year. Due to Qualify in 1921.			Fourth Year. Due to Qualify in 1920.			Fifth Year. Due to Qualify in 1919.		
	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Total.
London District	285	202	487	211	137	348	167	150	317	195	66	261	359	53	442
England and Wales*	592	329	921	472	256	728	362	226	588	300	116	416	514	92	606
Scotland.	393	222	615	329	259	588	319	185	504	231	129	36	315	103	418
Ireland	393	114	507	448	104	552	369	73	442	228	30	258	115	12	127
Total	1378	665	2043	1249	619	1868	1050	484	1534	759	275	1034	944	207	1151

*The figures in this heading include the figures in the heading above.

fruit. That there is now, and will be for some little time, a shortage of medical practitioners cannot be denied, but in face of the increased numbers of medical students in 1918 the apprehension that in something like five years there would be no doctors is seen to be groundless. The proportion of women doctors, especially in the London area, is marked, and it is also common knowledge that a larger number of medical students than usual have commenced their professional studies before the age of eighteen. The grand total of students in May, 1918, is 7,630, of whom 2,250 are women, and that total compares favorably with the figures issued previously by the General Medical Council, as the grand total for May, 1916, was 6,103, while it was not until October, 1917, that the total reached 7,000.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

Y. M. C. A. HOTELS IN FRANCE—STATISTICAL REPORT OF RED CROSS WORK—BASE HOSPITAL NO. 3 (MOUNT SINAI UNIT) IN THE CHARTREUSE MONASTERY.

PARIS, July 9, 1918.

THE Y. M. C. A. is now operating fourteen hotels in France for American soldiers, with aggregate accommodations for 2700 men daily. Four of the hotels are located in Paris, five in port cities and the others in various large centers where American troops are stationed. In addition to the fourteen hotels, nine restaurants, not counting the canteens which serve lunches, are maintained by the "Y." The fourteenth hotel taken over is in one of the large ports of entry, and is one of the best hotels of that city. It has eighty-three rooms, equipped with all conveniences. During the month of April the hotels averaged 6,100 meals served each day, and the restaurants averaged 5,400 meals daily. The average cost of meals in the "Y" hotels is 4fr. 25c. The hotels and restaurants are run on a "break-even" basis. Mr. Walter C. Lohman of Dayton, Ohio, is in charge of the hotel and restaurant department.

In conjunction with these the Amusement Department of the Y. M. C. A. arranges a program for every night in the Paris hotels in a room set apart for the purpose, and such artists as Sothern, Elsie Janis, Mary Garden and others give their services free. The provincial hotels have programs of equal interest at less frequent intervals, the intention being to offer the men such attractions as will keep them occupied and away from less desirable places.

The report for April of the Military Affairs Department of the American Red Cross gives bewildering statistics regarding the work accomplished. The following activities are only a few that have increased to tremendous proportions: Seven canteens on the French lines of communication supplied 408,000 meals, nine metropolitan canteens supplied food and hot drinks to 454,000 and in addition to this took care daily of thousands of refugees, the number of whom was not kept. In the medical and surgical section a complete new hospital of 200 beds has been established in a chateau immediately behind the lines where fighting has been going on. A complete equipment for a thousand fracture bed tent hospital, including surgical dressings, instruments, etc., was installed. A dispensary was established for walking wounded and refugees. A complete tent infirmary was sent to an American division in the line.

American nurses and aids were placed in all the French hospitals where there are and will be American wounded. A hospital of 500 beds has been opened on the grounds of a famous racecourse with all necessary equipment and accommodations for operating. Three additional dispensaries and infirmaries for the American Army and Navy were opened at ports. Five rolling dispensaries were organized, with portable equipment, to care for refugees and soldiers by the roadside.

The report notes the great increase in the number of beds in numerous hospitals and the enlargement of all kinds of emergency hospital work, and the arrangements made for establishing new departments, such as dental and medical offices for the Red Cross personnel and the opening of various convalescent homes for American officers and soldiers. A unique feature which is proving a great benefit is the dental ambulance furnished to the Army by the Red Cross. It is mounted on an automobile chassis which moves from camp to camp behind the front lines, and 456 patients were treated in April.

Further details show that the Army has been supplied with 17,050 splints, 128,500 sponges, 25,255 slings, 122,200 bandages, 643,800 pads, 55,900 strips, buckles, hammocks, etc. Then 1,419 French hospitals were supplied with 5,343 cases, weighing 249,356 pounds, some of the articles being as follows: 2,500 surgical instruments, 1,000 mattresses, 4,500 pillows, 6,800 pillow cases, 1,500 pairs of slippers, 1,278 bedside tables, 5,492 sheets, 1,200 sweaters, 2,064 gowns, 325 beds, 1,200 shirts, 10,538 suits of underwear, 14,700 pairs of socks, 20,448

handkerchiefs, 13,700 towels, 1,456 blankets, 2,569 toothbrushes, and a great variety of surgical specialties and drugs.

A. E. F. hospitals were supplied with the following articles: 2,580 blankets, 4,943 pairs of socks, 10,500 comfort kits, 1,700 sweaters, 3,200 night shirts, 1,918 pairs of drawers, 350 pairs of shoes, 350 pairs of trousers, 500 first-aid kits, 2,800 pillow-cases, 4,648 sheets, 2,016 convalescent gowns, 1,080 face towels, 1,236 bath towels, 4,260 operating towels, 1,036 pairs pajamas, 2,160 napkins, 1,008 helmets, 30,786 handkerchiefs, 135 boxes of apples, and, in addition, hospital supplies of many kinds.

Every mondaine has heard and probably tasted of the world-celebrated liqueur "Chartreuse," made by an order of monks. These monks were expelled from France at the time of the contest between Church and State in 1903, and their ancient property dating from the middle ages was escheated to the State and has been lying idle all of these years. But suddenly it has been transformed, for the old cloisters resound to-day with the United States Army bugle call of Army Base Hospital No. 3—the old monastery has come to new life and usefulness. Gone are the pious Fathers from their cloisters. Instead, in their Sam Browne belts and C. D. uniforms, pace some of New York's leading surgeons and physicians. Base Hospital No. 3 (the Mount Sinai Hospital Unit), which left New York in the early part of February, 26 officers, 65 nurses, 5 female civilians and 153 enlisted men, took up its station in this fourteenth-century monastery, and after considerable preparatory work, received its first patients in May. The French Government had been preparing the buildings for institutional purposes, and the work was almost completed upon the arrival of the American hospital organization. The hospital unit found its station by the side of a winding little river, bordered on either side by tall Lombardy poplars. Just before the monastery is a grove of heavy balsams, and behind rises a gentle hill with a small village on its summit. The gardens of the old place have been replanted with flower beds by the Americans, and the old furrows have been sown with peas and potatoes. The grounds contain a variety of fruit trees.

The plan consists of the old main monastery building, seven of the monks' houses, and a number of new constructions which have been laid out following in a general way the design of a great cloister. The main building, the chapel of which was once famous for its carved woodwork, is used for the administrative offices (headquarters, registrar's office, etc.), the living quarters of the officers, the dispensary, the medical store-room, the laboratory, the recreation room for convalescent patients and enlisted men, the *x*-ray outfit, which is in one of the old chapels, and mess rooms for the officers and for the nurses. The great chapel is used as a large dining-hall (capacity 450) for patients and enlisted personnel; the chapel, though bare of its famous wood paneling, still retains its old stained-glass windows, and at the supper mess the sunlight of early evening is reflected in purple and orange through the western window.

The pharmacy of the monastery has been transformed into the hospital dispensary. The room still bears the inscription over the shelves "Salus Infirmorum, Ora Pro Nobis." When the Americans arrived they found the cabinets filled with the herbs, roots and dried leaves and flowers used by the monks in preparing their old-fashioned remedies.

The monks' houses, of which there are seven, will probably be reserved as officers' wards. Each house consists of three rooms on the ground floor and a garret, and has its own garden with trailing vines, an old well, and a niche in the wall where in other days stood some holy figure. The roses are in bloom to-day in these old gardens, and in one or two a touch of heliotrope wistaria creeps along the brick cemented walls.

The ward buildings, thirteen in number, are long one and two-story structures, modern, electrically lighted, provided with steam-heating radiators, running water, toilets, and covered walks for the convalescents. The capacities of the buildings differ, the largest being about 115 beds. The buildings are of cement, the rooms cheerfully lighted and the walls all newly whitewashed. They were built by the French, and admirably serve the American hospital demands.

The center of the great cloister garden contains three modern buildings, the central kitchen for the wards and two operating pavilions equipped with the surgical supplies and sterilizers brought from America and provided by the trustees of Mount Sinai Hospital and by the funds of the American Red Cross. In addition to the operating rooms there are separate rooms devoted to the work of the eye surgeon, the nose and throat specialist, the dental and jaw surgeons, the ante-operative *x*-ray examination, and dressing rooms for nurses and surgeons.

In the front grounds are the nurses' home, which is a four-story building, a small building for the chief nurse, another of similar construction for nurses' recreation purposes, and a building at present used by the nurses, but which will probably be used by the administration when the plant is enlarged. The old ox-stall barn has been converted into a garage. An open field immediately adjoining the plant offers opportunity for hospital expansion by the construction of the standard hospital barrack. The Engineer Corps is building at this time two bath barracks, one of which contains the bed and clothes disinfector.

Water for general washing purposes is pumped from the river. Drinking water is derived from five springs on the hillside behind the buildings, and is supplied to the plant by its own gravitation from its high source, about 80 feet above the level of the monastery.

146 Avenue des Champs Elysées.

Beriberi in Spain.—Fernandez Martinez states that beyond doubt beriberi has appeared on the coast of the province of Granada. The case which established this fact occurred in a native man aged 52 who led the life of a fisherman, day laborer, and shepherd. The climate is a torrid one, where cotton and sugar cane are grown, while away from the coast on the hills nearby, the weather may be extremely cold. The subject had always been well and free from vices. The diet comprised fried fish, potatoes, rice, tomatoes, oil, red peppers, chickpeas, and maize.—*El Siglo Médico.*

Progress of Medical Science.

New York Medical Journal.

August 10, 1918.

1. The Blood and the Soul. Jonathan Wright.
2. Etiology en Echelon. William P. Cunningham.
3. Acute Coryza. Ernst Danziger.
4. The Food Value of Bread. Robert McDowell Allen.
5. Immunity in Tuberculosis. Max Staller.
6. Experience with a Class in Malnutrition. John L. Kantor.
7. Examination of Recruits for Tuberculosis. Ralph C. Matson.

3. Acute Coryza. Its Intranasal Complications, Diagnosis and Therapeutics.—Ernst Danziger draws attention to the grave consequences that may result from a cold in the head. Acute coryza he describes as an acute infectious disease caused by the pneumococcus, streptococcus or bacillus influenza which are found chiefly associated with staphylococci. It is ushered in by a feeling of chilliness, with burning and itching in the nose, which leads to repeated attacks of sneezing, and in about twelve hours there is a colorless, seromucous secretion which, within a few days, changes to a thick, yellowish, greenish mucopus. The condition improves slowly and complete recovery usually follows in two or three weeks. The pathological processes which take place are: at the onset the mucosa is hyperemic, with a bluish red, glassy, dried appearance; as soon as the second stage of secretion is reached, the mucous membrane becomes swollen and edematous, and covered with watery secretion. It is the edematous swelling of the mucosa of the turbinated bones which prevents nasal breathing. The lower nasal meatus is also found filled with grayish, glairy mucous, which interferes with expiration. The usual treatment by administration of urotropin, aspirin, phenacetin, and so on, should be supplemented by local treatment in order to remove secretion, reduce edematous tumefaction, and establish good drainage from the accessory sinuses. The patient should irrigate the nose with warm saline solution (say one teaspoonful to a pint) a few times a day with the following precautions: the point of the nose piece of the syringe must not occlude the nostril; the stream must be horizontal; if irrigated from a douche bag, same must not be elevated higher than the ear; patient should bend the head forward during the irrigation; under no condition should the patient blow the nose directly after irrigation, and when he does blow his nose he must not touch either nostril. Danziger points out that it is not the irrigation, but the improper blowing of the nose afterward, that causes ear complications. After removal of the secretion, this author recommends an adrenaline ointment which reduces the swelling of the mucosa, and during the second week he adds a spray with an oil containing one of the volatile antiseptics. Should the nasal symptoms continue longer than three weeks, various etiological points have to be considered. (1) The presence of enlarged or diseased adenoid tissue in the vault of the pharynx, which must be looked for in adults as well as children. As a digital examination is contraindicated, and inspection with a retronasal mirror not satisfactory, the use of Holmes's pharyngoscope is to be recommended. (2) The possibility of an involvement of the accessory sinuses, which is usually caused by interference with normal drainage; this is more likely to occur in patients who suffer from anatomical abnormalities. Treatment should be instituted to establish normal drainage. Intranasal symptoms in these cases are of the greatest variety and intensity, and are sometimes entirely absent. In acute cases there may be intense pain over the antrum or frontal region, which with its periodicity might lead to a mistaken diagnosis of malaria. The cheek with the infraorbital or supraorbital region may be edematous, or the region of the antrum or frontal sinus only painful on pressure. As a rule, such cases yield to the conservative forms of treatment—as the application of adrenaline or cocaine to the region of the infundibulum, and irrigation with warm saline solution. In ease of swelling or severe pain, the ice bag should be employed. Sulphate of quinine, five grains three times a day, may be given. Other cases occur, however, in which prolonged nasal discharge or frequent headache is the only symptom present. Here resort must be had to other diagnostic methods, diagnostic puncture and lavage being the most reliable. In some cases a diagnosis may be safely made by transillumination, if intense transillumination on one side is obtained with a decided shadow on the other; it must be remembered, however, that a decreased transmission of light on both sides may be due to a thickness of bone that is normal for the individual in question. The third method of diagnosis, Roentgen pictures, Danziger has found unreliable and disappointing. Discussing the treatment of acute cases of coryza, Danziger states that if no relief is obtained in a few days by the conservative treatment already referred to, he uses puncture followed by lavage every twenty-four hours, three or four times, which seems sufficient to produce a cure. He points out that in these obstinate cases the secretion in the sinus is sometimes so thick that it cannot drain through the natural opening. During irrigation of the antrum the pressure of the water will often force a big plug of mucopus through the ostium and empty the sinus completely. Coffin and Harmon Smith have tried to supplant the puncture and lavage by suction and injection of antiseptics or astringent remedies into the sinuses after production of a vacuum. Danziger states that results are sometimes thus obtained which are due to passive hyperemia, but points out that prolonged hyperemia produces a swelling which might obstruct the ostia and prevent drainage. He also shows that it is immaterial whether saline solution or stronger antiseptics are used in irrigation, as the purpose is the removal of the secretion, the germs being embedded in the mucous or located deep in the glandular tissues of the mucous membrane. Should an enlarged anterior end of the middle turbinated bone prevent drainage, the removal of this obstruction is indicated. He adds that immunization with vaccines as a mode of prevention has been a complete failure in his hands, the reason being, in his opinion, that the normal bacterial flora does not represent the pathogenic germs.

Journal of the American Medical Association.

August 10, 1918.

1. The Casualties of War and Industry and Their Relation to Orthopedic Surgery. Albert H. Freiberg.
2. The Frequency of Pulmonary Compression Signs in Acute Fibrinous Pericarditis. Henry A. Christian.
3. Pus in the Female Pelvis: A Surgical Retrospect. John Young Brown.
4. Rectal Section for Pelvic Abscess. Harry P. Ritchie.
5. The Too Intensive Arsphenamine Treatment of Syphilis. M. L. Heidingsfeld.
6. Treatment of Acute Poliomyelitis with Immune Horse Serum: Further Studies. E. C. Rosenow.
7. An Operation for Stabilizing the Foot and Ankle in Poliomyelitis: A Further Report. Frank E. Peckham.
8. Diagnosis of Ureteral Calculi and Technique of Removal Without Operation. A. J. Crowell and S. R. Thompson.
9. Cases of Empyema at Camp Lee, Va.: Preliminary Report. Empyema Commission, Camp Lee, Petersburg, Va.
10. Measures for the Prevention and Control of Respiratory Infections in Military Camps. Joseph A. Capps.
11. Acute Mastoiditis as a Complication of Infectious Diseases. Based on a Study of One Hundred and Twenty-three Cases in the Base Hospital, Camp Shelby, Miss. George H. Lathrope.
12. Pharmacology in the War. Torald Sollmann.
13. Venereal Disease Control in the Army. William F. Snow and Wilbur A. Sawyer.

3. Pus in the Female Pelvis: A Surgical Retrospect.—John Young Brown. See MEDICAL RECORD, June 22, 1918, p. 1113.

4. Rectal Section for Pelvic Abscess.—Harry P. Ritchie. See MEDICAL RECORD, June 22, 1918, p. 1113.

5. The Too Intensive Arsphenamine Treatment of Syphilis.—M. L. Heidingsfeld advocates strongly the conservative method of arsphenamine therapy in syphilis and draws attention to the possible deleterious effects of too intensive treatment by this drug. He bases his conclusions on the careful clinical and serological examination of 1,133 cases of syphilis, treated in private practice from 1911 to 1918, and states that in this series 10,589 serological examinations have been made. Of the total number of 1,133 cases, 667 have been eliminated as unfit for careful report. The remaining 456 cases were under observation sufficiently long to permit of deductions, and of these 367, or 80 per cent., were clinically and serologically negative for two or more years, this negative phase being reached by 154 cases with only one administration of arsphenamine or neoarsphenamine, and in 107 cases with only two administrations. The other 65 cases were negative to the

Wassermann test and clinically negative but more or less persistently positive to the Hecht-Gradwohl control test. If these latter cases are added to the 367 cases, it means that of the series under consideration 95 per cent. proceeded to a clinical recovery. The mode of procedure adopted by Heidingsfeld was as follows: Every case of syphilis, not previously treated with arsphenamine, received a full commensurate dosage of arsphenamine, which was not repeated for four to six months, except in the face of a threatening and serious clinical manifestation. A serological examination was made every thirty days for the first six months. If there was no material change for the better, or the serological examination showed a relapsing character, treatment was repeated at the end of the first four months. If the serological examination showed improvement but was not negative, or if there were fairly well defined clinical manifestations, treatment was invariably repeated in six months. This plan was continued until the patient became persistently serologically negative and devoid of all manifestations of well-defined clinical nature. The serological control exercise consisted of the Wassermann test used in conjunction with the Hecht-Weinberg test, as modified by Gradwohl. Heidingsfeld expresses himself as supremely impressed with the combined efficacy, delicacy, and reliability of these tests in exercising the highest degree of diagnostic and therapeutic control. The author refers to the work of Ehrlich and Hata, who in 1910 produced "arsenic-fast" spirochetes, and to the later laboratory investigations of Akatsu and Noguchi, which have clearly established gradually acquired arsphenamine tolerance on the part of the *Spirochaeta pallida*. These observations would seem to confirm the results obtained in the present series. He refers also to the history of syphilis therapy and shows that before the cause of the disease was discovered the intensive and the conservative forms of treatment each had their advocates. From careful clinical observation, it had been noted that good results were obtained if antispecific remedies were entirely removed for a period of several months and temporarily replaced by a general tonic treatment, which in the light of our present knowledge can be explained by the fact that syphilis in a relatively short time acquires a tolerance to antispecific remedies, which is not removed until the individual is given a definite respite from further specific treatment. This may explain the supposititious value of remedies of the sarsaparilla type. The ideal goal in syphilis therapeusis would be reached if Ehrlich's concept of a "therapia sterilisans magna" could be attained. The arsphenamine remedies possess the maximum of parasitotropic and the minimum of organotropic activity of any that we have to-day, and it is possible that careful study of method and dosage may lead to improved results. It is noteworthy that the greatest degree of improvement, clinical and serological, follows the first administration, and it is possible that two or three quickly repeated treatments before arsphenamine tolerance has been established might give equally good or better results. Heidingsfeld decries particularly the long continued administration of small fractional doses, a form of treatment especially prone to establish arsphenamine tolerance. On the other hand, he is also strongly opposed to a too intensive therapy. This paper was read before the Section on Dermatology at the sixty-ninth session of the American Medical Association in June last, and provoked a good deal of criticism. Replying to the members who had taken part in the discussion, Heidingsfeld stated that his cases had been tabulated with the greatest care and he felt that his results could speak for themselves. In his opinion private cases were the only ones dependable for purposes of investigation. In dispensary and hospital practice he had had relapses, but the fault, he thought, lay with the individual and his mode of life. Speaking of dosage, arsphenamine should be administered in full dosage, 6 decigrams, commensurate to 160 or 180 pounds, body weight.

The Lancet.

July 20, 1918.

1. Hunterian Lecture on the Pathological Aspects of Certain War Injuries of the Eye. Delivered before the Royal College of Surgeons of England. Colonel W. T. Lister, C.M.G.
2. War Deafness, with Special Reference to the Value of Vestibular Tests. P. McBride and A. Logan Turner.
3. Gunshot Fractures of the Femur: Some Methods of Reducing Serious Displacements. Major Philip Turner.
4. Treatment of Fracture of the Shaft of the Humerus by Splints. Major Charles A. Morton.
5. The Future of the Medical Profession. (Being an Abstract of the Cavendish Lecture delivered before the West London Medico-Chirurgical Society on July 4th at the West London Hospital and July 11th at the Royal Society of Medicine.) Major-General Sir Bertrand Dawson, G.C.V.O.
6. The Case for a State Medical Service Restated by the President and Honorary Secretary to the State Medical Service Association. Benjamin Moore and Charles A. Parker.
7. Medicine and the State. Lauriston E. Shaw.

2. War Deafness, with Special Reference to the Value of Vestibular Tests.—P. McBride and A. Logan Turner point out the hypothesis that if there is deafness following concussion, and if the vestibular tests give a normal result, the prognosis is favorable and the deafness of purely functional origin is untenable and, if accepted by the examiner, might result in very grave injustice to the patient. While the authors have not been able to prove in any of the cases considered either functional deafness or malingering, they have been able to show that in Group A, where one or other of these conditions might be suspected, vestibular reaction was sometimes good and sometimes defective. In Group B they point out that in the only case of partial recovery after concussion deafness met with, it was the ear in which vestibular reaction was absent which recovered. Other cases in the series furnish ample evidence that vestibular reaction may be lost, while the cochlear functions are more or less active. In Group C they found unilateral deafness, the hearing in the other ear being good or fair. In only one case was vestibular reaction more marked in the better ear; in two this was reversed and in the other three cases it was equal. In one of the latter no reaction was obtainable from either ear, and yet the hearing power on one side was good. They conclude, therefore, (1) that concussion deafness is generally due to some organic change; (2) that the prognosis is usually bad; (3) that the results of the vestibular tests can only be utilized in conjunction with information derived from other sources. Thus, if the patient shows other hysterical symptoms, vestibular tests may perhaps under certain circumstances help diagnosis; but to state that they do more than this, in the opinion of these authors, is misleading and dangerous.

British Medical Journal.

July 20, 1918.

1. Further Remarks on the Treatment of Asthma by Peptone. A. G. Auld.
2. A Note on Epidemics. Captain Julius Burnford.
3. Nasopharyngeal Conditions in Meningococcus Carriers. Captain F. J. Cleminson.
4. Two Cases of Vulvitis Caused by the Accumulated Secretion of Tyson's Glands. John D. Malcolm.
5. The Value of Artificial Pneumothorax in the Arrest and Prevention of Hemoptysis in Pulmonary Tuberculosis. Z. P. Fernandez.
6. An Address on the Future of the Medical Profession. Part II. Major-General Sir Bertrand Dawson, G.C.V.O.
7. Acute Intestinal Obstruction Due to Strangulation Through the Great Omentum. J. K. Datta.
8. The Reducing Body in the Cerebrospinal Fluid. John Turner.
9. Tetanus Neonatorum. Charles Russ.

3. Nasopharyngeal Conditions in Meningococcus Carriers.—Captain F. J. Cleminson concludes from an investigation into the anatomical and pathological conditions of the nose and nasopharynx in meningococcus carriers that the following factors may suggest an explanation of the wide variation in resistance to treatment noticeable in such cases. He sums up his results as follows: (1) Factors favoring the genesis of carriers—(a) the presence of adenoids; (b) the conditions implied in the term "firm mucous contact." (2) Factors unfavorable to the genesis of carriers—already existing septic infection of the sinuses. (3) Factors favoring resistance to treatment—(a) pyorrhea alveolaris; (b) firm mucous contact; (c) already existing septic infection of the sinuses. Cleminson states, however, that these conclusions are based on so short a series of cases—47 carriers and an equal number of controls—that they must be accepted with the greatest

reserve; they offer the strongest inducement for a similar investigation on, say, three to five hundred carriers. In general it may be said that they point in the direction of the accessory sinuses as being the main seat of meningococcus infection in carriers, these cavities being often difficult to disinfect, and therefore able continually to reinfect the upper and more secluded portions of the nasopharynx, even though these may be swept clean periodically by the antiseptic used. Moreover, the lymphatics surrounding the olfactory nerves, which are in close relation to the ethmoidal cells, may possibly provide an easy avenue for infection of the meninges. It was thought that such an investigation as that undertaken by Captain Cleminson might result in some modification of treatment which would diminish the number of carriers and thus aid in maintaining field strength and also lessen the risk of outbreak. The author points out that such a result has already been attained, the above observations having led Captain Glover to precede flavine or other spray treatment at a fixed time by a spray of adrenalin chloride, 1 in 6,000, in normal saline. The effect of this reagent is, by shrinking up the mucosa, to increase the airway, dilate the ostia of the accessory sinuses, and allow of a much freer access of the antiseptic spray to all parts of the nose. This has been followed by a material improvement in results and has proved to be the best method tried in the laboratory this year. The author hopes to continue his research along lines indicated and suggested by the results reported. He believes that eventually it may be possible, as in diphtheria, to clear up an obstinate carrier of the meningococcus by some simple surgical procedure, such as the removal of the anterior half of the middle turbinals, by throwing open the ostia of the majority of the accessory sinuses, and thus shorten the period of isolation.

Münchener medizinische Wochenschrift.

May 28, 1918.

The Symptomatology of Osteomalacia from the Viewpoint of Polyglandular Endocrine Insufficiency.—Naegli enumerates the following symptoms: Osseous gracility, hyperplasia of the bone marrow, decalcification, sensitiveness of the periosteum which is markedly influenced by the exhibition of adrenalin; muscular dystrophies; psychic disturbances; increased reflexes, spasms, tremor, pyrexia, hyperhydrosis, paresthesia, disturbances of metabolism and changes in the hematopoiesis. As to lesions of the endocrine organs, insufficiency of the hypophysis and suprarenal gland has been met with, which is made evident by the happy effect resulting from the exhibition of the extracts of these glands. The hyperfunction of the genital glands is demonstrated by the influence of castration. The parathyroids are often hypertrophied; however, this phenomenon is common in all kinds of calciprivae diseases. After discussing the pathogenetic explanations which have been put forward for osteomalacia, Naegli concludes that the process can only be due to an endocrine affection, namely, a polyglandular insufficiency.

The Serology of Typhus Fever.—H. Werner and E. Leoneanu have been able to show that there is a positive Widal in 40 per cent. of patients with typhus, attaining even 1/400 in unvaccinated subjects. The sera of both typhoid and typhus agglutinate the Proteus X 19 or Eberth's bacillus. This agglutination is, however, more marked in typhus fever. In order to study the possibility of a serodiagnosis after the technique of Weil-Felix with the dead proteus, Werner and Leoneanu have, it seems, established the fact that the proteus heated at 80° C. for one hour becomes still agglutinated by the blood of typhus patients, but the reaction is less sensitive than in the case of the living proteus. The essays of the writers, as far as vaccination is concerned, are, to say the least, modest. One guinea-pig immunized to the proteus X 19 could not be made to take positive inoculation, while a healthy animal fell to the disease after an inoculation of typhus.

June 4, 1918.

Changes Arising in the Cutaneous Capillaries in the Exanthemata.—Weiss and Hausland have been able to continue their researches on living subjects in the way of microscopy. They have been able—at all events, they say so—to study no matter what part of the cutaneous surface, by the following technique. A microscopic tube is mounted on a kind of a box containing a lamp and opened on its bottom. By applying the apparatus over the skin, which is imbibed with cedar oil, the vascular system is made to stand out, magnified to the extent of from 30 to 40 diameters. The writers offer a graphic reproduction of the images of a normal skin as well as the roseola of typhus and typhoid and the erythemata of scarlet fever and measles. The variations in aspect are in accord with the histological differences of these various eruptions and may have, perchance, a diagnostic value in doubtful cases.

The Antagonism of Chlorosis and Osteomalacia Considered Respectively as Disturbances of Hypo- and Hypergenitalism.—Naegli, with all the valor of a Teuton when a question of the genital organs comes in play, is desirous to establish, in the case of these two morbid processes, an opposition similar to that of myxoedema and Basedow's disease. To attain this important end he commences by reducing the domain of both affections, believing that very frequently an abuse is made of the diagnosis. Antagonism makes itself manifest, other than by the activity of the sexual glands, particularly in the domain of the endocrine, osseous, muscular, nervous and vascular systems.

Is Homo-Specific Blood Transfusion Dangerous?—R. Klinger criticizes the difficulties which Kuczinski (*Münchener med. Woch.*, April 30, 1918) maintains exist in the case of direct blood transfusion from man to man. The possible presence of hemolysins is not at all proven by Kuczinski's case because death may have quite as well been due to a septic process of some sort. Klinger concludes that, far from having a limited use, or being dangerous, transfusion should be much more extensively used than it is at present.

Deutsche medizinische Wochenschrift.

May 30, 1918.

The Radiology of Gastric and Duodenal Ulcers.—G. Schwarz is opposed to the spasmogenous theory of ulcer. Likewise he does not believe in the neuropathic (vagotonic) theory of the cause of ulcer, but on the contrary he invokes this nervous state for the purpose of explaining the duration and activity of a preëxisting ulcer. The ulcer itself owes its genesis to mechanical or chemical conditions. An important part in determining the site of the ulcer is played by constriction of the abdomen at the waist line. It is for this reason that transversally placed stomachs, high in location, are more exposed to duodenal ulcer, while vertical stomachs develop ulcer of the lesser curve. The writer illustrates with diagrammatic drawings, taken from radiographs, the mechanism of these localizations which are made evident by shadows in the gastroduodenal area, these indicating the constant traumatism existing over the abdomen at the waist line. As arguments for upholding these views, the writer refers to the greater frequency of ulcer in women, as well as the increase in the number of cases since the beginning of the war. This increase is due, according to Schwarz, to the ever-increasing wasting of the poorer classes, a phenomenon which favors the action of abdominal constriction on the viscera.

Anemia of the Lower Limb Obtained by Compression with a Pad Attached to a Lever.—P. Drenitz does not think that Esmarch's band exercises sufficient compression in operations high up on the thigh; also that it slips down along the limb and does not allow one to make intermittent decompression during an operation. The writer uses instead a pad, which can be pressed upon the femoral or iliac artery or even the aorta, by means of a lever. Manual pressure is employed and can be graded to suit the circumstances. The apparatus is very clumsy.

Analogies of Rabies and Tetanus.—Remlinger shows that in experimental pathology these two infections behave almost like members of one group.—*Société de Biologie.*

Book Reviews.

Minor Maladies and their Treatment. By Leonard Williams, M.D., Physician to the French Hospital. Fourth Edition. Price, $2.75. New York: William Wood & Company, 1918.

The reader of this very useful and readable book should begin with the preface. In so doing he will make the acquaintance of a very engaging personality—on paper, and we doubt not he is such in the flesh as well—and will be prepared to take the advice given in the book as based upon the experience of a (presumably) successful practitioner who has an open mind and implies that what he has to say is not necessarily the last word in therapeutics. The minor maladies, whose treatment is discussed, are: "Colds, coughs, and sore throats;" "Indigestion;" "Constipation, diarrhea, vomiting, and giddiness," a chapter which contains some practical remarks on seasickness; "Rheumatism, neuralgia, headache;" "Goutiness;" and "Minor glandular insufficiencies." There are also suggestive chapters on "General health," "Old age," "Some drugs and their uses," and "Insanity."

The book can be profitably and agreeably read through, and then left on the shelf as a work of reference, and it will prove to be one of greater practical utility than many another much more ponderous tome—the ponderosity of this is just about one pound. We can recommend the book to all who believe in the value of treatment, even of the minor maladies, which of course make up the bulk and the most lucrative part of the general practitioner's daily work.

The Way Out of War. Notes on the Biology of the Subject. By Robert T. Morris, F.A.C.S., Author of Tomorrow's Topics Series. Price, $1. Garden City and New York: Doubleday, Page & Co., 1918.

This little book constitutes the fourth volume of the Tomorrow's Topics Series, the previous volumes being "Microbes and Men," "A Surgeon's Philosophy," and "Doctors versus Folks." To any one who has read these books, especially the first named, the announcement of another one, dealing in Dr. Morris' interesting fashion with the great war as well as with warfare in general, will be most welcome. The author notes the various attempts to explain the fact of war which have been made by sociologists and psychologists and says they have been without practical results because they have approached the subject from the wrong side. His own explanation is a materialistic one, based upon biology. War is due, in fact, to man's defective brain. This, of course, is not the whole argument, but we will leave to the reader the pleasure of learning for himself Dr. Morris' view of what led the German to adopt the infamous practices which have made this name a synonym for all that is base and ignoble.

Laboratory Methods of the United States Army. Medical War Manual. No. 6. Compiled by the Division of Infectious Diseases and Laboratories, office of the Surgeon-General, War Department, Washington, D. C. Price, $1.50. Philadelphia and New York: Lea & Febiger, 1918.

The volume deals with laboratory technique—stains, solvents, reagents, culture media, etc.—with special reference to the examination of urine, blood, sputum, feces, milk, drinking water. Elaborate details are given for serореactions of all kinds, quantitative analyses of urine and the preparation of smears and cultures. The following substances are mentioned in blood analyses — glucose, chlorides, hemoglobin, urea and non-protein nitrogen. No manual is given for creatinine, uric acid and indican.

Aids to Rational Therapeutics, with U. S. A. Pharmacopœia Equivalents. By Ralph Winnington Leftwich, M.D., C.M., M.R.C.S. Eng., Late Assistant Physician to the East London Children's Hospital; Author of "An Index of Symptoms," "Tabular Diagnosis," "A Pocket-Book of Treatment," etc. Price, $1.50. New York: William Wood and Company, 1918.

This is a very practical little book on the treatment of disease that cannot but be found useful to every practitioner, young or old; the only one to whom it will not appeal is the dyed in the wool therapeutic nihilist, whose sole object in studying disease is to find out the how and the why, and who would hate to think he could cure it for that would put an end to his investigation and spoil all his fun.

The author has adopted a plan of classification of diseases which is admirably suited to the purpose of his book. He abandons the old plan of grouping them according to the organ affected, in which diseases of the most varied character and entirely unrelated to each other are considered together. This involves a great amount of useless repetition, since the underlying principles of the treatment of catarrhal inflammation—to take an example—are the same, although modified more or less according to the organ affected. Dr. Leftwich holds, however, that the only scientific way of teaching therapeutics is to place in the same group all diseases which are of the same or allied pathology, whatever organ or tissue may be involved, while the shortest practical way is to place in the same group diseases which require the same treatment. As one may readily see, these two groups more or less coincide. On this double basis diseases are divided into forty groups, such as the catarrhal group, the serous effusion group, the purulent flow group, the rheumatic group, the chronic fibrosis group. The group treatment is first considered and then the treatment of each individual member of the group so far as it may differ from that of the type or of other members. This makes a very practical book, one that is adapted for study as well as for reference.

Lessons from the Enemy. Medical War Manual. No. 5. By John R. McGill, M.D., F.A.C.S. Major, Medical Reserve Corps., U. S. Army. Price, $1. Philadelphia and New York: Lea & Febiger, 1918.

The chapters are devoted respectively to the German Medico-Military Organization, Sanitary Service, Base Hospitals, Red Cross Activities, Reeducation of the Disabled, Orthopedic Hospital-School and Workshops, Protheses, National and Communal War Relief Work, Social Health Insurance, etc. There are many illustrations and specimen blanks to be filled out by the disabled.

Tumors of the Nervus Acusticus and the Syndrome of the Cerebellopontile Angle. By Harvey Cushing, M.D., Professor of Surgery at Harvard University, Surgeon-in-Chief to the Peter Bent Brigham Hospital, formerly Associate Professor of Surgery at the Johns Hopkins University, Director of the United States Army Base Hospital No. 5. Illustrated. Price, $5.00 net. Philadelphia: W. B. Saunders Co., 1917.

We are only lately beginning to realize how little we really know about such a body as the motor cortex, for example, in spite of our many opportunities to observe the physiology and pathology; and when it comes to localizing a brain tumor the average practitioner will give up at once and send for the neurologist. And yet brain tumors are fairly common and have well-defined symptoms. Neurofibromata, *e.g.* comprise about one-tenth of all of them, and their usual location is in the cerebellopontile angle, yet are the symptoms known generally? Dr. Cushing has given us here a careful study of 29 undoubted cases and many other probable ones, together with illuminating and in the main undeniable generalizations drawn from them. In places the book bears marks of hasty construction, which is explained—and honorably explained—when we know that Dr. Cushing was suddenly called "over there." This reminds us that the present war is responsible for the death of Sir Victor Horsley, to whom, more than to any other man, is due the credit for the modern knowledge of, and interest in, brain surgery. Dr. Cushing is carrying forward the torch he lately relinquished, and in his hands it promises to burn with a clear, steady flame.

Dr. Cushing's cases are reported clearly and fully, illustrations are profuse and, for the most part, helpful. The chapter on diagnosis is especially good. Paper, binding and print are excellent except that the case reports themselves are in rather too fine print and there is altogether too much spacing of letters and words to fill out lines. This gives a crude appearance to an otherwise finished example of the printer's art. Altogether the work is a classic and one to which any physician might point with pride on his shelves.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held April 22, 1918.

THE PRESIDENT, DR. HOWARD CANNING TAYLOR, IN THE CHAIR.

Resolutions Providing for Legislative Bureau at Albany.—Dr. GEORGE W. KOSMAK introduced resolutions which read in substance as follows: "Whereas, the present system employed by the Medical Society of the State and County of New York, and the constituent societies, for the purpose of studying and controlling or influencing medical legislation of direct interest and importance to the medical profession of the Commonwealth is impracticable, inefficient, and unproductive of results, and constant attempts by legislators and other interested lay persons to influence the practice of medicine, to invade the legal and other restrictions surrounding the same, to burden the legitimate practice of medicine with unjust and unfair laws and requirements, demand constant watching by a qualified and satisfactorily organized central officially recognized group, and as this condition of affairs demands speedy relief, be it *Resolved*—That the Medical Society of the County of New York instructs the establishment of a Legislative Bureau at Albany under appropriate rules and regulations formulated by the Counsel of the State Society, which shall centralize and co-ordinate the work of the State and local Committees on legislation, and furthermore, be it *Resolved*—That the Medical Society of the County of New York instructs the establishment of a standing Committee on Legislation of the Medical Society of the State of New York, consisting of three members, the chairman of which shall reside in Albany, and be it *Resolved*—That the necessary expenses incident to the work of such a committee be defrayed by the State Society, by certain economies secured in connection with the publication of the State Journal and by a direct assessment on the members of the State Society if necessary, and finally be it *Resolved*—That the delegates from the Medical Society of the County of New York to the Medical Society of the State of New York at its annual meeting be instructed to present these resolutions in the House of Delegates."

These resolutions were adopted subject to revision which would not change their purport.

The Whitney Drug Bill.—Mr. JAMES TAYLOR LEWIS, Counsel of the Medical Society of the State of New York, made a brief address in which he urged as many physicians as possible to go to Albany on the following Wednesday to attend the hearing on the Whitney drug bill and to protest against the passage of this measure, which he characterized as the most vicious piece of legislation that had been known in twenty years. He scored the doctors for having permitted the bill to pass the Assembly, and urged the physicians who went to Albany to advise the Governor not only to veto the bill but to denounce it. Mr. Lewis said he doubted very much whether most doctors fully understand the provisions of the Boylan bill or of the Whitney bill, and yet each doctor would be taxed one dollar a year for its support. The bill reduced the crime of illegally selling narcotic drugs from a felony to a misdemeanor, and for the first time in the history of medical legislation in this State a doctor could have his license taken away from him for a misdemeanor.

Fate of the Health Insurance Bill.—Dr. KOSMAK reported that at a hearing on the Nichol bill, which provided for a health insurance, the doctors had appeared in such force and with such effective arguments that the bill was killed in committee. While that disposed of the health insurance bill for this term of the Legislature, there was no doubt that another bill would be presented next year.

Resolutions for Increase of Public Health Committee.—Dr. J. P. DAVIN introduced the following resolutions which were adopted: "Whereas, a number of political measures and policies are publicly advocated at the present time as public health measures and as based on sound and established principles of medicine, when in reality they have no such sanction, but are merely the reflection of personal opinions of individuals in private practice or in public employ, and Whereas, the collective judgment, authority, and experience of a representative body of the medical profession, such as this Society, should be of inestimable service in determining the value of such procedures before they are legislated upon, be it therefore *Resolved*—That the Public Health Committee of the Medical Society of the County of New York be increased in numbers and importance so that it may correspond to the Public Health Committee of the New York Academy of Medicine, now actively engaged in work of this character. This committee should report monthly to this Society to the end that the public might be advised with authority on such subjects and that the rights and duties of practitioners of medicine and the welfare of the community shall be conserved in all matters of legislation advanced as public health measures." These resolutions were adopted.

Resolutions Opposing Health Insurance.—Dr. WILLIAM S. GOTTHEIL presented resolutions instructing the delegates from the Medical Society of the County of New York to the Medical Society of the State of New York to oppose health insurance, and instructing the delegates from this society and from other county medical societies to the American Medical Association to oppose health insurance.

The Problem of Venereal Disease Control.—Captain A. N. THOMSON, M. R. C., of the Surgeon General's Office, Washington, D. C., made this presentation, in which he said that the problem of venereal disease control in the army was to all intents and purposes the same as in civilian life. Those who had entered the Medical Reserve Corps were finding in their army experience confirmation of the basic principles that they had evolved in health department and clinic control of venereal disease during the past ten years. This, in brief, might be divided into education, first; advice and diagnosis, second; treatment, third, and last, but not least, follow-up, in every possible way. Military discipline greatly expedited the application of all procedures for control both of the source of the infection and the treatment of the infected individual.

Prior to entering the service, men who had given the venereal disease problem attention had the idea pretty firmly fixed in their minds that the army spread venereal disease. A good many people still held that idea, but contact with and study of the military procedure soon demonstrated that all civilian control methods were in force, and because of military procedure, which was another way of saying discipline, were more efficiently in force. The method of attack upon the venereal problem in the military as in the civilian plan started with education. By War Department regulation every man in the army must be instructed upon venereal disease. The education, therefore, was not only to be made available for the new army, but was in operation in the regular army. The recording of venereal disease in the army was most complete. Advice and diagnosis were available and treatment was compulsory, with penalties attached for failure to report. Follow-up work was also an actuality, and the medical officer finding that his patient did not come back had only to report the matter to the commanding officer in order to have the patient produced. Quarantine was also enforced. While in the infectious stages of the disease no man was given leave of absence from the reservation. The point which the speaker particularly desired to make was that the army was not to blame for venereal disease, and that we must all realize that the source of infection was in the civilian community, and the responsibility lay without the military reservation and not within. They were beginning to have some sort of an accurate index of the incidence of venereal disease in the community. The figures were now being reported in two groupings, all classified as new to the army, one group being contracted prior to enlistment and the other group contracted after enlistment. During two recent weeks, of 3,800 cases of venereal disease that were new to the army, 675 were contracted after enlistment, and if something were allowed for duplication, we would find that the civilian community presented the army in a period of two weeks with

3,000 venereal problems. If one realized the amount of work entailed in taking care of 3,000 patients, and at the same time attempting to make them into soldiers, it would be evident why every effort was being made to impress upon the civilian community the need for an active campaign against venereal disease, and why so much time and energy were being expended upon control measures within the army. The plan of the Surgeon General for combating venereal diseases was comprehensive, and comprised (a) social measures to diminish temptation, (b) education of soldiers and civilians in regard to venereal diseases, (c) early treatment and prophylactic measures against venereal diseases, and (d) medical care. The work of diminishing sexual temptation by the suppression of prostitution and the liquor traffic and the substitution of healthful and desirable recreation was being carried on under the general supervision of the Commission on Training Camp Activities, with its various cooperating organizations. The educational program for both soldiers and civilians covered lectures, pamphlets, exhibits and automatic lantern slide projection that would substitute for a lecturer and the use of the motion picture. The army could and did provide this material, and could and would make the audience attend. Bodies such as the New York County Medical Society should endeavor to reach the civilian population with the same degree of thoroughness that the army was now using. The motion picture exhibition would explain what they were doing in the army and what could be done in the civilian population better than mere words. Dr. Thomson said that the one thought he wished to emphasize was that man power would win this war. The experience with the original draft must bring the realization of the large incidence of venereal disease in the civilian population, the man power of which would become our army. It must be further realized that we would need millions more men. It therefore became the patriotic duty of the civilian communities, as well as to their own great advantage, to present to the army men free from venereal disease. To do this, all known scientific procedures must be instituted. In closing, Dr. Thomson urged the Society to enlist in the warfare against venereal disease, so that the country might be presented with an army fit to fight and industrial forces fit to work.

The Value of the Nervous and Mental Examination in the Army.—Dr. JOHN J. MCPHEE presented this communication, by invitation, in which he said that the shock and strain and savagery men experience in this war had made neurologists and psychiatrists indispensable to its medical service. A normal nervous system was necessary to withstand its terrors as a healthy body to bear its exposure, exertion, and fatigue. Our medical officers, internists, and surgeons, in our Clearance Hospitals, had written about the number of "nervous wrecks" they were getting, especially from the forces we sent over at first and complained about the lack of practical and experienced men to look after them. They had told us that these men should not have been allowed to go over at all. They were occupying beds that were needed for more dangerous but recoverable conditions, and time that could be saved if they had competent advisers was lost while the Disability Board was considering what to do with them. It was obvious that time could be saved and efficiency favored by having expert opinion available when required. If these needs could be met, and at least one mature man put on the staff of each division surgeon in the field, we would have done our duty to our men overseas. But this was not enough. They had written us not to allow unfit men to go over, and to attain this end we must reject them on our draft boards and in recruiting stations, or find them in our camps and recommend their discharge. Dr. McPhee stated that though his work in camps and on draft boards was limited, it had been sufficient to teach him its value and its wants. Men might get by local examiners, however careful they might be, without showing certain defects, and then reveal them under the discipline and strain of camp life. And no doubt many that would stand camp life and seemed fit soldiers might not hold out at the front. We could stop most of them at the source and comb more of them out of our camps if we could get enough time and men to do it. The speaker related his experience in examining some 40,000 men in our armies and suburban camps, many of them being National Guardsmen as well as men belonging to the National Army. He found that among them mental defectives were common and came from all parts of the country, there being more of them from the larger centers of life and from communities whose proportion of illiterates was large. All of them had been failures at school and at any work that required understanding and training. Most of them were harmless but useless, because they could not understand discipline or carry out orders. It was a relief to the officers and men and a benefit to the Army to get them out of it. There were a large number of recent recruits who were nervous and anxious when they were examined. They had tachycardia and various tremors, and their responses were often misleading. Many of them were homesick and presented a group of signs that might suggest a serious underlying cause. Drunkards and drug addicts were few. Of nearly 2,000 registrants examined by the Advisory Board at the Post-Graduate Hospital, five, or less than one-half of one per cent., were drug addicts; three, or less than one-quarter of one per cent., were drunkards; 13 were mental defectives, and seven were epileptics. A surprising number of bed-wetters were found. They seemed normal in other respects and were useful soldiers. It was sometimes a bit puzzling to know what to do with them. Another unexpected finding was the number of men with goiter. There seemed to be some cause for it in certain districts of Ohio, as there was a large number of men with goiter in the Ohio Infantry, and regiments and battalions from adjoining states appeared to be affected by it. Men who had constitutional symptoms or gave a story of previous constitutional disturbance, or in whom the goiter was very large, were not held in the service. There were many other ills and defects of the mind and nervous system, but these groups referred to were sufficient to convey an idea of the value of special examiners to the Army. Malingerers and adherents of various cults, intellectuals, and other suspicious characters, came within the province of the neurologist and psychiatrist, all of whom were a menace to the discipline and morale of their companies. Their discovery, exposure, and discharge was one of the most welcome and profitable services that the medical officers could render. In closing, Dr. McPhee stated that among the men with whom he had come in contact there was no selfish interest or sectional feeling. They were superior men on the same level and impelled by the same spirit to give their all for their country and its cause. They were doing it now in the trenches, and deserved and must get the best care we could give them.

Major GRAEME M. HAMMOND, M.R.C., U. S. A., laid great stress on the plea made by Dr. McPhee for early, complete, and thorough mental and nervous examination of all troops going to the front. He stated that he had examined about 75,000 troops from various camps, many of them having been examined a second time after an interval of three months had elapsed since the first examination. His experience had included a large number of National Guardsmen as well as men in the National Army. The National Guardsmen were men of a high type, the kind of men that we wanted for service at the front. He had found that, on an average among all classes, about 3 per cent. were discharged for mental and nervous diseases. The lowest percentage was found among the soldiers of the Seventh Regiment and in Squadron A, New York State Guardsmen. From these two organizations less than 1 per cent. were rejected for mental and nervous diseases. The highest percentage of rejections was from a Southern State where 30 per cent. were illiterate and 3 per cent. were rejected for mental and nervous diseases. As Dr. McPhee had stated, in an Ohio regiment he had observed a great number of cases of hyperthyroidism, though there were few cases of the exophthalmic type, but there were many enlarged thyroids, sometimes with constitutional symptoms and sometimes without. In one Ohio regiment over 2 per cent. were found to have enlarged thyroids, and they had also found many instances of hyperthyroidism in an Iowa regiment. It was among

the Camp Upton men who were drafted largely from the East and West sides of New York City that the drug addicts were found. There were very few drug addicts among troops from other localities. They had found no drug addicts in the Rainbow Division. Among the Camp Upton recruits they had found some 200 heroin and other drug cases, and these men were discharged from the service. The drug addict was not fit for a line soldier, but might be useful for other work. A number of addicts had gone to Europe since, so long as they were able to get the drug they had escaped detection and were continuing to get their drugs on the other side. It was only when their money gave out and they were unable to obtain their drug that they showed the symptoms of deprivation and were then detected. Inquiry among these 200 addicts referred to showed that they began taking drugs between the age of sixteen and seventeen years, and it stood to reason that this was the age at which a large number of young people in New York began taking a drug. Almost invariably the drug was first given to them, and then they tried taking a few doses, and after that they took all they could get. As to the conscientious objectors, Major Hammond said he had seen about 80 of them. They were of three classes. The first class were those who were conscientiously opposed to fighting. This class formed not more than 1 per cent. of conscientious objectors. The second class was composed of those suffering from some psychosis. The third class, which embraced about 95 per cent. of the conscientious objectors were simply yellow all the way through and would not fight under any circumstances whatever. They would suffer ridicule, disgrace and any punishment short of death, rather than risk their lives in battle. The speaker illustrated these classes by citing specific examples. They had a large number of nervous and mental cases in the Camp Upton Base Hospital. There were two wards having accommodation for 40 patients, and they had some 75 patients in those wards. They did not make any attempt to treat these cases, because in a cantonment the mental and nervous department of a hospital was mainly for the purpose of ascertaining the actual condition of these men and holding them until they were discharged or sent to an institution or returned to duty. He had thought, when he went to Camp Merritt, that he would find very few mental and nervous cases, as most of the soldiers had been examined before at other cantonments, but to his surprise, he had found a good many cases of abnormal mental states, but very few cases of nervous disease. The class of cases most frequently met with were the mental defectives, morons, paranoids, dementia praecox cases, and epileptics. The Government was eliminating an enormous amount of nervous and mental material before sending the men over, and was not waiting until afterward when it would be too late.

Dr. Ellice M. Alger said he hesitated to discuss Dr. McPhee's paper because he was not a neurologist, while his work among recruits had been confined to an Advisory Board. There were, however, several points that occurred to him. The neurologic, and especially the mental examinations, were in some respects more important than the physical. The best soldier, like the star athlete, was the man who in a pinch always did a little better than he knew how, who was stimulated rather than depressed by crises, and this, of course, was particularly true of the officers. It was psychological and did not always go with bodily health. Many of the world's greatest achievements had been by men whose sheer determination to win rose superior to serious physical defects. Caesar and Napoleon would both have been ineligible for our army because of epilepsy, William of Orange and Guynemer because of respiratory defects. If Nelson had been retired when he lost his eye, he would never have fought Trafalgar, and the history of the world would have been entirely different. We had our own great public character whose will to fight no one questioned, but who was refused the opportunity because of an eye lost in battle. It would sober us to think that the destiny of the whole world might depend on some obscure physician finding a little albumen in some great man's urine or pronouncing him defective in vision. The speaker wondered what the world would have been if, in the less civilized parts of the earth, medical science had been far enough advanced to close the army to the man with the withered arm. The point he wished to make was: That, instead of spending all our energy and ingenuity in detecting the malingerers who were of no use after we drafted them, we might well spend a little loving care in helping these other malingerers who were wearying heaven and earth in their efforts to get to the front; to spend less time in seeking drug addicts and more on fight addicts. This, the speaker averred, was distinctly in the province of neurology, and few men were more capable of recognizing real militancy than Major Hammond and Dr. McPhee.

Dr. Percy W. Roberts emphasized the fact that almost all advisory boards were impressed with the importance of these mental and neurological examinations and to the necessity of having them well done. From the orthopedic standpoint the speaker saw three types of men referred to the advisory board. One expected to be taken and accepted the examination as a matter of course. The second class of men were those who were nervous for fear that some slight defect was going to debar them from service. The third class were those who exaggerated their defects so that they would be rejected. Among this latter class one found all sorts of orthopedic conditions simulated. For instance, there was one man who expected to get out of service because seven years ago he had a fracture of the patella, and he actually believed that that old fracture would be a cause for his rejection because of an assumed limp. Dr. Roberts cited a number of specific instances illustrating this latter type of men, and referred to a typical example occurring in a man who had a club foot which could easily have been corrected. This man had never done any work, and said he did not want his deformity corrected because then he would have to work. On the other hand there were the men who were overjoyed when they learned that a defect which they had feared would debar them could be corrected and that they would be accepted for service. In closing, Dr. Roberts emphasized the fact that it was the man with the will to fight who was wanted.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Wednesday, April 24, 1918.

The President, Dr. Frank C. Hammond, in the Chair.

Recognition and Treatment of the Anemias.—Dr. Alfred Stengel said that, summing up all cases of anemia, there would be relatively few of the so-called primary anemias and a very great many of the form termed secondary anemia. The secondary anemias or the simple anemias, analyzed from the standpoint of cause, might be grouped under: (1) Infections; (2) Those following hemorrhage, manifest or concealed; (3) Those due to some form of intoxication. While lead was the recognized form of poisoning it was to be remembered that at the present time new poisons were being encountered, and that cases resembling those heretofore termed pernicious anemia might be due to T. N. T. poisoning. A 4th group represented the parasitic anemias; a 5th, the anemias expressive of some deep seated, perhaps overlooked, neoplasm. Infection was regarded as probably the cause of the very great majority of anemias seen in ordinary every day practice and these cases were mainly important where the infection was not manifest. It was often observed that young boys and girls who were anemic would improve under iron and arsenic, but afterward relapse. While the belief was held that they had a constitutional tendency to anemia, as a matter of fact there was failure to recognize the cause of the anemia. It was possible to recall cases of anemia in young women and boys with valvular lesions of the heart. The condition was one of chronic infection. They literally ate iron and were thus kept in a reasonably good condition of health. Such young people were also seen with large cystic infected tonsils constantly relapsing because the infection was allowed to remain.

The attitude of practitioners, Dr. Stengel felt, had been all wrong in such connection. In the post-hemorrhagic anemias there were said to be the open and the concealed hemorrhage; in the latter instance mistake in diagnosis was not unlikely to be made. The longer the duration of an anemia the more it approached in its clinical appearance a pernicious and an aplastic anemia. The bone marrow became tired out and the patient's appearance was that of pernicious anemia. In such a case, although the cause of the anemia might be removed, the patient did not get well, the anemia habit having become established. The blood regenerating function was absent, and while the blood did not show the characteristics of pernicious anemia the patient remained anemic during life. In the question of treatment Dr. Stengel was not so much concerned with the form of iron and arsenic used as in finding and removing the cause; surgically, if focal. Transfusion was indicated in acute anemia due to loss of blood. Splenectomy in his judgment was one of the most valuable adjuncts in the treatment of certain types of anemia that had been discovered. It was, however, a very serious procedure, and the case must be selected.

Value of Splenectomy in the Treatment of Some of the Anemias.—Dr. JOHN B. DEAVER said that the leading indication for splenectomy was probably traumatic injury. Inspection would soon indicate whether or not the organ should be removed. Injury to the hilus without doubt demanded removal; a slight wound of the cortex might be treated conservatively by some surgeons, but if there was any doubt, removal was the safer course. Neoplasms of the spleen were rare, but demanded splenectomy, unless there was evidence of metastasis. Wandering spleen was often associated with splenic enlargement. It might be treated by splenopexy or splenectomy according to the case. A more common condition of enlargement was that due to Banti's disease. While its etiology was not definitely known, it was known that removing the spleen had obtained a cure in a great many instances. While some recoveries had been reported from operation in the later stages of the disease, and personally Dr. Deaver had had the experience, such surgical treatment was attended with great risk; early operation had been attended with such good results that it should be resorted to without hesitancy. The mortality appeared to be about 11 per cent. We are told that the best results of splenectomy are obtained in the treatment of hemolytic jaundice. Eliot and Kavanel in 48 cases collected in 1915 report only 2 deaths, a mortality of 4.2 per cent. Krumbhaar in 1916 had collected 156 cases of pernicious anemia treated by splenectomy with 30 deaths. The Mayo Clinic reported 31 splenectomies for pernicious anemia up to April 1, 1916, with 3 deaths, or 9.7 per cent. mortality. Of the survivors, 22 or 78 per cent. showed continuous improvement; of 16 followed up for six months, 11 continued to improve and 3 had had relapses. From the experience of the Mayo Clinic it would appear that splenectomy for the relief of pernicious anemia should be considered in youthful and middle-aged subjects showing good general resistance and where splenic enlargement was moderate and there was evidence of hemolytic action. The degree of hemolytic activity was estimated by the blood pigments, urobilin, and urobiligen in the duodenal contents. A comparison of the degree of hemolysis with the severity of the anemia seemed to indicate the degree of productive power of the bone marrow. Hemoglobin below 35 per cent. or erythrocytes less than 1,500,000 increased the operative risk. An improvement in the blood picture and in the general condition might be obtained by preoperative blood transfusion. In a few instances blood transfusion for postoperative relapse had been successfully employed in the Mayo Clinic, but not adopted routinely. The treatment of pernicious anemia by splenectomy, Dr. Deaver said, was still on trial and apparently was merely palliative. There was, however, reasonable hope for improved results. In the aplastic type of the disease splenectomy was contraindicated. Splenectomy was also contraindicated in leucemia. His experience concerned a few cases of Banti's disease and of pernicious anemia. He knew of at least one operated case of Banti's disease in which the patient lived comfortably for several years, dying later of hematemesis. Dr. Deaver had operated late Banti's cases in the presence of ascites with good result. The few cases of pernicious anemia which he had operated had shown the same fluctuations of improvement and relapse which seemed to characterize the condition.

Dr. HARRY LOWENBURG called attention to a method of blood transfusion in infants not touched upon. Within the last month he had on three occasions effectually done a transfusion in the longitudinal sinus through the inferior fontanelle. The technique was simple and the result brilliant. One referred case was that of a child of 16 months of age with a hemoglobin of 30 per cent. and 1,560,000 white cells. Dr. Lowenburg had studied the case along the lines suggested by Dr. Stengel, knowing that every anemia had a cause. The baby had had bloody stools for about a year. It was impossible to determine whether this condition was responsible for the anemia or was caused by it. As a last resort he had tried transfusion by the method mentioned. The hemoglobin had been raised to 65 per cent. and the leucocyte count to 4,800,000. The child had had no bloody stools since the first transfusion. Attention was called to the procedure as a valuable but much neglected means of intravenous medication.

AMERICAN THERAPEUTIC SOCIETY.

Nineteenth Annual Meeting, Held at Richmond, Va., June 7 and 8, 1918.

DR. W. WAYNE BABCOCK OF PHILADELPHIA IN THE CHAIR.

(*Continued from page 305.*)

Surgery in Its Relation to the Psychoses and Psychoneuroses.—Dr. ROBERT T. MORRIS of New York read this paper. (See page 315)

Drug Addiction and Its Treatment.—Dr. JACOB DINER of New York read this paper. (See page 316.)

Dr. E. ZUEBLIN of Cincinnati said that he would congratulate Drs. Morris and Diner on their presentations. In dealing with psychoses and psychoneuroses, it was unfortunate that the psychologist seemed to have gone his own way in disregard of the practical experiences of his medical colleague. Notwithstanding the resistance of the medical practitioner to things pertaining to the so frequently misunderstood domain of psychoanalysis both parties meeting on common ground could learn from each other. Freud in his studies had gone far to shock both patients and physicians by his revelations which contained a grain of truth not to be disregarded entirely. All possibilities ought to be considered in these border line cases, whether the manifestations were due to a functional or organic disturbance of the nervous system. At the time of Hippocrates hypochrondria or melancholia was connected with intestinal or hepatic disorders; in our epoch, when we were better acquainted with the functional relation of the sympathetic nervous to the central nervous system, such a conception would meet less criticism. Dr. Diner had laid stress on reeducation, which, in the speaker's opinon, should not be restricted to the drug habit alone, but ought to be considered in most of the cases treated medically. In contracting disease the patient somehow had erred against the rules of proper hygiene, against proper nutrition, and in paying the penalty for his error with morbid symptoms the patient must learn how to avoid the recurrence of similar manifestations.

Dr. HENRY BEATES of Philadelphia said that the point was well taken that the asylums would have fewer inmates if attention were accorded to certain conditions, and among them hereditary unstable and hypersensitive nervous systems. So to train mentation that a well established equilibrium was formed between the intellectual, emotional, and volitional was the principle involved, and so training drug habitués through a specially developed pedagogic art was the task to be perfected. As to hereditary psychic hyperesthesia, infections and toxemias of chemical and biochemical origin played a potent role in provoking psychoses. Two sisters, whose grandfather was noted for furious temper and who died of cerebro softening, and whose father

was in earlier life an alcoholic, both developed a psychosis—one from decayed teeth and peridental abscess, the other from retained secundines after parturition. The surgical correction of the mouth and of the uterus respectively resulted in complete recovery after a few months. The dental case remained well for six years when abscess of a molar resulted in a return of the same condition. The patient at once consulted the speaker and in less than an hour the tooth was extracted. That very night, Dr. Beates said, the mind became normal.

Oral Infection in the Causation of Systemic Diseases and Their Bearing on Treatment.—Dr. HARRY BERTRAM ANDERSON of Toronto, Canada, read this paper. (See page 311.)

Dr. HENRY BEATES of Philadelphia said that the wife of a Philadelphia surgeon was supposed to have a cerebellar neoplasm. She had remarkably beautiful teeth. However, a skiagram was taken of the mouth and 7 apical abscesses were found. The teeth were removed and a few days later the symptoms entirely disappeared. It was not necessary always to advise extraction when the skiagram showed suppuration, but one should defer to the opinion of a competent, skillful dentist who could tell what could be done in the way of prophylaxis. Some cases of inflamed peridental membrane could be successfully treated. Another physician was told that he had a malignant growth at the angle of the jaw. The mouth was examined and a crown which had been on for ten years appeared suspicious and other roots were the seat of pus. The extraction of this tooth resulted in the disappearance of the supposed parotid carcinoma. Another case was that of a young girl of 19 years, who was in bed for 11 months with polyarthritis and immovable joints. Extraction of a molar with apical abscess was followed by improvement and in a few months she was restored to useful life. Except for slight stiffness of the right knee, she was normal.

Dr. ROBERT T. MORRIS of New York said that the objection made constantly by many good dentists was that they did not wish to destroy thousands of dollars worth of good work to follow out theories. Many of the best dentists did expensive, beautiful work, and patients also were unwilling to have the work interfered with. The physician had to contend this point. On the other hand, one might go to extremes in ordering too many teeth pulled out. There were, fortunately, dentists of such good experience and judgment that the matter might be left to them. It was extremely important for the doctor to choose such a man, who possessed the proper degree of knowledge and who could be depended upon to exercise the judgment required in the case.

Dr. BEVERLEY TUCKER of Richmond, Va., said he was interested in the incidence of Raynaud's disease with oral infection. Focal infection was not confined to the teeth. Tonsils and sinuses were also responsible. In 1914 he had made the statement that pellagra was probably due to some focal infection and that it was not, as generally supposed, a dietetic disease. He had never seen, in the study of 1,000 cases, one pellagrin with good teeth. It was necessary to choose a reliable dentist. Dr. Tucker said that he refused to be responsible for his patients unless they went to a dentist in whom he had entire confidence. Another point was that there was a possible connection between focal lesions and Parkinson's disease. It would seem as if dentistry should become a branch of medicine. In the light of the fact that dentists were endangering many lives by lack of knowledge of medicine, this would be the most desirable solution, and no doubt the coming years and increased knowledge would bring it about.

Dr. W. M. SPRIGG, Washington, D. C., said that when the teeth were normal to the eye and yet there was root involvement, the oral surgeon had a distinct procedure to perform. This was amputation of the apex, after careful *x*-ray work. Instead of removing the teeth, the infection could be removed. Importance of teeth, as regards digestive capacity, was very great, and when they could be saved the oral surgeon was the man to do it.

(To be concluded.)

Miscellany.

Venereal Clinics in Great Britain.—The question of venereal diseases is one of the most important, so far as the successful conduct of the war is concerned. No one disease incapacitates and cripples its victims to the same extent. Its prevention and cure are the most difficult problems with which the medical authorities of all the countries at war have to cope. In Great Britain special efforts are being put forth to meet the situation and a National Council for Combating Venereal Diseases has been formed. Medical women in England are taking great interest in the matter and at a recent meeting of the London Association of Medical Women, an account of which is given in the *Medical Officer*, April 27, 1918, Dr. Jessie Campbell gave a description of the work at the clinic for venereal diseases at Guy's Hospital. The patients come from the hospital itself or from outside districts, or are sent by private practitioners. Remarkably few belong to the class of professional prostitutes, many being wives of soldiers or working girls. Three beds and two cots are attached to the clinic and these are used for acute cases, or cases complicated by pregnancy, nephritis, or heart disease, also for those coming from a distance and for children. The Wassermann test is found positive in a large proportion of cases, though often negative in pregnancy and in recurrent chancre. On the whole Dr. Campbell is doubtful how much reliance should be placed on the Wassermann test. Dr. Elsie Chubb said that much attention was paid to prophylactic treatment in men, while women were left altogether out of account and this one-sided treatment would not help to eradicate the disease. Lady Barrett thought that patients having had gonorrhea should not be admitted into general maternity wards even if apparently cured, as the disease often lighted up unexpectedly.

Two Months in the San Juan de Dios Hospital.—Dr. Gomez, a prison physician of Almeria, has taken a sort of postgraduate course in the famous Madrid hospital, which is said to be the first urological and syphilitic institute in point of age in the world, and relates his experience in *El Siglo Medico* for May 4. At the head of the urological service is Dr. Pulido Martin. First to be mentioned is chronic gonorrhea, the difficulty of curing which is proverbial. Credit is given Fuller and his American colleagues for pioneer work on the part played here by the seminal vesicles. The relationship between infection of these bodies and gonorrheal rheumatism is mentioned. In the San Juan de Dios this teaching is in full swing, and is apparently fully indorsed by the medical staff. Direct endoscopy with Luy's endoscope is practised; on account of the difficulties of internal illumination a simple urethroscope with external illumination is preferred to the cystoscope. The author saw a method in operation which he had not before heard of, a lamp being introduced into the rectum as an adjunct to the cystoscope in the bladder. In this method, which can be applied in women by placing the lamp in the vagina, the field of illumination is applified and lesions in the rectovesical septum can be brought out.

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Original Articles.

SOME POINTS IN THE MANAGEMENT OF DISEASES OF THE HEART.

BY EDWARD E. CORNWALL, M.D., F.A.C.P.,

BROOKLYN, NEW YORK.

LOOKING back on his own experience and the practice of others as it came to his notice, the writer gets the impression that failure properly to prescribe rest is a mistake in cardiac therapeutics which happens frequently and therefore he will begin these brief remarks on the management of diseases of the heart with a few words on the use of rest in those diseases.

The first principle in the use of rest in heart diseases is to give it in a sufficient dose, and if a mistake is to be made to make it on the safe side by giving too much rather than too little; for giving too much rest rarely does harm to a cardiopath, while failure to give enough may imperil his chance of recovery or improvement; of all remedies the bed is the least harmful in overdose.

The full dose of rest means the horizontal position—feet in bed and head on pillow; and revolution of the body permitted only on its horizontal axis; and no debate on the bedpan question; and the sitting position allowed only when there is orthopnea.

Just how long a patient should remain in bed after compensation for the horizontal position has been apparently restored is not always easy to decide. In chronic valvular disease of inflammatory origin, occurring in adults, the writer's rule is to keep the patient in bed for at least one month after such apparent recovery. In the case of children, his rule is to keep the patient in bed indefinitely, that is, to refuse to set a definite time for getting up. It usually happens that if no such date is set, the patient will be kept in bed about long enough, for the parents usually will connive at disobedience of orders when the child has appeared well for a considerable time. Keeping a child in bed for a long time does him no harm, and it safeguards him to a considerable extent from recurrences of his original disease and starts him in training for the disciplined and restricted life which may be his lot.

In acute endocarditis absolute rest in bed should be maintained for at least three months after symptoms of the acute disease have passed away, whether or not signs of cardiac insufficiency were present.

In acute myocarditis and acute myocardial degeneration the length of time to which the rest in bed need be prolonged depends on the pathological changes in the heart, which changes cannot be accurately made out; but in any case in which pronounced signs or symptoms of myocardial degeneration were noted, the period of rest should be measured in months. In the mild cases which occur regularly in typhoid fever and give no pronounced symptoms, confinement in bed for at least two weeks after defervescence is usually sufficient; but in those cases of typhoid which show unduly rapid pulse, or in which a transient mitral regurgitant murmur is observed, the rest in bed should be continued several weeks longer, and the getting up made gradually and cautiously, and a close watch kept on the behaviour of the heart during the process; if the pulse shows an excessive increase of rate on getting up, the patient should be put back to bed and kept there for several weeks before trying it again. In cases in which there has occurred a sudden dilatation of the heart it may be necessary to keep the patient in bed for many months. The writer has seen persistence for months and even years of irritability and weakness of the myocardium, manifested by tachycardia and shortness of breath on slight exertion, which seemed to be referable to undue haste in getting out of bed after an apparently moderate typhoid.

In diphtheritic myocarditis prolonged rest is highly necessary and even if no special signs of cardiac involvement have been noted the heart should be safeguarded by at least several weeks absolute rest in bed after apparently complete recovery; and if such signs have been observed, three months' stay in bed may be considered the minimum requirement, with special restriction of activity for a subsequent period of not less than a year.

The simple pneumonic heart, without direct inflammatory involvement, presents an imperative indication for absolute rest, although as a rule, for a short period only; in uncomplicated cases the patient can usually be allowed out of bed by the twelfth day after defervescence. During the active period of the disease the patient should be watched constantly or, if that is not practicable, should be restrained, so as to prevent his sitting up or getting out of bed in delirium. A valuable prophylactic in the management of the heart in pneumonia, which the writer has brought out in previous publications, and one which he takes the present occasion to refer to again, is constipation: the use of cathartics is avoided almost entirely. This prophylactic constipation is made possible first, by a special diet, limited in quantity, which discourages with an unfavorable culture medium the growth of the swallowed pneumococci and the putrefactive bacteria in the alimentary canal; and, second, by avoidance

*Read at the annual meeting of the American Therapeutic Society in Richmond, Va., June 7 and 8, 1918.

of medication capable of disturbing that canal.

In uncomplicated influenza absolute rest in bed from the beginning of the disease until three days after disappearance of the last symptom referable to the influenza, should be the rule. Observance of this simple rule is the best safeguard against the cardiac and other complications of influenza, especially in the aged. As a corollary to this rule might be added extreme conservatism in the use of the coal-tar derivatives, abuse of which is so common.

In conditions of chronic myocardial degeneration with cardiac insufficiency, particularly in the aged, it may be advisable to modify the indicated dosage of rest in order to meet the requirement of keeping the remaining sound fibers of heart muscle in good working order by exercise. It is a common teaching that old people with weak hearts should not be kept in bed for long periods if it can be avoided. This teaching has a certain amount of force, but it should not be made too much of; and when the question of keeping in bed an aged patient with chronic myocardial degeneration comes up for decision, the danger of hastening a cardiac downfall by permitting too much activity should be very carefully weighed against the danger of weakening the heart by too much rest; and it is usually safest to allow the former the preponderating influence. Certainly one or two weeks in bed to enable a therapeutic test of myocardial efficiency to be made by noting the amount of recovery of function, is a safe enough procedure. The possible bad consequences of prolonged rest in bed can be counteracted to a certain extent by massage, passive motions, and resistance exercises.

The restrictions of activity required in cases with fragile compensation or diminished myocardial reserve power play an important part in the management of heart diseases, but their discussion will be passed over with a reference to the general rule, that in all such cases the patient should keep his activities well within the limits of safety, and not try to find out by experimentation just how far he can go. The writer is in the habit of saying to these patients: The better you feel the more careful you must be, for when you feel badly you will be careful anyway, but when you feel well it is natural to be more careless.

The department of cardiac therapeutics which has to do with modification of the diet to meet cardiopathic requirements is one of obvious and great importance. In all cases of cardiac insufficiency more or less passive congestion with its disturbances of tissue metabolism is present, and this constitutes a requirement that the food be easy of digestion and also that it be of a character to safeguard as much as possible the subnormally resistant tissues from injury by toxemias of dietetic origin. Animal flesh and its derivatives, and eggs are common sources of these toxemias, and their exclusion or restriction is therefore indicated in the cardiopathic diet. Milk, however, in some form or other, is generally admissible, and thus the requirement that a considerable proportion of the protein ration be animal protein can be satisfactorily met. Milk possesses all the nutritional advantages of flesh with some others, and is free from most of the disadvantages of the latter. Milk is pre-eminently an easy food, both as regards its protein and otherwise. In this connection it is interesting to note that milk is the specially prepared food which the mammals provide for their young during the immature period following birth. It differs from all other varieties of animal food which contain protein in that it sours when it spoils, thus insuring for its protein a certain amount of protection from putrefaction; the other varieties of animal food containing protein, viz., flesh and eggs, putrefy when they spoil. Herein appears an argument supplied by nature for milk as the ideal source of animal protein in the *easy diet*, and a confirmation of the clinical fact that a diet which favors the growth of the acidophilic bacteria in the alimentary canal is easier on the organism than one which favors the growth of the bacteria of putrefaction. Nature knew what she was about when she made this easy food for the young of the mammals in their weak and immature period, and we can with advantage apply her teaching to the construction of an easy diet for adults who are weakened by disease or age.

In advanced conditions of cardiac insufficiency, with notable crippling of the digestive apparatus or extensive congestion of the liver or kidneys, a temporary reduction of the diet to thin cereal gruels, modified milk and fruit juices may be required; and when much edema is present limitation of the fluid intake is a reasonable procedure; but the dry diet need not be carried to such extremes that the daily fluid intake is reduced to less than thirty or forty ounces. The "Karrel diet" owes part of its success to its non-putrefactive character as well as to its reduction in quantity.

In acute inflammations of the heart, especially in the young, which usually occur secondarily, the primary condition as well as the cardiac complications call for a very easy diet; but after convalescence has been established, it is generally advisable to feed up the patient so as to secure as rapid a restoration to health of the cardiac tissues as possible; but a liberal diet does not necessarily mean one containing large quantities of animal flesh, although a moderate amount of animal flesh is desirable in order to tempt the appetite, stimulate digestion, and exercise and develop the protective mechanism. The diet in these cases should include an abundance of milk and its products, a small amount of animal flesh and eggs, and a wide range of selected fruits, vegetables, and cereal foods.

In the chronic myocardial degenerations, which are usually accompanied by other degenerative conditions calling for dietetic regulation, the indicated diet is a lactovegetarian one or approximately such. In the less advanced cases, particularly in patients who possess a superior tolerance for the protein poisons in question, a small amount of animal flesh or eggs two or three times a week is usually allowable; but the general proposition holds. In all cases of myocardial degeneration the number of meals should be increased and their size made small, and the evening meal should be a light one.

In the treatment of what is commonly known as cardiovascular disease regulation of the diet is the most important thing; and it is one of the greater satisfaction of the practice of medicine

to watch the improvement in patients with this disease which so often follows the taking of a suitable diet. In the early high tension cases dietetic regulation alone may bring about a restoration of the blood pressure very nearly to the normal; and in the more advanced ones it usually brings at least temporary improvement. Lowering of high blood pressure, persistent elevation of which is regularly compensatory, can be brought about most advantageously by diet, and the reduction thus obtained is salutary and does not interfere with vital circulatory necessities; and also, to a certain degree it indicates the extent of the pathological changes which called for the high pressure.

In the prophylaxis of cardiovascular disease the value of dietetic regulations along the lines above suggested cannot be too much emphasized. It is reasonable to expect that in the medicine of the future, which will be largely preventive, this phase of prophylaxis will receive a wider recognition than it now enjoys. Hitherto preventive medicine has been occupied chiefly with safeguarding against invasion of the body tissues by pathogenic organisms belonging to low forms of life; but the safeguarding of the body from unnecessary wear and tear in the processes of nutrition is likewise of fundamental importance.

In any diet due regard must be given to the saline elements of the food. This phase of the subject may acquire special importance if for any reason the diet for a considerable period has to be much restricted in quantity or variety. When abundant milk, fruit and vegetables are taken the necessary salts are usually provided; but when the diet is scanty or lacking in variety it may be necessary to add directly some of these salts, particularly those required to maintain the alkaline reserves in the body. It seems to be a necessary condition of the life of the tissues of the human body that they be continually bathed in an alkaline fluid, and this condition would seem to hark back to the time when man's remotest unicellular ancestor began life in the ocean: the body fluids are still maintained as solutions not very dissimilar to sea water. The salts of sodium and calcium are particularly important, and they should be directly added to the diet whenever there is doubt that enough of them is being supplied by the natural articles of food taken, or when insufficiency of the carbohydrate ration invites acidosis. The question of vitamines need cause no anxiety if plenty of milk, fruit, and vegetables are taken.

Mechanical forms of treatment, particularly formal exercises, massage, and baths, have been made much of in cardiac therapeutics. Passive motions, resistance exercises, and massage may be particularly useful in the period between recovery of compensation for the horizontal position in bed and the acquisition of sufficient reserve power by the heart to make it safe for the patient to get out of bed. But the exercises should be carefully controlled so that the educational and developmental effects on the heart muscle are produced without overstrain.

The therapeutic baths of most renown are probably those which for more than a generation have been exploited at Nauheim. No doubt the war has seriously impaired their popularity, but it would seem that they have been much overrated; and James Mackenzie is on record as saying that their reputation is out of proportion to their merits.

In connection with the subject of therapeutic baths it may be proper to allude to the dangers of cold baths to patients with organic heart disease who are not habituated to their use, and especially the dangers to such patients of bathing in the sea or swimming.

In the management of diseases of the heart the question of when and how to use heart stimulant drugs comes up sooner or later, because the diseased heart is always either functionally insufficient or liable to become so. The scope of this paper does not permit detailed discussion of those drugs, but a few general remarks may be allowed.

The general rule for using heart stimulant drugs is to use them only when rest alone cannot restore the balance of the circulation; but there are exceptions, viz., they may be used to forestall decompensation which seems imminent; and they may be used without delay in cases which are obviously too bad to be restored by rest alone.

The general rule about their dosage is to use enough to produce the desired effect, but not to keep up an excessive dosage after that effect is obtained; and the corollary to this rule is to watch out for toxic effects and not to try to get improvement faster than nature is able to bring it about. Ability to use heart stimulants without abusing them is one of the marks of an expert therapeutist.

Of the direct heart stimulants included in the pharmacopœia two stand pre-eminent, and their action as observed clinically is so like that they can be used to a large extent interchangeably. One of them, digitalis, is universally known and appreciated; the other, strophanthus, is not quite so well known. The writer has studied the effects of strophanthus clinically for many years, and has published his views on its use, and has made this inference from his observations, that to get the best results with it the doses given should be considerably smaller than those recommended in most of the text-books. Strophanthus has the advantage of possessing in its active principle strophanthin, the most uniformly reliable and the most powerful and quickly acting agent of the digitalis class. In regard to the administration of strophanthin, the writer would like to say a word. The intravenous method of administration has been especially commended, and justly; and the hypodermic method has been objected to by some influential writers because of severe pain caused by the injections. The present writer wishes to say in favor of the more convenient hypodermic method, that his observations do not confirm altogether the statements regarding the severe pain caused by the injections. In some of his cases severe pain was complained of, and in some others considerable local irritation was noticed; but in many cases no complaint was made, or at least did not reach the writer. Of course the injection should be given deeply, and the solution made as dilute as the size of the hypodermic syringe permits. The sublingual method of administering strophanthin has also been found by the writer a convenient and effective one.

In connection with these two pre-eminent heart stimulants there are three other drugs which de-

serve special mention, viz., strychnine, caffeine, and morphine. These three drugs may not act as direct stimulants to the cardiac muscle as do digitalis and strophanthus, but they can be very efficient helpers in improving the circulation, and particularly morphine. Our appreciation of morphine in the treatment of the severer forms of cardiac insufficiency increases with our growth in clinical experience.

In concluding these brief, but it is hoped suggestive, remarks on the management of diseases of the heart, the writer would like to refer again for special emphasis, to that fundamental and universal remedy in diseases of the heart, rest. This remedy is so simple, so safe, and so easily applied, and the indications for it are so obvious, that one might think comment on it supererogatory; but the writer's impression that it is not sufficiently used is so strong, that he offers no apology for bringing it up for discussion.

1218 Pacific Street.

THE PLACE OF IPECACUANHA IN THE TREATMENT OF AURICULAR DISEASES.*

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One of the most unique circumstances of the treatment of cardiac conditions is that nearly all practical measures are founded upon clinical observation rather than upon what might be inferred from experiment in the physiological laboratory.

The question is, how does a diseased heart react to a particular remedy? It is well known that digitalis reacts in an entirely unique way in the presence of disturbance of the function of tonicity of the heart muscle, and in the presence of a disturbed physiology of the auricle.

A discovery that is founded upon laboratory observation can be immediately accepted by the medical profession and applied without any discussion or debate. A discovery founded upon clinical inference must always be a matter for speculation and question by many observers and holds its place only by very insecure tenure. Later on the laboratory may discover the basis for the remedy, and then it takes its place in established practice. In this way ipecacuanha has been used for many years in the treatment of dysentery, while only of late has the discovery of the ameba put it upon a definite basis.

There is hardly a drug more frequently prescribed than ipecacuanha, though physicians are not really conscious of how often they use it. It forms an essential ingredient of the rhubarb, ipecacuanha, and soda combination that is the standard remedy for all undefined functional stomach disorders in the clinics of New York City. It is used in the form of Dover's powders, because physicians know that this is a remedy that gives relief under varying circumstances.

In the treatment of cardiac conditions ipecacuanha has naturally been used as an adjunct in this way and it has also been used by many as an emetic with the idea of terminating attacks of palpitation. Of course, the belief has been that the effect upon the auricular functional disorders was purely reflex.

The clinical observations which I wish to submit to this society and to the profession and for therapeutic experiment is that in disorders of the auricle, which I believe are very often of toxic origin, ipecacuanha seems to be a valuable adjunct to digitalis. It is the experience of every heart specialist that he is called to very seriously ill people who are suffering from fibrillation of the auricle. These persons are critically ill and have not had proper treatment. There is often not much time to spare and a remedy must be pushed to a degree that is, to say the least, bold. Where the circumstances were very desperate indeed and the medical attendance very inadequate, I have often felt obliged to order digitalis given until vomiting has actually been produced. On one occasion where I was afraid that when the vomiting of digitalis came it might do harm, I combined some ipecacuanha with my digitalis so as to increase the nauseating quality of the prescription in case the digitalis nausea should be postponed too long. To my surprise this condition responded more than usually well to the treatment and I was led to do the same thing on other occasions. One general practitioner was so impressed with the result that he told me afterwards that he had used the mixture of ipecacuanha and digitalis with surprising effect in a very serious emergency.

I am too much of a therapeutic critic to do more than suggest that others repeat the observation. Nevertheless, I have lately been combining ipecacuanha with digitalis in those conditions which I believe to be due to toxic influences, acting upon the auricle. I have been using a tablet containing powdered digitalis, $\frac{1}{2}$ grain, and powdered ipecacuanha, $\frac{1}{8}$ grain. My expectation that nausea would be hastened has not been realized, but the effect of the digitalis seems to me to be improved.

In a person with an untreated fibrillation, the pulse being very rapid and irregular, I ordered:

℞ Pulv. digipuratum, gr. xviii
Pulv. ipecacuanha, gr. v
M. Fiant. pulv. No. xii

Sig.: One every four hours until four are taken; one every six hours until four are taken; and one every eight hours until four are taken.

That there is a definite effect from ipecacuanha on the heart and blood vessels has been recognized by authorities on therapeutics. In Bastedo's work on "Materia Medica and Pharmacology" (1918, page 565), under the heading of effect on the circulation, we find:

"There is a weakening of the heart muscle with slowing and dilatation similar to that from chloroform and not influenced by atropine or cutting the vagi. Death may result from auricular and ventricular fibrillation. In the frog or turtle heartblock has been observed. From therapeutic doses there is a very short and slight rise in arterial pressure, followed by a sharp fall and a general return to its former level. From toxic doses there is a progressive weakening and slowing of the heart and a fall in pressure with collapse. Pellini and Wallace obtained no change or a slight contraction of the

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arteries; but Evans, Middleton, and Smith say there is a transient vasoconstriction followed by a definite vasodilatation."

We all agree that ipecacuanha is a drug with active physiological and therapeutic qualities. It has definite relations to the functions of the blood-vessels. In large doses it is capable of doing much harm. In this it is like all our valuable drugs. It has certain analogies to digitalis which suggest it as an adjuvant. As to the value of my observation of its therapeutic value in this instance that must be confirmed by clinical observation much wider than one man can obtain.

109 East Sixty-first Street.

A CLINICAL STUDY OF THE VARIABLE THERAPEUTIC POTENCIES OF THE GALENICALS, AND THEIR INHERENT UNRELIABILITY.*

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The title of this brief contribution seemingly justifies the opinion that the writer belongs to that group of discontents classified as hypercritical if indeed not iconoclastic, and yet, when conditions governing Materia Medica, in so far as the galenicals are concerned, are seriously contemplated, it is believed that the briefly outlined imperfections and shortcomings will be recognized as facts that cannot be denied.

If this be true it may activate the inauguration of a widespread movement for the correction of defects that continue to impair the and efficiency of the galenical armamentarium, and ultimately result in securing for the clinician medicaments known to possess a uniform standard of physiological potency and therefore means to an end upon which reliance can confidently be placed.

During the past several years, and at the present, consultations in the field of circulatory, renal, metabolic, and nutritional disorders force recognition of the fact that too commonly galencials are prescribed, properly named, but of unknown potency or value, and failure to obtain logically anticipated results is almost the rule, notwithstanding their administration in the usual but conventionally adopted doses.

These experiences recalled to mind a study of the galenicals, conducted many years ago which consisted in subjecting oneself to a severe or thorough physiological experimentation with several specimens or groups of tinctures; thus five specimens of tincture of aconite were obtained from five different but reputable pharmacists, and so with tincture of belladonna, tincture of nux vomica, tincture of strophanthus, and tincture of digitalis. The infusion of digitalis was also investigated. This study was followed with a similar investigation with the chief active principles of these drugs respectively.

Emphasis is made of the fact that in Nature, the crude drug possesses active principles in vastly varying percentage proportions, and hence it must follow that the galenicals prepared therefrom must be characterized by the same variations of therapeutic power with the qualifying difference, however, that these several principles themself differ in solubility in the menstruum employed in manufacture.

Not infrequently they are also associated with other active principles in such proportions as seriously to interfere with the administration of a sufficient quantity of galenical to obtain that principle effect for which it is desired.

The testing of physiological activity was begun at 8 P. M. The conventionally adopted dose, for obvious reasons, was repeated at 40-minute intervals, and it was no little surprise to discover that as physiological effects failed to be secured and the doses therefore were carefully increased, quantities necessary to obtain positive results had to be taken that, prior to the experiments, would have been regarded as toxic, if, indeed, not lethal. Thus tincture of aconite root varied from 4 or 5 of the conventional two to five minim doses, to as many half-teaspoonful or 30 minim doses, before the characteristic slowing of the pulse, respiratory oppression, gentle diaphoresis, numbness or tingling of the peripheral sensory fibers, and the somnifacient effects were obtained. The local sensory disturbance from contact with the lips and tongue were caused before these were experienced in the extremities. Tincture of nux vomica varied from the conventional 15 to 20 minim doses to two teaspoonfuls hourly or every 40 minutes for 4 or 5 doses before the stimulation of the motor columns of the cord and the tension of the flexors of the legs were caused. Tincture of belladonna was the least variable, and conventional doses repeated, however, 3 or 4 times, were necessary to effect dryness of mouth, flushed face, augmented pulse rate, mydriasis, and interference with accommodation.

Tincture of strophanthus was conspicuously feeble in its action upon the heart, and, frequently before this characteristic action was secured, it was necessary to discontinue its use because the other associated active principles caused gastric disturbance, nausea, vomiting, and diarrhea. It could be taken in teaspoonful doses 3 or 4 times in the 4 hours with the certainty of causing gastrointestinal troubles, and a failure to markedly stimulate the circulatory system. With some specimens these wide differences in potency and effects did not obtain, and this instance serves to emphasize the variable therapeutic potency of the galenicals generally.

Tincture of digitalis like strophanthus was surprisingly variable, and to obtain the circulatory effects, doses were commonly so large and repetition so frequent that gastric disturbances occurred and compelled discontinuance. These tinctures were set aside and a year later again subjected to a like test. This demonstrated a fact to which, if generally known, no serious attention is practically accorded, namely, and keep this well in mind, that galenicals in a year's time lose from 20 to 60 per cent. of their original therapeutic potency, whatever that may have been. No wonder, then, that some tinctures of aconite root and of nux vomica could be taken with perfect safety hourly for 4 or 5 consecutive doses, of from 30 minims, ½ a teaspoonful, of the former to 2 teaspoonfuls, 120 minims, of the latter.

Recognition of these facts resulted in abandonment of the galenicals and the prescribing of those

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active principles for which the various tinctures were classified as for illustration, circulatory depressants, circulatory stimulants, spinal stimulants, mydriatics, somnifacients, spinal depressants, etc.

It is because of the prevalent conventional prescribing of galenicals at the present hour, and a knowledge of their unreliability that these remarks are submitted for your consideration. Suffice it to state that frequently when in consultation and confronting impending death from decompensation, and seeing the victim edematous, dyspneic, and sorely distressed, and taking conventional doses of tincture of digitalis or the infusion, or perhaps strophanthus and the ever-present consort nitroglycerin, digitalin, Germanic so called, or crystalline strophanthin administered in adequate doses would restore lost circulatory equilibrium, dissipate the anasarca and pulmonary edema and reestablish renal function. Practically a useful and moderately active life was thus restored and, *with continued treatment*, prolonged for years, as experience has demonstrated and proven over and over again.

Search for the causes of this great variation in therapeutic potency discovered several, and among the principal will be first mentioned the long-established commercial evil, to wit, the employment of cheap and therefore inferior crude materials. What this means will be understood when the fact is made known that, for illustration, belladonna leaves were purchased at from 40 cents to 2 dollars the pound. Governmental regulation of this evil is suggested. Regarding this fact further comment is not required. Another and important cause was and largely is the absence of accurate methods of manufacture.

Reference to the Ninth Decennial Revision of the U. S. Pharmacopœia demonstrates this fact, and while there are evidences of an attempt to produce galenicals of approximately standard degree of potency, the latitude of variation is too great to render practicable, on the part of the practitioner, that accuracy of administration which depends upon a constant standard strength.

As galenicals are today, it is imperative that the clinician, in order to obtain positive and unquestioned results, *test the particular medicament he is administering* and thus learn and known what definite effects a given dose, other things being equal, will certainly accomplish.

Let us examine into why such care is essential by every physician for every tincture employed.

The U. S. Pharmacopœia directs for tincture of aconite root that 100 mils of the tincture should yield not less than .045 Gm. nor more than .055 Gm. of either soluble alkaloids (plural) of aconite. What, may it be inquired, *are* these alkaloids, and, how do they respectively affect the human organism?

Concerning tincture of digitalis it is directed that *if* assayed biologically, the minimum lethal dose should not be greater than .006 mil of the tincture or the equivalent in tincture of .0000005 Gm. of ouabain for each gramme of body weight of frog. Of this tincture .5 mil or 8 minims is the dose officially recommended. Here it may be remarked that, ouabain as prepared in sterile ampoules by a reputable manufacturing firm and marketed in boxes containing special directions as to the hypodermic administration of this supposedly powerful medicament, and cautioning that none but experienced clinicians should use it, and not repeat a dose until after several hours had intervened, was found to be inert in 4 times the dose recommended. Inquiry of the writer after a year had passed elicited the answer that the ouabain supplied was unreliable and practically worthless. The assertion was then volunteered that reports from clinicians who used the drug were such that the manufacture of ouabain had been discontinued.

Tincture of gelsemium is directed to be prepared by percolation, using 100 grammes of crude drug and sufficient menstruum to make 1000 mils. Nothing is mentioned as to alkaloidal composition or strength of this galenical product. Tincture of nux vomica is to yield not less than .237 Gm. nor more than .263 Gm. of the alkaloids (plural and undesignated) of nux vomica. The menstruum for this tincture is composed of 3 volumes of alcohol and one volume of water, adjusting the finished tincture so that each 100 mils contain .25 Gm. of the alkaloids (plural observe) of nux vomica.

Tincture of opium should yield not less than .95 Gm. nor more than 1.05 Gm. of anhydrous morphine. What, may it be asked, of the other several principles present in variable percentage in each unit of the crude drug, and variable as to solubility respectively, in the menstruum used? These citations are self-explanatory and careful consideration must render it evident that the crude methods of manufacture must necessarily result in the supply of galenicals that vary in physiological activity as well as in the more or less associated alkaloidal and glucosidal components, as each unit of crude material employed happens to be composed.

Another cause for unreliability and variable potency is the *large quantity made at one time*, and the consequent age of the galenicals we see on the shelves of every pharmacy.

Not only is there a process of disintegration or some form of change that in time results in a loss —in a year's time, as above remarked, of from 20 to 60 per cent. of the original potency, but other conditions undoubtedly also contribute to this deterioration, such as exposure to light, temperature, and variations of humidity.

For generations clinicians have rested content to prescribe galenicals and administer them in conventional doses: If beneficial results were apparently secured they were content; if not, they likewise were content and enjoyed comfort in the belief or delusion that the failures were due to conditions which were beyond relief. It seems never to have occurred to them to ascertain with absolute certainty whether the galenical administered was a physiologically active preparation, or a tincture made of 40 cent. the pound crude drug, or of the 2 dollar the pound.

I venture to state that, at the present hour, if 25 physicians each wrote for the same galenical, and the prescriptions were compounded by 25 different pharmacists, there would be no two alike; furthermore that scarcely one of the 25 clinicians would attempt to familiarize himself with the potency of the tincture prescribed. How the use of active principles arose conjecture alone explains, but has not the almost unexceptional fear to administer them in *adequate* doses, and for *a sufficiently long period of time* resulted from the want of accurate knowledge of the galenicals?

Why do the text books still advise, as well as the almost universal prescribing of inadequate doses continue?

Aconitine is given in doses of from 1 500 to 1 250 gr., strophanthin in similar dose, digitalin (Germanic) from 1 100 to 1 60 gr., although of late years we occasionally encounter a recommendation of 1 30 to 1 10 gr., scopolamine gr. 1 200, and so on. No wonder that experience, based on such almost impotent quantities, has caused the profession to be reluctant about the administration of active principles and to consider them useless.

To emphasize this fact reference is had to digitalin (Germanic), digalin, and strophanthin, physostigmine, hyoscine or scopolamine, gelsemine, etc. For years numerous patients dying of cardiorenalvascular disease, dying while subjected to treatment with galenicals, after having the designated active principles administered, taken in the order named in doses of from gr. $\frac{1}{4}$ to gr. $\frac{1}{2}$ 3 or 4 times daily, and in emergency conditions 3-grain doses hypodermically in 20 c.c. normal salt solution, and from gr. 1 90 to gr. 1 120 3 or 4 times daily, have been restored to a fair degree of health and enabled for years, *during which time these medicines were more or less constantly taken*, to comfortably lead a moderately active and useful life. The much-feared comulative action did not occur. In collapse in pneumonia, as in major operations, digitalin in normal salt solution has succeeded frequently.)

The advantage of prescribing that active principle for which a galenical is selected, rests upon the fact that the numerous associated principles composing the crude drug are eliminated and many objectionable results thereby avoided.

In this age when the best and thoroughly reliable means to an end are a *sine qua non* for victory, is it not strange that the great profession of medicine remains content to rely upon an armamentarium that has been handed down from generation to generation, with apparently none, or at the best very feeble, efforts at betterment. Does not the practice of the present hour too commonly consist in prescribing this or that galenical in conventional doses? Is it a matter of surprise that the laity apparently too frequently obtain, as the expression is, just as good if not better results from osteopathy, neuromechanotherapy, chiropractic, napropathy, and other numerously named forms of massage, as from doctors?

If our viewpoint be true, has not the time arrived for the effort to be exerted for establishing scientific methods for the manufacture of medicine that will possess a uniform and standard degree of physiological potency?

This involves correction at the very beginning, and demands the cultivation of medicinal plants; the gathering of the parts used for the production of reliable and active preparations, their manufacture in quantities that will insure against age, *i.e.* too long keeping and thus avoiding deterioration and relative uselessness; the keeping of finished products in environment that will not militate against their inherent efficiency, and, above all, the development and perfection of processes involved in manufacture, that will supply remedies of a reliable and standard degree of potency.

When these essential conditions will have become established, therapeusis will arise to the plane it should occupy in the world of Science, and its equally cultivated art will win from the public at large that confidence and trust which a truly scientific and skilled profession will merit.

260 South 16th Street.

THE THERAPEUTIC ACTION OF OUABAIN STROPHANTHIN GRATUS.*

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In the treatment of cardiovascular disease a great amount of experimental work and clinical investigation has been undertaken for the purpose of ascertaining the therapeutic action and individual indications of the different substances recommended for the relief of the subjective and objective symptoms of these patients. Our knowledge has widened particularly as regards the different alcaloidal principles of the digitalis group, whilst strophanthus tincture has not been so extensively investigated, and in the opinion of leading clinicians, such as Osler,[1] Dieulafoy,[2] Anders,[3] Forchheimer,[4] Hirschfelder,[5] plays only the rôle of a more or less doubtful substitute when digitalis preparations have failed in their therapeutic action. In the course of the past years, however, the general opinion has changed, and a glance at the transactions of this society of the past years reveals the awakening interest for the usefulness of strophanthus and the active substances such as the strophanthins. The valuable contributions of Satterthwaite,[6] Cornwall,[7] and others are well remembered, and, without entering into a closer discussion of their papers, their studies have acted as an incentive for further clinical investigations.

A few introductory remarks may precede my casuistic contributions. Since Fraenkel and Schwartz[8] introduced in our pharmaceutical armentarium strophanthin as a valuable remedy, much work has been done, but as in other domains in science the enthusiastic reports of one particular remedy have been outweighed by less favorable and later reports. Some of the authors have warned against the indiscriminate use of such preparations, which medication even has been considered as the cause of fatal results (Hewlett,[9] Hochheim,[10] Chauffard,[11] Vaquez and Lutembacher[12]). The unstable action of the strophanthus preparations has been attributed to the various mixture of the active substances, and the aim of securing a more reliable product by extraction of the strophanthus seeds has been fully justified (Thoms, Fraser,[13] D'Arnaud,[14] Catillon[15]). The official strophanthus preparations are obtained from *Strophanthus kombe*, as well as Kombe strophantin and its allied crystalline strophanthidin. D'Arnaud in 1888 first isolated a crystalline product which, derived from the *Strophanthus gradus*, he called the gratus strophanthin or ouabain, which he considered identical to the ouabain isolated from acocanthera. The crystalline form of the ouabain considered as a guarantee for its purity, its definite solubility, and the comparatively rapid absorption, a small or no tendency to cumulative action have

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been mentioned as an explanation for its most active qualities (Rowe[16]), compared with the strophanthin derived from the kombe strophanthus. Strophanthin kombe is understood to be a mixture of a crystalline and an amorphous acid strophanthin, differing markedly in their quantitative physiological activities, whilst ouabain is only one crystalline product. It must be remembered, however, that different samples of ouabain contain variable amounts of water of crystallization, a fact which seems to render its uniform activity doubtful. We must leave the final discussion of these differences to the experienced chemist and pharmacologist.

From the clinical standpoint the task is to ascertain the therapeutic value of a new remedy on the sick patient. Only a scant literature on the subject of ouabain is available. For further reference I would call attention to the papers of H. C. Bailey,[17] Catillon,[18] Vaquez et Lutembacher,[12] the last two contributors dealing with the French preparations. In an interesting study Bailey made on 47 cases at Bellevue Hospital, he recommends ouabain for intramuscular administration in a concentration of 1:4000 saline solution, while for intravenous use the concentration is from 1:6000 or 1:8000, the maximum initial dose for the first 24 hours being from 0,00025-gramm (Vaquez et Lutembacher) or 0,0005 gramm according to Bailey. In the opinion of the last named author the crystalline strophantin-ouabain is considered as a valuable cardiac stimulant in cases of broken compensation, in chronic interstitial myocarditis, as well as in any form of chronic valvular disease. Ouabain as a remedy for cardiac emergencies ought to be used only by intramuscular or intravenous injection. It is not suited for continuous use and must be given under strict medical supervision or undesirable results will be the consequence. The dose should not be repeated within 24 hours and a repetition must be dependent upon the results of the first injection. Vaquez advises an interval of from three to four days between the different doses, which measure appears justified in doubtful cases. It is of interest to study this author's opinion of the use of ouabain d'Arnaud, and it is generally admitted that the active principles formerly used in the arrow poison of the Pahuins (Pelikan et Vulpian[18]) is a distinct heart poison which under certain circumstances also affects the striated, as well as the smooth, muscular fibers. Acting upon the heart muscle proper, it is supposed to render the slowed heart contractions more vigorous and also to increase the amplitude of the ventricular diastole. This action, interpreted as a selective one bearing directly upon the myocardium or by an intermediate effect upon the nervous system of the heart proper, seems to reestablish the impaired tonicity and contractility of the myocardial structures. Clinical evidence seems to substantiate these claims, particularly in instances of extreme cardiac insufficiency, attended by acute dilatation, pulmonary edema, and marked stasis in the portal system. As these manifestations may rapidly disappear under the use of ouabain, the result is more striking if previous to the cardiac stimulation a moderate venesection has been practised in order to relieve the extreme distention of the right heart, so permitting a more rapid contraction of the cardiac muscle.

Yet unexplained is the interesting relation of ouabain to the subsequent better effect of a digitalis therapy. While digitalis, when applied first, would only in exceptional instances give any results at all, it appears to become reactivated when given subsequently, or it will keep up effectively the primary favorable results of the ouabain medication. Cases are on record which show this effect for weeks or months afterward. The action of the ouabain upon the vessels, if any, can be admitted, is only slight; an action upon the renal functions is not conspicuous. The recommendation of Danielopoulo[19] and others may be recorded advising the combined administration of theobromine or of nitroglycerin with ouabain, the latter in instances of attending hypertension. It is claimed that the only signs of intolerance consist in nausea and vomiting (Hochheim, Chauffard, Vaquez) which may be the result of an overdose and may be avoided by a more careful administration of the drug. While using ouabain, as well as strophanthin, we must not forget the marked irritative qualities of that drug when brought in contact with injured tissue, leading to marked inflammation of the latter, even to abscess formation. Therefore deep muscular injections into the gluteal muscles are advisable, but these may become quite painful within a half hour of the administration. Bailey's advice of subsequent massage of the injected muscle is reasonable, since pain and irritation can so be avoided. Also when resorting to intravenous administration one must avoid varicose veins, for such inelastic vessels are more easily injured leading to perivascular infiltration. Supposed the intravenous administration is the method of choice, the needle should enter the vessel in its longitudinal axis, so to avoid a pricking and injury to the opposite vessel wall, leading to an undesirable periphlebitis. The occurrence of chills following the intravenous and intramuscular introduction of the drug, mentioned by Fraenkel and Schwartz and Bailey must be regarded as a rare occurrence. Hewlett's observation of heartblock following the use of strophanthin is not the only observation so far published, Vaquez and Lutembacher admitting such a possibility, however, they mention instances in which arrhythmias existing before the ouabain medication were corrected and were absent after the treatment, for which peculiar occurrence no explanation has been given as yet.

Although in my hospital work I have had no opportunity to control the therapeutic action of ouabain by a series of pulse and cardiographic tracings, as published in the papers of Bailey and Vaquez and Lutembacher, my observations have been restricted to the study of pulse, blood pressure, size of the heart, ascertained by palpatory percussion, the character of the heart sounds, and the record of the symptomatic subjective complaints of the patients so far studied. Notwithstanding these handicaps of instrumental records, some information may be abstracted from my case study.

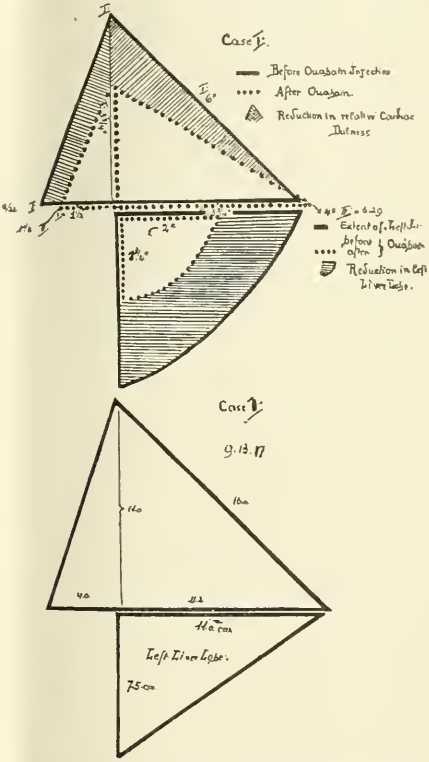
The ouabain preparation at my disposal were the sterile ampoules containing the crystalized substance in a dilution from 1:4000 of sterile saline. The contents of the ampoules, assayed pharmacologically corresponded to 0.0005 gramm of the active crystalline body; the injected dose varied from one to two cubic centimeters, given intramuscularly or intra-

venously. With the exception of one case, the injection was in all instances well borne. In one instance (Case II) a perivascular infiltration was noticed for several days much complained of by the patient on account of pain and swelling. As a rule the patients were kept at absolute rest in bed, with liquid diet in restricted amounts, keeping the patient as far as possible from exertion or nervous or other excitement. Since in my practical work I encounter so many cases of myocardial degeneration complicating or coexistent with pulmonary disease, the clinical study of these cases was of much interest in the hope of learning the effect of ouabain in such cases. We all are aware that in pulmonary tuberculosis with a chronic more or less fibrous process the heart reaches a stage in which all or most of the cardiovascular stimulants known are unable to supply the asthenic and toneless myocardium with the necessary contractile power to fight successfully against the intrinsic and extrinsic obstacles of impaired circulation.

As in other publications upon ouabain therapy, my study deals with cases of valvular, endocardial, and myocardial insufficiency. Such a subdivision is justified by various reasons, etiologically and objectively, for from the standpoint of prognosis and treatment these cases offer distinct differences.

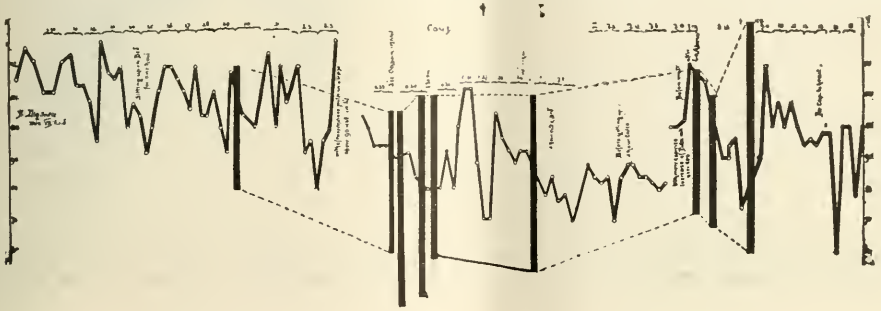
Of the cases of valvular lesions with incompensation the following are reported:

Case I.—J. McD., colored boy, age twelve years, admitted January 2, 1917. The family history was negative. He complains of persistent cough for past three weeks with anorexia, but no symptoms suggestive of a cardiac condition. Physical findings on admission: well nourished, slight subfebrile temperature not in excess of 100.8° F., marked tachycardia, oscillating from 128 to 192 at rest, considerable dyspnea, respiration at rest 42 to 44 per minute. Chest: bulging precordium, diffuse apex beat extending from the fifth intercostal space over an area 2 inches in diameter toward the axilla and the sternum. Distinct thrill over apex. Relative cardiac dullness: 9.4 cm. to left, 3.7 cm. to right from the midsternal line. Transverse diameter 13.1 cm. Upper border of third intercostal space overlapping the right Sternal border 1.3 cm. Height 9.3 cm.—xiphoid process to upper border of third rib. Oblique diameter 12 cm.; cardiac triangle of relative dullness 60,915 square centimeters. Auscultation in fifth intercostal space reveals a double murmur, involving systolic and diastolic phase, harsh, blowing, transmitted toward the posterior axillary line, considerable shortening of systolic-diastolic interval. First tricuspid sound substituted by blowing murmur, second pulmonic sound and first aortic sound normal, distinct murmur replacing the second sound. Pulse rate, at rest, 120, fair volume, fairly regular; ascending wave sudden, succeeded by rapid fall (Corrigan pulse), volume fair. Lungs: impaired percussion over both apices, as far as first intercortal space anteriorly and third intercostal space posteriorily, on right side, to upper third of scapula on left side. Inspiratory sounds harsh, a few inspiratory crepitant rales; accentuated, prolonged expiration, pronounced pectoriloquy coincident with extent of percussion changes. Right base anteriorly, below the seventh intercostal space posteriorly, impaired percussion note, distant respiratory sounds, no movable dullness present. Liver dullness



considerably enlarged, especially of the left obe extending far below the xiphoid process and toward the left hypochondrium. Increase of liver consistency, surface smooth, slightly tender on pressure. Urine high specific gravity, no albumin nor casts. Sputum mucoid, negative for tubercle bacilli on repeated examination; diplococci and *Bacillus catarrhalis* present, few lymphocytes and mostly neutrophile cells.

Symptomatic treatment of patient's cough, enforced bed rest for three weeks following admission. Cardiac



stimulation consisting of tincture of digitalis 8 minims, t. i. d. Blood pressure, 10 days after start of digitalis: systolic 120 mm., diastolic 80 mm., pulse pressure 40 mm. Hg.; pulse rate 104, cardiac activity pro one minute 21,600 mm. Hg.

Pulse rate, notwithstanding the digitalis medication, persisted in being high, only on the fourth day falling to 94. The least exertion caused rapid and very irregular pulse, persisting several days following the sitting up of the patient. Blood pressure readings were in accordance with the unstable pulse rate. Average pulse rate 128 to 90 heart beats. On June 22: persistent enlargement, 9.5 cm. to left from midsternal line, 3 8 cm. to right; transverse diameter 13.2 cm. Height 9.7 cm; oblique diameter 15.5 cm.; surface of cardiac triangle, 64.02 square centimeters. Absolute bed rest was ordered. An injection of 2 c.c. of ouabain intravenously into the right arm, causing no trouble nor later inflammatory symptoms.

Blood pressure preceding injection found at systolic ausculatatory reading 105 mm. Hg., diastolic 40 mm., pulse pressure 62 mm. Hg., pulse rate 90, cardiac activity per one minute 13,320—considerably lower than on the former occasion. On the following day considerable lessening of pulse rate was noticed, a drop reaching 94 to 90 and 84 in the evening. The bloodpressure on the following day registered systolic 110 mm. diastolic 46 mm., pulse pressure 64 mm., pulse rate 84, cardiac activity pro one minute 13,304—just slightly less than on previous occasion. Pressure readings the same day in the evening: systolic 110 mm., diastolic 48 mm. Hg., pulse pressure 62 mm., pulse rate 80, cardiac activity per one minute 12,640—the lowest figure so far encountered in this instance. The pulse quality was softer, ascending wave far better sustained, regular, no more extrasystoles nor irregularities present. The change in the cardiac size is seen from Chart I. 10.2 cm. to the left 3.8 cm. to the right from the midsternal line, transverse diameter 14 cm. Height 6.1 cm., oblique diameter 14.4 cm., cardiac triangle of relative cardiac dullness 42.7 cm., demonstrating a reduction of 21.62 square centimeters or 33.7 per cent. less than 24 hours before. Whilst the right ventricle had mostly contracted, the left ventricle suggested a slight displacement to the left with a marked reduction in the height of the heart. As a further consequence of the ouabain action the reduction in the extent of the left liver lobe will be noticed. The lateral diameter of the left liver lobe was 5.1 cm., corresponding to a reduction of 4.5 cm., the distance from the xiphoid process was 4.8 cm. or 4.1 cm. less than on the former occasion. Considering the left liver triangle we have a reduction of 30.48 square centimeters or 35.09 per cent. We are permitted to think of a considerable relief in the portal stasis.

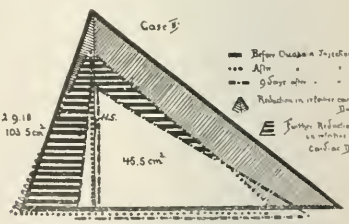
The apex beat was less diffuse, more forcible in its action. A lessening of the mitral murmurs, their softer nature, a lesser radiation toward the axilla became manifest. The tricuspid murmur, softer in character, was still noticeable in the anterior axillary line, greater accentuation of the second pulmonic sound and added to the same a soft diastolic murmur over the pulmonic as well as over the aortic area must be recorded.

For the following two days the pulse rate fluctuated between 92 and 80, after that the irregular rate and frequency with an occasional rise to 112 on June 26 was noticed. After June 28 the pulse rate was reduced gradually to 94—88 on June 29. Pressure readings on the same date gave for systolic 110 mm., diastolic 54 mm. Hg., pulse pressure 56 mm., a pulse rate of 72, cardiac activity 11,808 mm. The further contraction of the heart was found 10.2 cm. to the left, 2.9 cm. to the right from the midsternal line, transverse diameter 13.1 cm., height 4.8 cm., oblique diameter 11.9 cm. The cardiac triangle of relative dullness corresponding to 34.44 square centimeters showed a reduction of 31.58 square centimeters or 49.3 per cent., as compared with that before the ouabain was given, 15.6 per cent. being added to the reduction recorded 5 days previous. Later, however, a tendency to dilatation of the cardiac muscle was anticipated, showing that ouabain may give a fair immediate, but not always persisting, reduction in the size of the heart unless the medication is repeated or followed up by a protracted cardiac stimulation. The left liver lobe maintained its reduced size, extending 5.1 cm. to the left from the midsternal line and 4.5 cm. below the xiphoid process, the left liver triangle corresponding to 11,475 square centimeters, demonstrating a reduction of 31.25 square centimeters, or 73.1 per cent., an addition of 38.1 per cent. to the former measurements. The heart sounds were rougher, more intense in character, the murmurs could be traced over a larger district than on the previous examination. After June 30 a slowing of the pulse rate was noticed, the maximum being 88, the minimum 70. Gradual exercise was permitted, but on each occasion a considerable increase of the rate up to 120 a minute was the result, with a lower reading of both systolic and diastolic pressures.

The patient did not receive any further cardiac medication, the high pulse rate persisting while the patient's exercise was unrestricted. A marked rise of the systolic pressure 134 mm., diastolic pressure of 60 mm., pulse rate 74, cardiac activity 14,356 mm. Hg., or an increase of 24.7 per cent. over the minimal activity was the result. Two months later the following cardiac diameters were found: 11.2 cm. to the left, 3.8 cm. to the right from the midsternal line or transverse diameter 15 cm., height 11.1 cm., oblique diameter 16.3 cm., cardiac triangle of relative dullness 61.05 square centimeters, only 2.97 square centimeters less than before the ouabain medication, representing 4.63 per cent. below the first measurements.

In résumé we may say that in this instance the ouabain medication was followed by a temporary improvement in the reduction of the size of the heart, in the slowing of the pulse, in the rise of blood pressure, the considerable relief of dyspnea, the reduction of the left liver lobe, the improvement of the manifest stasis in the portal system. In order that these valuable and rapid changes may be persistent we must give careful supervision to the case and further cardiovascular stimulation through digitalis and allied preparations, guarding the patient against recurrences from cardiac dilatation; for this, if overlooked, may mean lasting damage by exhaustion of the cardiac reserve strength.

Case II.—Mrs. F. E., colored, age 27 years, single, cook. Family history negative. After an operation of cystic goiter in September, 1917, she suffered from anasarca, dyspnea, and cough, with abundant mucoid expectoration. After treatment for several weeks at another institution patient improved, but since February, 1918, has been confined to bed on account of cardiac failure attended by considerable anasarca, dyspnea, and bloody expectoration. Admitted to our hospital on February 9, 1918.



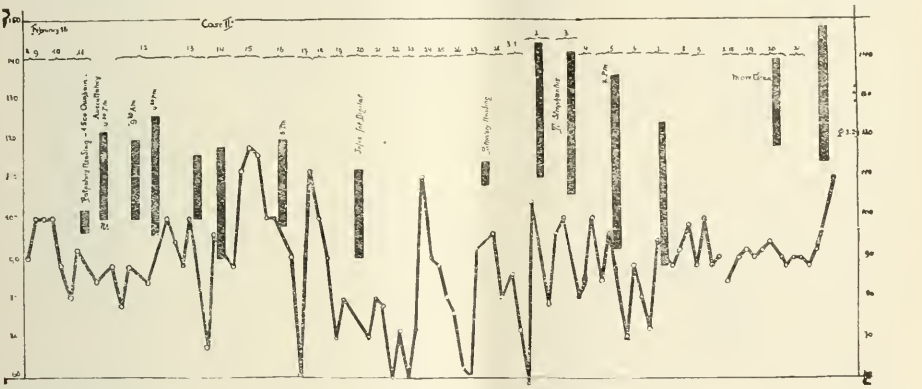
Physical findings on admission, very stout patient, sitting in upright position, very dyspneic, cyanosis of lips, considerable anasarca of upper and lower extremities, abdomen distended by fluid. Heart examination: apex beat diffuse in sixth interspace, outside of midclavicular line, relative cardiac dullness 14 cm. to the left and 4 cm. to the right from the midsternal line, height 11.5 cm. Oblique diameter 22.5 cm. transverse diameter 18 cm. Area of relative superficial cardiac dullness 103.5 square centimeters. Heartsounds: First mitral sound indistinct murmurish in character, second sound indistinct; first tricuspid sound indistinct and distant; second pulmonic sound booming and markedly

accentuated; aortic sounds nothing abnormal. Pulse very rapid and irregular, 100 a minute. Pulmonary findings: Extensive pulmonary stasis with numerous moist and diffuse rales. Sputum examination negative for tubercle bacilli, diplococci present. Urine: trace of albumin, several hyaline and granular casts.

The patient was kept under absolute bedcare, liquid diet, ice bag being applied over the heart. Tincture of strophantus, 10 minims t. i. d., given for the next two days. The pulse had become a little slower, but on February 11 the blood pressure reading, obtainable only by the palpatory method being very low—102 mm. —diastolic value was not obtainable. Ouabain solution (1.5 c.c.) was injected intramuscularly. Three hours later the bloodpressure readings obtained on the left arm by the ausculatory method were 122 mm. systolic, 100 mm. diastolic, pulse pressure 22, pulse rate 84; cardiac activity pro one minute 18,648 mm. The patient felt more comfortable; she was less embarrassed in talking, less dyspneic, the night being more restful. The following day at the site of injection of the left arm a moderate swelling and tenderness was noticed, so the bloodpressure readings refer to the right arm. At 9 A. M., 18 hours after the injection, the pulse rate was 88, systolic reading 120 mm., diastolic 100 mm., pulse pressure 20 mm., cardiac activity pro one minute 19,360 mm. Twenty-four hours after the injection the pressure registered over the same area 126 mm. systolic, 96 mm. diastolic, pulse pressure 30 mm., pulse 84, cardiac activity 18,648 mm. As it was still in excess and exceeding the one hundred mark, especially noticeable after the least excitement of the patient. On February 20, nine days after the ouabain injection, the pressure was found at 112 systolic, at 90 mm. diastolic, pulse pressure 22, the pulse rate 108, cardiac activity 21,816 mm. Hg. pro minute. The diameters of the relative cardiac dullness were as follows: 12 cm. to the left, 1 cm. to the right from the midsternal line, representing a transverse diameter of 13 cm., a height of 7 cm., an oblique diameter of 15 cm. The triangular area of the relative cardiac dullness comprised 45.5 square centimeters.

These results compared with the former findings evidently suggested a considerable change in the size of the heart which could be noticed very soon after the injection of ouabain had been given. Also with regard to the blood pressure readings the difference could not escape attention, since the auscultatory pressure readings were possible only after the injection.

This case is of particular interest since ten days after the first treatment we tried the patient's cardiac function whilst under the influence of an infusion of 15 grains of powdered digitalis leaves in 6 ounces, a dose of 1 dram being given t. i. d. The patient at first did not tolerate the medication very well, as vomiting occurred, attended by a very weak and irregular pulse, and pressure readings were obtainable only by the palpatory method on February 27. On March 2, the pulse was found stronger, rate 104, systolic pressure 144 mm., diastolic 110 mm., pulse pressure 34 mm., cardiac



desirable to watch the exclusive action of the ouabain injection, all other cardiac medication was discontinued. Two days later the systolic pressure had declined a little, 116 mm., the diastolic reading was found at 100, leaving only 16 mm. for the pulse pressure with a pulse rate ranging at 100, cardiac activity pro one minute of 21,600 mm. Hg. Evidently the heart was working excessively with the imminent danger of cardiac failure.

Three days after the ouabain injection the size of the heart was found reduced, relative cardiac dullness extending 9.5 cm. to the left, 4.7 cm. to the right from the midsternal line, representing a transverse diameter of 14.2 cm., or 3.8 cm. less than on the previous examination. The height measured 9 cm., or 2.5 cm. less, the oblique diameter was found at 14.8 cm., or 7.7 cm. less. Taking in account the area of the relative superficial cardiac dullness representing 63.9 square centimeters, or 39.6 square centimeters, or one-third less than on the previous examination. On auscultation the mitral murmur replacing the first sound was more manifest and radiated further toward the left axilla; the second pulmonic sound was still markedly accentuated, aortic sounds indistinct.

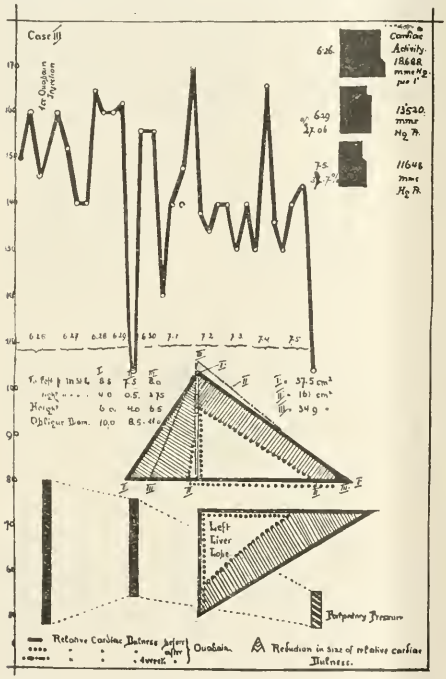
The blood pressure readings on the same day revealed for the systolic reading 118 mm., for the diastolic 90 mm., the intermittent 1, easily depressible pulse rated at 96, cardiac activity pro minute 19,968 mm., a figure far above the normal cardiac function.

As seen from the pulse chart, the pulse rate was activity 26,416 mm. Hg. pro minute. On that date the digitalis medication was dropped and substituted by tincture of strophanthus 10 minims t. i. d. In the course of that medication there occurred a slightly lessened pulse rate attended by a lowered systolic as well as diastolic pressure. At a later period (three weeks later) both pressure readings became higher, particularly the diastolic readings remained above 100. The anasarca which at first had receded, increased again, causing considerable distress to the patient, who required the administration of morphine, gr. ¼, and atropine, gr. 1/120, for the temporary relief from the marked dyspnea. The patient died on March 29. The postmortem examination revealed atheromatous degeneration of the aortic valves, chronic endocarditis of the left ventricle, besides thickened bicuspid valves, myocardial fatty degeneration, chronic passive congestion of the liver, gallstones, chronic congestion of the spleen, chronic interstitial nephritis, moderate hydrothorax, hydropericardium, a few chronic adhesions of the right pulmonary apex and ascites.

Case III.—E. M., white girl, age nine years, admitted June. 26, 1917. Incomplete history obtainable from mother of child relative to acute onset of disease with chill and fever three weeks ago.

Physical findings: White, female patient, very exhausted and dyspneic, sitting in upright position, cardiac region bulging, diffuse apex beat in fifth interspace, in midaxillary line. Relative cardiac dullness extending 8.5 cm. to the left, 4 cm. to the right from

midsternal line, transverse diameter 12.5 cm., height 6 cm., oblique diameter 10 cm., cardiac triangle of relative cardiac dullness 37.5 square centimeters. Distinct thrill present over cardiac area. Heart action rapid, pounding second pulmonic sound. Diffuse moist gurgling rales all over the chest render the interpretation of the cardiac sounds very unreliable. Pulmonary findings of congestion and diffuse bronchitis with stasis over both bases. Marked cyanosis of lips and upper extremities. Left liver lobe markedly enlarged, extending 10 cm. to the left from the midline and 6½ cm. below the xiphoid process. Blood pressure: systolic 80 mm., diastolic 48 mm., pulse pressure 32 mm., pulse rate 146, cardiac activity 18,688 mm. Hg. pressure per minute. The patient when first seen was given immediately one intravenous injection of 1c.c. of ouabain. The patient stood the injection very well, apparently feeling relief from the extreme cardiac distress. The following changes in the extent of the cardiac dullness were recorded the next day. Transverse diameter 8 cm., 7½ cm. to the left from the midsternal line. ½ cm. to the right from the midsternal



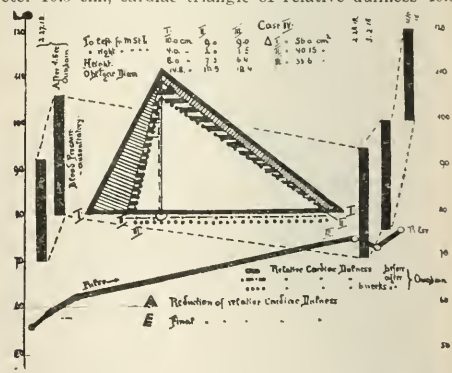
line, height 4 cm., oblique diameter 8½ cm., cardiac triangle of superficial dullness 16 square centimeters, or 21.5 square centimeters less than on the preceding day. The heart sounds were better sustained, but no murmurs could be detected. The left liver lobe extended 5 cm. to the left from the midsternal line and 4½ cm. below the xiphoid process. The pulse was still frequent, ranging at 140 per minute, showing a slight reduction in the rate. The pulmonary findings revealed a moderate improvement with less moisture, but still pronounced harsh, almost tubular, breathing over both apices.

One week later without any further cardiac stimulation the heart showed the following size for the relative dullness: Transverse diameter 10¾ cm., extending 8 cm. to the left, 2¾ cm. to the right from the midsternal line. Height 6½ cm., oblique diameter 11 cm., cardiac triangle of superficial dullness 34.93 square centimeters, a figure only 2.6 square centimeters below the first measurements obtained. The pulse was hardly perceptible, 138 per minute, only palpatory blood pressure readings could be made; systolic pressure was 56 mm., diastolic 48 mm., with a pulse pressure of 8 mm. The patient was very uncomfortable and dyspneic, probably also on account of the more marked pulmonary stasis. This patient developed symptoms of poliomyelitis and consequently was transferred to the neurological service of our city institution.

It must be added that on June 29—three days after the ouabain injections—the pulse rate was found at 104, with a systolic pressure of 76 mm., a diastolic reading of 54 mm., a pulse pressure of 22 mm., a cardiac activity pro one minute of 13,520 mm. The clinical impression of this case treated with ouabain was not very favorable since, notwithstanding the considerable reduction in the size of the heart following the medication, the dilatation noticed one week after, suggested that evidently the heart had not sufficient strength to cope with the difficult task of overcoming the increasing venous stasis.

In several cases of myocarditis without valvular lesions ouabain medication was tried, and a few instances may be briefly recorded.

CASE IV.—J. B., age thirty-five years, machinist, was suffering from active pulmonary tuberculosis involving both upper lobes and the base of the right lower lobe. Sputum at various examinations positive. On account of dyspnea and general weakness, the patient's heart examination on February 27 showed the following diameters for the relative cardiac dullness; transverse diameter 14 cm., 4 cm. to the right, 10 cm. to the left from the misternal line; height 8 cm., oblique diameter 14.8 cm., cardiac triangle of superficial relative dullness 56 square centimeters. Heart sounds, with the exception of the indistinct first tricuspid sound, normal. Pulse rate 56 at 10 A. M. Blood pressure, systolic 92 mm., diastolic 70 mm., pulse pressure 22, cardiac activity pro one minute 9,072 mm. Hg. pressure. At 2 P. M. on the same day ouabain solution, 1.5 c.c., was given intravenously, which medication was well borne by the patient. Four hours and a half later the pulse was found at a rate of 58 pro minute, the systolic pressure 106 mm., diastolic 80 mm., pulse pressure 26, cardiac activity pro one minute 10,788 mm., distinctly better than on the former determination. On the following day, the patient being still kept in bed and under exclusive milk diet, the following pulse and pressure readings were found: pulse rate 74, systolic 94 mm., diastolic 70 mm., pulse pressure 24, cardiac activity pro one minute 12,326 mm. Hg. pressure about one-third higher than on the first examination. This result was confirmed by the heart examination four days later, showing a reduction in the transverse diameters of 11 cm.—9 cm. to the left, 2 cm. to the right from the midsternal line; height 7.3 cm. oblique diameter 10.5 cm., cardiac triangle of relative dullness 40.5

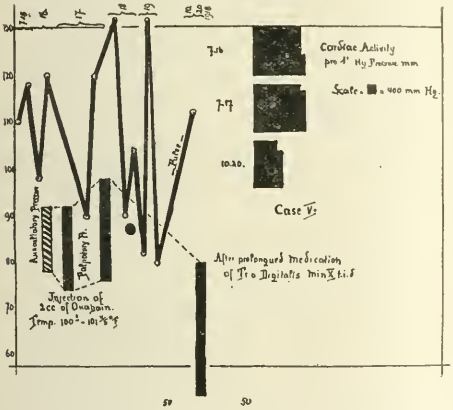


square centimeters, or one-fifth less than on the previous examination. The first mitral sound was better sustained, the first tricuspid sound had become normal. Blood pressure, auscultatory, 100 mm. systolic, 76 mm. diastolic, pulse pressure 24, pulse rate 72, cardiac activity per one minute 12,672 mm. Hg. With the palpa-

tory method higher figures were recorded. The patient felt much better and, the dyspnea having disappeared, was anxious to resume his exercise. This was granted only in restricted amounts. Six weeks after the one dose of ouabain, the patient taking light exercise, the heart had preserved its minimal size, a transverse diameter of 10.5 cm., a height of 6.4 cm., an oblique diameter of 12.4 cm., or a cardiac triangle of 33.6 square centimeters. When last seen the patient's blood pressure ranged at 120 mm. systolic, 80 diastolic, pulse pressure 40, pulse rate 76, cardiac activity per one minute 15,200 mm. Hg.

If in the preceding case the ouabain medication gave a favorable result, it must be admitted that in other instances of advanced myocardial degeneration the therapeutic effect, if obtainable, is not very striking and only temporary. Such instances also occurred in our observation, a few examples of which may be cited.

Case V.—Miss F. E., age 26, suffering from pulmonary tuberculosis involving all lobes for the past seven years. Positive sputum, slight febrile evening temperature not exceeding 101°. Patient is frequently dyspneic even while at rest. Relative cardiac dullness

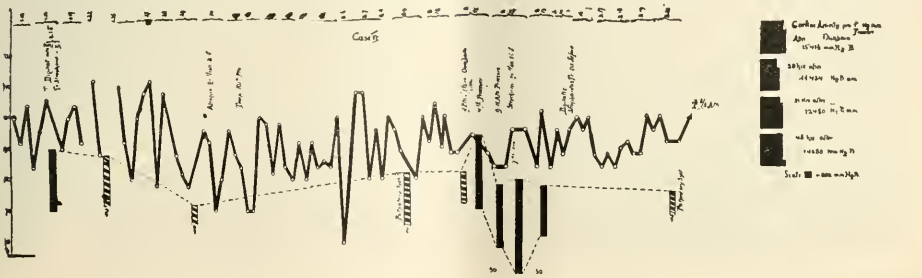

Case V.
Auscultatory Pressure
Palpatory R.
Injection of 2cc of Ouabain.
After prolonged Medication of Tr o Digitalis min X t.i.d

found extending 9 cm. to the left, 0.5 cm. to the right from midsternal line; height 7.5 cm., oblique diameter 11.5 cm., cardiac triangle of relative dullness 35.62 square centimeters. First tricuspid sound split, markedly accentuated, second aortic sound reduplicated, snappy; also reduplication of second pulmonic sound. Pulse 120, irregular, depressible; systolic pressure left arm 92 mm., auscultatory, 78 mm. diastolic, pulse pressure 14 mm., cardiac activity per one minute 20,400 mm. Hg. pressure. Four hours after intravenous injection of 2 c.c. of ouabain, with a pulse rate of 120, the systolic pressure was 92 mm., diastolic 74 mm., pulse pressure 18 mm., cardiac activity per minute 19,920 mm. Hg. pressure. On the following day no difference in the size of the heart could be noticed, the split first tricuspid sound was no more heard, the heart sounds remained forcible. Pulse rate remained the same; systolic auscultatory sound registered at 98 mm., diastolic 76 mm., pulse pressure 22 mm., cardiac activity 20,880 mm. Hg. pressure. There was no further change noticeable as regards the patient's pulse rate nor with regard to the general weakness and dyspnea.

At a later date digitalis medication, 10 minims, t. i. d., of the tincture, had no influence either upon the pulse rate or upon the blood pressure, or on the size of the heart, which organ on *x*-ray examination showed diaphragmatic adhesions and displacement toward the left.

Case VI.—J. L., white patient, tailor, age fifty-eight years, suffering since January, 1917, from chronic bronchitis, which later was diagnosticated as pulmonary tuberculosis with involvement of all lobes. Positive sputum, slight febrile evening temperature, with tachycardia. About January 9 the presence of edema of the lower extremities was found; heart sounds were indistinct and distant, no particular enlargement of the heart, transverse diameter 10.8 cm., 10.3 cm. to the left, 0.5 cm. to the right from the midsternal line; height 7 cm., oblique diameter 11 cm. From January 16 to 22 the patient while receiving tincture of digitalis, 10 minims, and tincture of strophanthus, 5 minims t. i. d., his condition became worse; the pulse was found very indistinct, blood pressure obtainable only by the palpatory method, only systolic reading of 88 mm. being found. On February 9 systolic pressure only was obtained—palpatory 88 mm., pulse 88, patient being kept in bed rest with liquid diet. On February 11 at 1 P.M. the same findings prevailed. An injection of 1.5 c.c. of ouabain was made into the muscles of the arm. Three hours later the pulse registered 94, auscultatory pressure, systolic was 94 mm., diastolic 70 mm., pulse pressure 24 mm., cardiac activity 15,416 mm. Hg. pressure pro minute. At that time the heart sounds had become more distinct, with marked accentuation of the second pulmonic and aortic sounds, apex beat felt inside of the left midclavicular line. On the following day, twenty hours after the medication, the pressure and pulse were recorded as follows: pulse 84, fairly well sustained, systolic 78 mm.. diastolic 58 mm., pulse pressure 20 mm., cardiac activity pro one minute 11,424 mm., and on the evening of the same day pulse 96, systolic 80 mm., diastolic 50 mm., pulse pressure 30, cardiac activity 12,480 mm. Hg. pressure. On February 13, two days later, with a very high pulse rate of 102, the systolic pressure was only 78 mm., the diastolic 62 mm., pulse pressure 16 mm., a cardiac activity of 14,280 mm. After that date an attempt with the same strophanthus-digitalis medication had no beneficial influence whatsoever, edema and anasarca became more manifest, blood pressure readings were obtainable only with the palpatory method, 76 mm. being the maximum found on February 20. The patient died on March 2 from cardiac failure.

So far my observations on cases of acute and chronic endocarditis and a few cases of chronic myocardial degeneration. A few more cases could be added to those already mentioned. However, a great number of observations are required for a conclusion as to the therapeutic value of a new



remedy and in my casuistic contribution only a few points may be mentioned. In the short study we may subdivide the results into those which became evident shortly after the remedy had been given and into the ultimate changes which appeared only later. Furthermore we must be guided by the nature of the pathological lesions, whether they are associated or not with affections of the endocardium, the myocardium, or whether we have to deal with an acute or chronic process with symptoms of a systemic infection.

Among the immediate obvious changes to be expected after ouabain injection we see the improvement of the blood pressure which before could hardly be obtained by the palpatory method and frequently for the systolic value only, once the remedy had been given we could ascertain with the auscultatory method the systolic as well as the diastolic threshold. Under favorable conditions we may expect a distinct rise in the diastolic pressure (Cases I, II, IV) within the first 24 hours, which rise ought to persist for several days over the initial figure. The change in the diastolic pressure is less conspicuous but apparently a reduction in that value may be looked upon more favorably than a rise. Where a tachycardia becomes less, or approaches more normal figures, and where a bradycardia equally approaches the normal rate, this ought to be interpreted favorably. Considering the cardiac activity, cases with a high pulse rate and a low pulse pressure frequently are unfavorable as to the final outcome.

In instances of cardiac hypertrophy and dilatation a considerable reduction in the extent of the relative cardiac dullness can be anticipated (Cases I, II, III, IV), but such a reduction does not mean a constant result nor a definite promise for the effectiveness of the cardiac medication. As seen in Case III, where a high septic temperature complicated the outlook, an initial reduction in the size of the heart would not be maintained against the cardiac overstrain.

Incidentally, with the improvement of the circulation a decided reduction in the extent of the left liver lobe could be noticed (Cases I, II, III).

With reference to the heart sounds reduplicated sounds may disappear and extrasystoles may equally vanish, while cardiac murmurs are not liable to change in character.

The nature of the pathological lesion, whether endocardial, associated with marked hypertrophy and tending toward dilatation, or due to an already degenerated myocardium, has a great bearing upon the final results. The first mentioned instances appear favorable for the use of ouabain medication, particularly when haste is required to stimulate the contraction of the dilated and distended cardiac muscle previous to the effect of digitalis medication which requires a longer time to become manifest.

Wherever we have to anticipate a toxic myocarditis and extensive degeneration—due to age or other factors—we may try the ouabain without expecting too much from it. Just as in other instances where the reserve energy of the myocardium has been exhausted a forceful stimulation of the cardiac muscle may accelerate the fatal issue.

In the cases submitted for discussion it will be remembered that only one dose of ouabain had been given; this was for the purpose of finding out how long this one dose of the drug would show its therapeutic action if such action could be observed. The question arises when and how often can we repeat the dose and with what effect. Other cases are being studied and a later report is anticipated; for the present, however, it seems to me that fresh samples of ouabain very likely deserve our attention from the therapeutic standpoint as a possible means of administering effectively to cases of cardiac deficiency.

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PRICE HILL.

PRODROMAL SYMPTOMS OF THE NERVOUS FORM OF ARTERIOSCLEROSIS.*

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THE intimate correlation existing between the nervous and cardiovascular systems necessarily makes any change in one affect the other. It is extremely rare to find a patient with cardiovascular disease showing no concomitant nervous symptoms; on the other hand, one of the cardinal signs of nervous disease is an altered circulation of the blood in the affected part, as is evident from the frequent so-called trophic changes. Indeed, every normal function is the result of a proper adjustment of these two systems while a dissociation is effective in producing morbid symptoms. To enumerate, however, all the nervous

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phenomena that occur in diseases of the cardiovascular system is not within the scope of this paper. It is also not the aim of the writer to go into the study of focal changes in the nervous system produced by altered conditions of the cardiovascular apparatus as these conditions have been so aptly described by such leading authors as Starr, Thomas, Brooks, Collins, Dejérine, Babinski, Charcot, Binswanger, Oppenheim, and others, and a mere reference to them is all that is necessary.

In this communication I wish particularly to call attention to a chain of symptoms which I believe has hitherto not been described and which I prefer to call the initial syndrome of Windscheid's disease, or the initial symptoms of the nervous form of arteriosclerosis. They occur mainly in people of nervous temperament at or soon after middle age. These symptoms can best be classed under the psychoneurotic type. They consist of a form of excitability, but unlike the usual neurasthenia are not accompanied by exhaustion. As a rule these people have no obsessions or any real signs of mental deterioration. They are able to attend to their work and are at times even brighter than before. They can successfully meet Münsterberg's requisition for a well-organized mind in which the central idea is able to inhibit the opposite and is in no danger of being overrun by any chance intrusion into the mind. Their leading psychic symptoms are introspection, regret, and uncertainty. The patient seems to take a sort of mental balance sheet of his life. He is keenly aware of the mistakes, or what appear to have been mistakes, he has made. He worries over that and often he does things to remedy them which are contrary to his usual psyche. The previously timid and reserved will now become bold and adventurous. It is at this stage that men undertake all forms of disastrous financial speculations. The patient may begin to find fault with his family life; the wife or the children are not exactly what they should be. Quarrels at home are often precipitated on the slightest provocation. The patient attributes all these conditions to a previous lack of foresight, to a mistaken path in life. Numerous plans are created in his mind; every one of them is gone over carefully, only to be thrown aside before it is given a test. When finally a course of action is chosen it may be begun, but each step the patient takes is accompanied by many inconsistencies and it is soon dropped.

These uncertainties often assume an absurd character. Some of these patients will return five or six times and knock at the physician's office door to ask again the same, to them, very important question, "How many times a day should the medicine be taken?" Then the telephone will ring; Mr. B. has forgotten. "Is it before or after meals?"—"and the diet?"

At times jealousy supervenes and then life is a misery to the consort. The Russian novelist Dostoyewski very aptly described this form of jealousy: "It is a jealousy without cause or reason. It is jealousy for the sake of jealousy."

With all this, as pointed out above, the patient attends to his routine work with the same regularity as before and at times even better. He forgets himself in doing his work. Apparently these symptoms resemble *démence lacunaire* but they differ from those of this syndrome as they really do not show any real mental perverseness.

Soon the patient shows subjective somatic changes. Various digestive disturbances such as hyperacidity with increased appetite develop, but in spite of this a noticeable loss of weight takes place. Irregularity of the bowels is frequently a complaint and insomnia is an important and constant symptom. Cardiac palpitations, hot flushes, and a sense of pressure around the precordium are often the leading subjective vasomotor symptoms. At about this time the patient, for the first time in his life, begins to think of death. It was probably at this stage that Solomon exclaimed: "Vanity of vanities . . . all is vanity." It was also at this stage that a modern great writer, Tolstoi, began seriously to consider the problem of the state of being.

With the advent of somatic symptoms the patient comes to the physician. When his confidence is gained the above psychic syndrome in one form or another will be revealed. Examination shows absolutely no demonstrable neurological or psychopathic stigma. All the laboratory tests are apt to be negative. The cardiovascular system, however, shows marked changes. There is invariably an increased blood pressure, somewhere between 150 and 170 systolic and 80 or 90 diastolic. The pulse is increased in frequency, and quite often irregularities are noted. A characteristic of the blood pressure is its inconstancy. It may show wide variations between one visit and another. A few years ago, before I understood this condition, I frequently gave a bad prognosis and sometimes had to change my opinion at the next visit of the patient. In one instance a man of forty-eight came to me with a systolic blood pressure of 180 and diastolic of 100. Naturally, I told his wife that the case seemed to be grave. A week later, to my great surprise, the pressure had fallen to 140 and 80. It rose again afterward, only to come down once more and so continued to fluctuate, continuing in a state of inconstancy with its ups and downs. I have never encountered in these cases a low blood pressure. Frequency of the pulse, too, is not constant. It is always above the normal, from 100 to 120. It may, however, come down to the normal, but I have never seen bradycardia. The irregularities seem also to be of the neurotic type. Only in two cases was an electrocardiographic examination made for me, and in both the diagnosis was "premature systole." The hands, in spite of the frequent congestion, are cold. Hot flushes may be present. Dermographia is not a constant feature. Sargent's white line I have never noted, though I looked for it in all the cases under my care.

The urine of these patients often shows an increased amount of indican; otherwise it is negative. The patients always give a history of having led a strenuous and laborious life. This and tobacco seem practically to be the only real etiological factors. Arteriosclerosis, resulting from alcohol, syphilis, and lead poisoning, so far as my observation goes, does not produce this form of psychic symptoms. If such symptoms are present

they are probably soon masked by the more grave and usual syndrome of cerebral degeneration. The family history in most of these cases shows a neurotic tinge.

The prognosis is good as a rule. When properly handled a relative cure may be expected. I have, however, seen some of these cases go into real cerebral arteriosclerosis, developing the classical triad of symptoms: headache, vertigo, and enfeebled memory, the blood pressure becoming permanently high. Too much emphasis cannot be laid on the precaution against giving a bad prognosis to a middle-aged patient with a high blood pressure, particularly when the uranalysis is negative. Experience has taught me not to tell such patients their blood pressure; it saves me from altering my prognosis and it saves my patients from unnecessary worry. On the other hand, before giving a fair prognosis, alcohol, syphilis, and nephritis should be carefully excluded.

The treatment of these cases is more an art than a science. No single drug or chain of drugs can be recommended. Before discussing what to do, I will outline two rules as to what not to do: (1) Do not take these patients away from their usual occupations, and above all do not send them to the country for rest. They will not rest. Instead, they will brood over their condition and return worse than they were. A merchant whom I had sent to a popular rest resort came hurrying back in a more agitated state than before. "Why, doctor," he said, "this doing nothing will drive me crazy!" He was right. I sent him back to his business and used other means of treatment and he improved. (2) Another thing to avoid in breaking off suddenly their established habits. Do not take away tobacco too quickly. Moderate its use if you can, but demanding complete cessation gave me pretty bad results in one case. The patient suffered so much from his insomnia that he was on the verge of suicide. A moderate amount of indulgence in tobacco relieved his symptoms greatly.

It is certainly advisable to moderate their work, but the treatment par excellence is psychotherapy. I do not necessarily mean psychanalysis. No single system of psychotherapy can be advised. The main object is to gain psychic, or rather moral control of the patient. With intelligent patients the argumentative or reasoning method is efficacious. Here, as probably elsewhere, the straightforward, common sense attitude, accompanied by sincere interest in the patient's welfare, gains ground. It seems to me these people understand their physicians as well as their physicians understand them and sincerity will always win them. A quiet, unhurried, reasoning talk will often make them see that their irritation is unreasonable. I have often seen the blood pressure fall fifteen to twenty points at the end of an office visit lasting about half an hour. Never should an attempt be made to trap these patients into confession. They will invariably tell their innermost secrets when they perceive the sympathy of the physician. Most of these patients are hard-working people who have not had much of life outside their occupations. Relaxation in the form of some hobby or new interests, such as music, social gatherings, and short journeys, is often advisable.

With obstinate or less intelligent patients suggestion in one form or the other may be used. The best sort of suggestion is, of course, the old reliable electricity. At present high frequency is in favor. This, as well as static waves of bygone days, I consider a good suggestive form of therapy. There is no doubt that the blood pressure falls after half an hour of treatment. The patient sits reclined in an easy chair ornamented with attractive brass fittings, listens to the soothing buzzing of the machine and watches the fascinating blue color of the electric sparks. Although the machine has helped on many occasions I cannot say that it is alone of any physical value, since the same results may be obtained by mere rest and a quiet and pleasant chat. Maloney's form of relaxation, accompanied by a good deal of suggestion, is often advantageous.

Drugs in these cases are used only to combat symptoms. The chief symptom to relieve is insomnia. Perhaps I am rather old fashioned, for I use the bromides. In many cases they give me splendid results. Organotherapy, enticing as it is, should be employed sparingly in these cases. The only rational drug of this class would be thyroid. I have used it in a number of cases, but have found it agitates the patient and increases the symptoms as a rule. In women, when there are signs of menstrual changes, I sometimes but not always use ovarian extract with good results. The diet should be that of the usual arteriosclerotic form, but less rigid. I allow my patients eggs, milk, and white meats.

The question may be raised whether we are not dealing here with an involutional form of psychoneurosis. Probably it is an involutional type, but in that event it is due to a vasomotor disturbance which assumes the form of arteriosclerosis.

Another objection may be raised as to the actual arterial changes in these patients. To this I shall only quote Mackenzie. "Our present methods of investigation permit us to recognize organic disease only when the structural changes are fully established. We have no means to determine a disease during the process of its formation. At this stage the only knowledge we may obtain consists of the so-called subjective symptoms." If to this we add the functional changes in the blood pressure that have not been noticed previously, it is fair to assume that we are dealing with a presclerotic stage of the arteries.

The following cases afford a good illustration of this syndrome:

CASE I.—B. S., male, aged forty-nine years, a clothing manufacturer, born in Russia of Hebrew parentage. A significant fact in the family history was that his mother was nervous. He is not alcoholic, denies gonorrhea and syphilis, but indulges in tobacco to excess. He has three healthy children; the oldest, a daughter, is a public school teacher; the second, a son, is a college student, and the third child is still in school. At twenty years of age B. S. came here from Russia, where he had graduated from a gymnasium, intending to study medicine. In America he married a woman of different make-up than himself, a shop girl without any education. He intended to continue his studies in this country, but his marriage and early fatherhood put an end

to his dreams of acquiring a learned profession. He went into business on a small scale and soon became absorbed by his new occupation. His business grew and his entire world was centered in it. Nothing outside of that interested him. To-day he is a man of means with a well-established business. His family has never been of interest to him. In his wife he saw the woman and housekeeper, and there was nothing more in common between them. The children are perfect strangers to him. He always worked until late in the evening in his factory. He was not religious. During the second half of the Sabbath he would either go over his accounts or see people on business.

Present Complaint: During the last few months he has begun to experience a sense of uneasiness. To cite his own words, "Something is not as it should be; something is missing." He nevertheless continued his work. Sleep was slow in coming and was not as sound as before. He smoked more than before, but that only increased his uneasiness. For hours before he fell asleep, he would re-read an old Russian novel that was of interest to him decades ago. About that time a sense of pressure developed over the epigastrium that spread in the precordiun. The old Russian classics brought back childhood and youth memories. His old regrets floated up again. He reflected how different things might have been had he not met his wife, and had he not married. Instead of dealing with waists and quarreling with the Waistmakers' Union, he might have been to-day a leading lawyer or a famous physician. He might have had a wife who would have been a real mate to him. These were the thoughts that kept him awake during the small hours of the night. In the morning he would again go to his business. There, he stated, "I am Master; at home I am a stranger." His wife and children, according to his opinion, looked upon him as a source of income and nothing more. He could see no real filial love on the part of his children. He tried to find enjoyment in cabarets, vaudeville, and finally women, but cabarets looked ridiculous to him; with women he was a failure; they really did not interest him. His symptoms grew worse, particularly his insomnia. There would be sleepless nights with all the accompanying symptoms of insomnia. When he came to me he complained mainly of insomnia, uneasiness, pressure over the heart, and cardiac palpitation. His blood pressure was 180 systolic and 100 diastolic. His reflexes were increased. Wassermann negative. Urine had a sp. gr. of 1020 and, save for increased indican, was negative. I prescribed for him and asked him to return. In a few visits I obtained the above story with a few additional unnecessary details. A gentle, argumentative line of reasoning persuaded him that after all his grudge against his family might be imaginary, and he then quieted down. Advice to become nearer to his wife and children did not have results, for they were of a different make-up from their father. He, however, joined one of the social movements of his race, spending his evenings at various meetings, and, thanks to his intelligence, he became a prominent member in that moveent. While I was unable to reconcile this man with his family conditions, I do believe that the new interest created took him away from his introspection. He soon became more quiet, his insomnia began to disappear, his thoughts were engaged in a different direction. This time it was a hope to see "a people liberated" that seemed to form his main object in life. With the improvement of his psychic condition, his blood pressure came down to somewhere around 140 systolic and 80 diastolic. Only once in a while now he comes complaining of a sense of pressure in the precordium, and very rarely does he pass a sleepless night. For the last six months, I have never seen his blood pressure above 160. His symptoms are apparently gradually passing away.

Case II.—A. J., forty-three years of age, a Russian Jewess, is a woman of good education. One of her sisters suffered from hysteria. She had a practice as a graduate midwife in Russia among a poor Jewish population, then married and in due time gave birth to a daughter. She was deeply interested in the welfare of her people and was active during the first revolution, and she and her husband were sentenced to Siberia. He died on the way in one of the prisons. She managed, however, to escape and came to America in 1905. Here she entered a college of pharmacy and, after graduating, opened her own drug store, but her life continued to be one of struggle. She was absorbed by her child, but managing her store, paying the mortgage, and trouble with clerks and competitors demanded almost all her powers of concentration. At about the age of forty-two she began to be troubled with symptoms of the menopause; hot flushes, restlessness, hyperacidity, and finally insomnia. At that time she first consulted me. Her blood pressure was 175 and 110, pulse 120. Dermographia was present. Urine showed a marked increase in phosphates. Gastric contents showed total acidity 90, free acid 40. Appetite was rather capricious; she ate several times a day, but could never eat a full meal, though she frequently got hungry. Coffee she took in moderation, two cups a day. No tea. During her restless nights, Mrs. G. would think of her wasted life, as she called it. True, she had a child in whom she took pride, but she felt a void. How differently she could have arranged her life, had she married again when she was thirty. She had so many chances. Now she was a woman with a grown up child and could not think of remarriage. She would be ashamed to give a stepfather to her fifteen-year old daughter. She reflected that in two or three years her daughter would marry and then she would be all alone. These thoughts kept her awake at night. I was able partly to combat her insomnia with bromides, and her hyperacidity with small doses of atropine. She also was fed on ovarian extract mixed with small doses of thyroid. Her psychic symptoms could not be managed so easily. On my advice she took short journeys, but they gave her little relief. One day she came to me saying that she had decided to go back to her old ideals. She would labor among the poor working girls and help them in their struggles with their employers. Whether on account of this new interest, or perhaps some additional factor which she did not relate to me, she began to improve rapidly. Her blood pressure came down to 125 and 70. I thought that any further questioning would infringe upon my patient's personal life which had nothing to do with me. I feel that as soon as symptoms disappear, my services are at an end. I believe she is still doing well.

The third case, while unsuccessful from a therapeutic standpoint, is an illustration of the fact that this condition will, if unchecked, go on to actual physical degenerative changes.

Case III.—S. B., fifty-two years of age, a cloakmaker, was born in Russia of Jewish parentage. He took an occasional glass of whiskey before meals and indulged moderately in tobacco. The patient came to me complaining of occasional headaches, dizziness, insomnia, and restlessness. During his sleepless nights he worried a good deal about his wife, an ordinary Jewish working woman who did not look as if she had ever possessed any attractiveness whatever and who considered her husband insane. He believed she was untrue to him and that one of the children was not his. Previously a boarder had lived with them, he himself having invited the man, to relieve the burden of the rent. The child is at present twelve years old. The boarder died two years ago. S. B. had no definite reasons for worry; still, during his restless nights, he recalled scenes of years before, to which he had paid little heed at the time, and out of which he constructed a whole plot where one fact fitted into the other. His blood pressure was 190 and 110. His pulse showed intermissions. The urine was of a specific gravity of 1010. Nothing was efficacious in arresting this man's condition; his health steadily declined until within two years he developed a typical picture of cerebral arteriosclerosis.

252 East Broadway.

Typhoid Fever in Horses.—Of much interest, according to Combes, is the recent discovery that a bacillus very close to paratyphosus B is pathogenic to the horse. Horses may therefore be regarded as possible carriers of clinical typhoid.—*Le Progrès Médical.*

AN IMPROVED OPERATION FOR INTERNAL HEMORRHOIDS.

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THE general practitioner is confronted with few conditions that will cause more acute suffering or that may be the basis of a greater variety of reflex disturbances than internal hemorrhoids. I am of the opinion that the general practitioner, as a rule, pays too little attention to the part played by chronic inflammation in and about the rectum as a causative factor in the production of various reflex symptoms manifested in the genitourinary, digestive or nervous systems.

Very true, hemorrhoids in themselves seldom cause death, but in this day of modern medicine and surgery life and death are not the only possibilities that we must consider in carrying out our treatment of a given case. Efficiency must also be considered. It is not our whole duty simply to save a patient's life by some cleverly performed operation; we must, if possible, restore him to his place in the community as a useful and fully efficient member of society.

Investigation would show that there are thousands of both men and women whose efficiency is greatly impaired by the possession of internal hemorrhoids which have developed to the stage of protrusion. Men who, instead of being able to do a full day's work with comfort, can work only a fraction of the time, and women whose household and social duties become drudgery because of the constant reflex disturbances due to the piles. In the latter, these symptoms are often interpreted as of pelvic origin and local vaginal treatments, copious douching, or even some surgical procedure on the pelvic organs may be instituted for their relief.

The anal canal extends from the levator ani muscle to the skin and is lined in its lower half with squamous epithelium. It is guarded by the internal and external sphincter muscles. The mucous membrane of the lower portion of the canal is thrown into a number of folds called the columns of Morgagni which contain on their interior some muscular fibers, a vein, and an artery. These veins frequently present varicosities in their lower portion and it is in this area that hemorrhoids have their origin. Between these columns are folds of mucous membrane known as the valves of Morgagni, and the pockets formed by these valves are often the seat of inflammatory conditions which frequently end in the formation of an ulcer, abscess, or fistula.

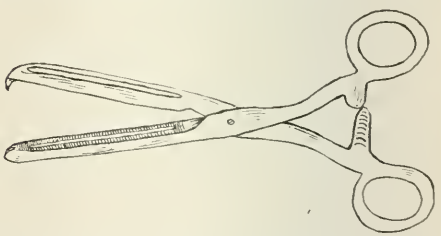
The venous radicals, where these varicosities originate, connect directly with the superior hemorrhoidal vein. This vein is a radical of the portal system and has no valves, which accounts for the tendency to engorgement and formation of the varicose condition which results in internal hemorrhoids. The direct connection of the anal region with the portal system communicates to any infection of this region the most serious possibilities.

If one examines carefully a cross section of a pile tumor one will find that it is composed of dilated blood-vessels with a variable amount of connective tissue around and between them, and the whole mass covered by mucous membrane. In addition to dilated veins each hemorrhoidal tumor is supplied with one or two arteries, branches of the superior hemorrhoidal artery. In large tumors with a single artery this vessel may be nearly as large as the radical artery at the wrist.

In studying the nerve supply of the anus we find a ready explanation for the various reflex disturbances that we have mentioned, for while the movable rectum derives its nerve supply from the sympathetic system, through the plexuses of Auerbach and Meissner, and is scantily supplied with sensory nerves, the anal canal derives its nerve supply from the spinal cord and because of its abundant supply of nerve filaments, is one of the most sensitive regions of the body; its nerves are in close relation to the origin of nerves which are distributed to remote parts.

When we come to consider carefully the methods of treatment for hemorrhoids we will be greatly surprised to find that many men today are using practically the same methods that were in vogue 2000 years ago, for Hippocrates, Galen, and Celsus all used salves, astringents, and excision.

The palliative treatment of acute piles is justifiable, but where the disease process has resulted in organized tumor formation, neither salves nor constitutional treatment will be of permanent benefit,



and some one of the radical operations should be advised.

The injection method is spoken of by Cooke[1] in the following terms: "After viewing the matter impartially from every standpoint, the conclusion seems warranted that it is at best an unscientific and unsurgical makeshift which has been too long exploited at the expense of a credulous public—that it is not without danger in any case and permits no honest assurance to a patient of permanency of cure, should real danger be escaped. If the treatment is carried out after a full explanation on all points, the responsibility may in a sense be shifted to the patient. But while he may possibly soothe his conscience in this way, the surgeon certainly does not uphold the highest ideals of his profession."

At least as far back as 1813 the ligature method was practised and for a short time was very popular in France, but because of bad results fell into disrepute. It still has a number of ardent supporters in America, whose chief argument in its favor is its simplicity. To say the least, the ligature method in its various modifications possesses certain objectionable features which are not in line with modern surgical teaching.

In spite of postoperative pain and frequent hem-

orrhage, the clamp and cautery method is perhaps the most universally used to-day. It has some good features, but if one has ever had a severe secondary hemorrhage following its use, one will hardly care again to trust the sealing of vessels, which may be as large as the radial artery, to a mere crushing and searing process.

The Whitehead operation in spite of the many objections offered to it, is still done by some and in a limited number of properly selected cases is a most excellent procedure.

The clamp and suture method, in which the base of the pile is clamped, its top cut off outside of the clamp, and then a continuous catgut suture introduced over the blades of the clamp, is becoming more popular every day and usually gives very gratifying results. Cooke[1] says, "My personal experience with this method has been highly satisfactory. Considered in comparison with the other methods in common use, it conforms more nearly to the recognized principles of surgical technique than any other with the exception of the clamp and cautery. That it has the advantage of greater security than the latter seems clear; and its relative simplicity is an additional weighty consideration in its favor. As between the two, the clamp and suture method seems on the whole the more nearly ideal." Many other rectal specialists and general surgeons agree with Cooke in giving the clamp and suture method the highest place among the various operations that have yet been devised for the radical cure of hemorrhoids.

The clamp and suture operation as it is generally performed today, while more nearly approaching the ideal than any other is, however, open to one very serious objection in that the needle and suture passing back of the clamp in this very vascular area may carry infection into the hemorrhoidal veins which may give rise to either local or remote abscess formation. The late Dr. John B. Murphy[2], commenting on an improved suture operation which the author had suggested, was very emphatic in his condemnation of the old suture method. He said: "Transfixion of a vein with a suture in a zone grossly subjected to infection, as the anus, should not be done—the day of disaster is sure to come. An ascending infection through the middle and superior hemorrhoidal veins into the inferior mesenteric produces the fatal pylephlebitis."

An ideal operation for hemorrhoids should be free from danger of infection of the hemorrhoidal veins, free from danger of hemorrhage, free from postoperative pain, should approximate the mucosa so as to leave no scar tissue, and should not traumatise the tissues enough to cause stricture. Not one of the old operations meets all of these conditions.

In the *Journal of the American Medical Association* of July 17, 1916, I described an operation which to my mind and in my experience more fully meets all of the requirements of an ideal operation for this condition than anything yet published. Its safety and simplicity cannot help but appeal to every careful thinker and its efficiency can be most readily demonstrated by trial.

After thorough dilatation of the sphincters, the field is painted with 3 per cent. iodine solution, a hemorrhoidal tumor is grasped and put on tension by two hemostats, one at its upper border and the other near the skin margin, then the base is clamped with a special clamp having fenestrated blades similar to the Mayo-Moynihan stomach clamp. The tissue distal to the clamp and in the grasp of the hemostats is now cut off and a number two plain iodized catgut suture armed with a short, slightly curved needle at each end, is used in making a back-and-forth shoemaker's stitch through the slit in the blades, the clamp is then removed and the suture tied. Care should be taken to have the first stitch include all of the tissue of the upper border of the pile tumor, for this will prevent hemorrhage.

In my first operations of this type with the aim of eliminating the one objectionable feature of the clamp and suture method, I tried to use the ordinary Ferguson clamp and place my stitches distal to the clamp. Then I tried the use of two clamps, stitching between them, but found each of these methods very unsatisfactory. Finally I used a Ricard phymosis clamp with fenestrated blades, and for the ordinary case it answers the purpose very well. I later had a special clamp made, it is somewhat heavier and stronger, has slightly curved handles and the tips of the blades are made with a mouse-tooth arrangement that assures accurate approximation of the blades.

There are usually three or four hemorrhoidal masses that should be dealt with in the above described manner, then a strip of iodoform gauze smeared with sterile petrolatum is inserted in the anal canal, to be removed in twenty-four hours and replaced, if necessary to relieve gaseous accumulation, by a small catheter.

The bowels are moved with oil and a small enema on the fifth day and the patient may usually leave the hospital on the seventh day.

In the great majority of cases there is very little or no postoperative pain. There is no danger of infection being carried into the large veins because the veins have been crushed back of the stitches. There is no danger of hemorrhage, for there is no ligature to slip or scab to pull off, and the close stitching readily controls all bleeding; and when in three or four weeks following the operation the rectum is examined, little or no scar tissue is seen, but the mucosa seems perfectly normal.

It is upon these findings which have been noted in a number of operations over a period of four years that I recommend this operation as a simple, safe, and highly efficient procedure applicable to the treatment of a high percentage of cases of internal hemorrhoids.

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Repopulation of Germany.—The Reichstag is concerned with two problems, viz., venereal diseases and Malthusianism, which threaten the birth rate. It is recommended to get the workers away from the cities, where they can have small detached cottages in which light and country air and nutritious food can be obtained. This course would tend to increase the number of births. It has been learned that about half of the mutilated soldiers are marrying women older than themselves, a custom which is pernicious for repopulation. To check infant mortality more children's clinics will be established.—*La Presse Médicale.*

Military Medicine.

Medical Problems of Aviation.—Bernard (*Le Progrès Médical*, May 11) enumerates some of the aspects of aviation which belong to the province of the physician. First he mentions the effects of flying on sight and hearing. Next comes the reaction of the nervous system and psyche—the nervous tension and subconscious fear of falling especially within enemy lines. The aviator has many activities—pursuit, observation, bombing—and he must possess coolness, quick wit, and prompt decision. When not on the wing his life is one of forced idleness, to balance the intense and prolonged labors of the day, or night. Strange to say, it is not always the robust man, the open life man, or the sporting man who makes the best flyer, although the qualities which such men possess are always of value.

It is now easily seen that there was an enormous waste at the outbreak of the war through imperfect and unsystematic selection of pilots. This meant loss of both man and machine power. The shortcomings under this head have now been met by various resources. There are now schools of apprentices and much trying out can be practised—adaptation to altitude, adaptation to cold, and all other prophylactic subjects come into play to determine the fitness of candidates. We know now that the aviator temperament is the great asset. Such a man takes naturally to the technique of the machine no less than to flying itself. He is a fighter no less than a flier. Thus far we know that while a good horseman or canoeist makes a good aviator, a good aviator makes a poor sailor. The preferred age period is 18 to 30 years. Under 18 the judgment is bad while over 30 one begins to tire more readily. The aviator must not be too short—not under five feet one inch. He must have a firm abdominal wall, without weakness or threatened hernia, for changes in intraabdominal tension predispose to fainting attacks. Men who have suffered injuries in other services may sometimes have the qualifications of an aviator, but those who have been struck in the head are not dependable. It is the man disabled in one or both of his lower limbs and hence not available for marching who can often be made into a flier.

The French warn against abuse of alcohol and tobacco by fliers but do not forbid mild indulgence when off duty, and one English student of flying (Graham Anderson) sees nothing to be gained by teetotalism. The policy of abstinence imposed upon American fliers will have a chance to demonstrate its superiority, if it possesses it. Untreated and uncured syphilitics are undesirables. Malarial subjects are excluded although Anderson believes some can be utilized by keeping them under quinine control. An abdominal band is worn if there is a relaxed wall. When a height of 16,000 to 18,000 feet is to be negotiated a respiratory apparatus must be present in the plane for no one can foresee what may happen on a given occasion. Good natural vision is a prerequisite for one must not depend on glasses because of their perishability. However, one cannot be too absolute in this respect and there are some excellent pilots who depend on glasses. Men with bent septums have been found to have severe headaches on landing. Mouth-breathers are subject to sore throat and deaf subjects and those with running ears cannot be used as pilots. An aviator should have a good sense of equilibrium and good muscle sense when the eyes are bandaged, for eye control is impossible in fogs. The labyrinth tests are useful in selecting candidates. Reaction time should come up to certain standards and tests of powers of observation are also made.

A Case of Ratbite Fever.—Complete case reports of this affection are rare. The earliest French victims of the disease were civilians and ratbite fever, or sodoku, has never loomed up as a military malady despite the plague of rats in the trenches. In the *Journal de Médecine de Bordeaux* for April, Mauriac reports a case in an artilleryman in great detail. He was twenty-two years old and of previous good health until attacked by polyarticular rheumatism which kept him in bed thirty-five days. From this he made a good recovery. On August 3, at night, a rat bit him as he was about to take a piece of bread from his bag. The injury, a severe one, was on the index finger opposite the second joint. It was at once dressed and healed regularly. Toward the eighth day a red areola appeared with a general reaction. There were joint pains aggravated by motion. These were followed by an eruption on the limbs. There were loss of appetite and lassitude. The infection about the wound disappeared and creatization was not interrupted. The patient did not come before the author until August 18, when he entered the hospital. He was seen to be very pale and emaciated and of senile aspect. He complained of weakness, loss of appetite, and joint pains. The scar on the finger was normal, and there was no marked regional adenopathy. The joints exhibited neither effusion nor dryness. The discrete, red maculopapules, which were undergoing involution on the limbs, showed nothing characteristic. They were most marked on the forearms and legs and were free from itching. The viscera and the functions presented nothing abnormal. The temperature was mostly normal. The syndrome of asthenia and low blood pressure seemed to point to the adrenals and Sergent's white line was present. On August 24 there was a new outbreak of eruption on the hands and alæ nasi. On the 28th the fourth metacarpophalangeal joint of the right hand showed redness and swelling. A few days later more cutaneous lesions about the knees. On this occasion they were notably large. Other joints presented reactions but the phenomena were always short lived. At the time of new manifestations there was a subfebrile rise of temperature. Toward October 1 the disease appeared to have run its course. The treatment had consisted of aspirin, adrenalin, strychnine, arsenicals, and iodine tincture internally. On October 5 a positive Wassermann was obtained despite denial of syphilis and absence of all evidence. He then received four injections of novarsenobenzol at a time when his symptoms had nearly vanished. The Wassermann remained positive, however.

In commenting on the case the author calls attention to the absence of fever (the disease has been termed ratbite fever). However, this could easily have run its course by the time the patient had come

under control. But there should also have been a sharp febrile attack with each new outbreak of symptoms, instead of a mere subfebrile increase. Myalgias were also absent in the author's case. The arthralgias and eruptions seemed typical enough. According to Martmotti, sodoku is characterized by a triad of salient symptoms—exanthem, intermittent fever, and myalgias; so that the author's case must be regarded as strongly atypical. Anemia was marked at first, and six weeks after the bite the red cells counted 2,640,000. This condition, however, soon improved. Nothing was found in the blood by hemoculture and animal inoculation of blood was negative.

Did this man have syphilis or is sodoku so closely allied to it as to give the same reaction? We know that in a way the Wassermann is a reaction for a group rather than for one disease. Or could the exanthem and arthralgias, the profound anemia, etc., have been due to cryptogenic syphilis? The Japanese have described atypical sodoku with presentation of symptoms much like those of the author's patient.

Prevention of Sickness in the British Army.—In a general sense the British Expeditionary Force in France is the healthiest community in the world. It is mainly composed of young men of selected physique who are well fed and well clothed, and who lead a healthy life in the open air under such conditions as are possible; there is limitation to this "possible" imposed by military necessities, such as overcrowding in huts, tents, barns, cellars, dug-outs, and billets, and the exhausting effects of exposure to bad weather, want of sleep, and neglect of personal cleanliness during prolonged tours of duty in the trenches. These unavoidable and irremediable exceptions to healthy conditions are quite sufficient to justify a recurrence of those diseases which destroyed armies in the past, but the long hoped for impossible, the miraculous, the inconceivable has materialized; the scientists have triumphed, and typhoid fever and dysentery which previously decimated armies in every part of the world, have been eliminated. Typhoid fever is now a negligible factor, and dysentery occurs only under exceptional circumstances. The most successful generals in the great war are those generals of science who have won such decisive victory over the ubiquitous and elusive typhoid bacillus; it has been an uphill struggle of twenty years' duration, marked by adversity, opposition, and accident, but inoculation has at last been universally accepted as essential for the purpose of the war. As an aid in the prevention of typhoid fever the search for and segregation of carriers has doubtless played a part. The experiments for ridding carriers of their germs have not been successful. Carriers are not allowed to return to the army but they are taught how not to be a danger to the community and are sent to their homes. Dysentery has not lived up to its historical reputation. The troops are well fed on the army ration, supplemented by fresh vegetables and other extras purchased locally and the water they drink is that drunk by the inhabitants, made doubly safe by sterilization. Consequently their resistance to this disease is high. There was, however, a local outbreak connected with one of the British advances into a devastated area, studded with shell craters and pits, full of fouled water, which proved too tempting for thirty troopers; the outbreak entirely disappeared from the area on the restoration of a pure water supply. The local type of the disease is bacillary but sporadic cases of the amebic variety introduced by troops from India and the Mediterranean crop up from time to time. The spread of the disease is controlled by mobile bacteriological laboratories which examine every suspected case, and by the segregation of carriers until they are germ-free. A prophylactic vaccine has also been prepared, ready to meet any further requirements. The prevailing diseases in this war are fortunately of a much simpler and milder type. The commonest diseases are trench fever, boils, and scabies. Trench fever is accountable for about one per thousand of strength, skin diseases, boils, and scabies for about one per thousand, and a varied assortment of ailments, such as bronchial catarrh, sore throat, digestive complaints, myalgia, dental trouble, hernia, and sporadic cases of infectious disease for the remaining half per thousand of strength.

Trench fever is a new disease peculiar to this war. Two clinical types of the disease are distinguished, the one a short fever of a few days' duration followed in four or five days by a single relapse and the other a longer illness characterized by the number, sharpness, and periodicity of the relapses. Headache behind the eyes and trench shin are the only constant symptoms. Reliable statistics prove that the disease is contracted in equal numbers by those in the trenches and those in rest billets near the trenches; very few cases originate behind the fighting area. The louse is under strong suspicion as an intermediary, but cases occur as far back as Corps Headquarters, under circumstances which seem to preclude that origin; there may, however, be more than one mode of dessemination. Trench foot is capable of destroying an army in a very short time. Preventive measures are equally sure of saving an army. The remedy to the unimaginative presents no difficulties, it is simply the maintenance of dry feet; but in practice it involves one of the most intricate problems in organization connected with the war. During the trench foot season—autumn, winter, and early spring—before starting on his tour of duty in the trenches each soldier has his feet washed and rubbed until they are warm, then whale oil or some other grease is well rubbed into them. This application helps to keep the feet warm. The next duty is to put on dry socks and to receive a spare pair, sometimes two pairs, for future use. Rubber boots are better for wet trenches and leather for dry ones, irrespective of temperature. The air spaces in leather boots are non-conductors and conserve heat, they also allow a useful amount of transpiration. Rubber boots confine the perspiration, the feet and socks become sodden, especially after a long walk, and heat is gradually lost. A clean, dry pair of socks per man is delivered daily at the trenches by the ration party in exchange for a used pair; these are changed and the feet are rubbed and oiled in appointed dugouts in or near the firing line. Other

preventive measures are the provision of hot soup, cocoa, or tea during the night and arrangements for keeping every man exercised. The question of relief is also essential; it is not safe to keep men in cold, wet trenches for longer than four days, and in exceptional cases the tour is reduced to twenty-four hours.—*The Hospital.*

Low Death Rate From Disease in the Army.—According to a statement recently issued from the office of the Surgeon General, a health rate, which as far as known has never been surpassed, has been established by the American Armies both here and overseas. For the week ended July 26 the combined reports of the American Expeditionary Forces and of troops stationed in the United States show an annual death rate for disease of 1.9 per 1,000—less than 2 men per 1,000 per year. The annual death rate for disease of men of military age in civil life is 6.7 per 1,000. This new rate is based on an approximate strength of 2,500,000 men, and includes men living under abnormal conditions. The overseas record was made while American soldiers were participating in the heavy fighting in the Marne salient, when they were frequently compelled to sleep and eat under the most primitive conditions. That this record is truly representative of the general health of the troops is shown by the combined reports, which indicate the figure of 2.8 per 1,000 as the average death rate for disease during the past two months.

Chiropodists in the Army.—It is announced from the office of the Surgeon General that so far as is consistent with the military demands, chiropodists taken into the army will be transferred to the Medical Department and either assigned directly to the various camps for duty under the camp surgeon or first sent to Camp Greenleaf for further training under the regular orthopedic instructors. On the demonstration of proper skill and attainments they may be advanced to the grade of sergeant. A canvass of the camps is now being made to determine the need of this particular service.

Yale University Buys Hospital.—Yale University has purchased the Elm City Hospital, a private institution, and will take possession of the property on September 1. It is planned to use the newly acquired property for Government work in connection with the Yale Army Laboratory School and the medical side of the Chemical Warfare Service.

Lieutenant Sidney Lehman Spiegelberg, a volunteer in the Medical Reserve Corps of the United States Army, died recently in France. Further details regarding his death have not yet been received. He was a graduate of the College of Physicians and Surgeons, New York, in 1906, assistant genito-urinary surgeon to the Sea View Hospital, and surgeon to the German Dispensary.

Captain Paul Eugene Betowski, M. R. C., U. S. A., died July 2, from injuries received in an automobile accident, at the age of 37 years. He was a graduate of the Long Island College Hospital Medical School in 1907, and was, before entering the Medical Reserve Corps, surgeon to the Soldiers and Sailors Home at Bath, L. I. He was attached to the 666th Aero Squadron, A. E. F., France.

Athletes Rejected for Military Service.—The records of physical examinations of drafted men at Camp Dix, Wrightsville, N. J., show that in proportion to their representation among recruits professional athletes show more physical rejections than any other group of men called to the National Army at this camp. This paradoxical situation has been observed since the opening of the camp, and it is thought probable that other cantonments have had a similar experience. In a recent draft there were three famous ball players, a boxer, and a runner with a track championship, all of whom failed to qualify physically for military service.

Dr. Rudolph B. Teusler, in charge of St. Luke's Episcopal Hospital at Tokio, will lead the American Red Cross Unit which will accompany the American troops on their expedition into Siberia.

Red Cross Activities.—A report under date of August 25 shows that the American Red Cross has supplied 1,100,000 surgical dressings to the American wounded during the past month. Twelve hospitals are being operated near Paris, four new ones are being built, and convalescent homes have been established at Biarritz and other places. The American Red Cross is now operating farms for the convalescent aggregating 249 acres. The report dealing with supplies shows that each division of the Army receives 2,500 daily papers and 500 weeklies. Heavy demands will be made upon the American Red Cross in connection with the international campaign against the Germans, Austrians, and Bolsheviki in Eastern Siberia and steps have been made to meet these needs. At the request of the General Dietrichs, commander of the Czechoslovacs, the Red Cross has already begun the equipment of a base hospital at Harbin containing from 300 to 400 beds. A hospital train is expected at Vladivostok soon, where 240 Czech patients are now being cared for in the fortress hospital.

New York Hospitals Confer With Surgeon-General.—The Hospital Conference of New York City, at a meeting on August 26, voted to send a committee to Washington to confer with the Surgeon-General for the purpose of forming a definite plan to furnish the greatest amount of medical aid and nursing aid to the Army without entirely disorganizing the civil hospitals. This meeting was called after a number of the hospitals of New York City had received word from the Surgeon-General's office that plans had been developed for calling out hospital internes and a certain number of advanced and intermediate medical students. In a statement issued on the situation, the Hospital Conference of the City of New York appeals to the President of the United States to direct the War Industries Board, the Provost Marshal General, and the Surgeon-General of the United States Army "to formulate in accordance with existing laws, regulations which, while giving due precedence to immediate military needs, will, nevertheless, preserve the integrity of the civil hospitals of the country as instruments of public service essential to the immediate care and comfort of the civil population and necessary to the conduct of the war, in relation to which the hospitals serve as training schools for medical officers and nurses."

MEDICAL RECORD.

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THE SYMPTOMATOLOGY OF PAINFUL DYSPNEA.

THE symptoms of painful dyspnea are not of equal value, and although some are found in each case history, with variations which do not alter the general outline of the syndrome, others appear to occupy a more modest place. The cardinal symptoms are three in number, namely: venous symptoms, pain, and dyspnea, the union of which forms the basis upon which the diagnosis rests. From the clinical standpoint and pathogenesis, the venous manifestations are the most important. They are always met with, and are the first to appear, and confer the individuality upon painful dyspnea and testify in a tangible and visible manner to a dilatation of the right heart which plays the most important part in the mechanism of the accidents.

Usually, an obstruction to the venous circulation is made manifest by a more or less evident cyanosis of the face, lips, and limbs. Shortly after, the paroxysm still persisting, the liver will be found to offer a marked and progressive hypertrophy. To these symptoms edema of the legs becomes added, and this can be explained only by a slowing down of the venous flow, because in most cases it arises only during the paroxysm and quickly disappears when the former has subsided. It is also possible that nephritis, when present, may have some influence on this interior heart edema. The venous symptoms remain as long as the paroxysm of painful dyspnea, and cease with it, showing their intimate relations to the other elements of the syndrome. The right heart will always be found dilated, due to pulmonary hypertension, which governs in turn the intensity of the venous symptoms. On the other hand, the anatomical and functional states of the left heart never undergo morbid change, while the aorta is free from any lesion.

The painful phenomena recall those of true angina pectoris, but particularly those of the pseudo variety. The pain, which is tearing and constrictive, has its maximum intensity in the retrosternal or precordial region, and, as in angina pectoris, it extends to the back and arms, especially the left.

While the venous and painful symptoms are well defined, the same cannot be said of the dyspnea, which borrows its characters from the causative factor of the syndrome. Since it is due to the dilatation of the right heart and pulmonary hypertension, it may vary in type, when the paroxysm has been caused by bronchitis in an emphysematous subject, by an attack of asthma or by some obscure reflex cause. In some cases albuminuria is noted at the end of the paroxysm, but it soon disappears. This succession of phenomena would seem to show a relation of cause and effect between the elimination of albumin and the paroxysm of painful dyspnea.

The paroxysms of painful dyspnea usually are nocturnal, and may follow a physical or intellectual effort, but generally no particular cause can be made out. The cyanosis suddenly appears, rapidly involving the face and limbs. A severe precordial or retrosternal pain is felt, the patient is restless and oppressed, but perfect control of speech is retained. The right heart is dilated from the pulmonary hypertension, and contrasts with the left heart, which is normal. The radial tension is not increased, the sphygmometer registering from 150 to 180 mm. Hg. At the same time, the liver may be found enlarged, with edema of the lower limbs. The paroxysm lasts several hours or days, and when it ceases the distension of the right heart disappears at the same time as the circulatory, nervous, and dyspneic disturbances. Related to the affection which has caused them, the paroxysms recur just so long as their causative factor exists, and disappear definitely with it. Therefore, it is impossible to formulate an individual prognosis of painful dyspnea considered from the standpoint of its ultimate evolution, but the immediate prognosis is good.

AN ITALIAN VIEW OF ANGLO-SAXON MEDICAL JOURNALISM.

DR. VERNEY writes a long essay on this subject in *Il Policlinico* for June 23. Before the war the Italian physicians knew too little of this literature, for they were inclined to regard German journals as the last word in medical advance. They have now learned better, and to give his readers an idea of Anglo-Saxon journalism the author analyzes two journals each among British and American periodicals, namely, for the former the *British Medical Journal* and *Lancet*, and for the latter the *Journal of the American Medical Association* and the MEDICAL RECORD. The first named under each head is the official organ of the national medical association. In scope these four journals are of the omnibus type, and take cognizance of every kind of professional activity. The circulation of the two official organs is enormous because of certain privileges. Both of the British journals publish special foreign editions.

The original articles come first in these periodicals. These are made up of lectures and addresses and papers read before medical societies. The latter predominate in the two American journals, and the vast number of societies and congresses in the United States assures plenty of material. The sub-

jects are practical rather than speculative, and of general rather than special interest. Case histories are common. The author thinks the preponderance of these subjects makes the reading a little dry. The synthetic reviews so common in European journals are not often encountered. The American journals, however, show an extreme variety of topics, with occasional reference to the novel and speculative, and the author cites with approval the articles in the MEDICAL RECORD by the late Dr. Maverick on the "Mistakes of Nature," as penetrating, limpid, and original, and as exemplifying the type of articles welcomed in American journals. In passing, he mentions the numerous articles on new instruments and apparatus as characteristic of the Anglo-Saxon genius.

But the editorials are in reality the most important articles, and the part played by them is the greatest point of difference between Anglo-Saxon and European journals, for the latter usually eliminate this feature outright. The editorial is what is read first, and perhaps all that receives attention. It comprises the leading articles and the annotations. The author regards the custom as a capital one, for it gives in a small compass the current topics of the day in which the progressive physician should be most interested. The third feature is the Correspondence, which may, of course, be carried to a great extent, including not only the communications of the regular staff correspondents in distant countries, but letters on all conceivable subjects from miscellaneous readers. Often these communications are of singular interest and importance.

The fourth rubric is that devoted to Social Medicine in the widest sense of the word—the relations of practitioners to one another and to the general public. The so-called educational numbers published annually belong under this head.

The fifth rubric comprises both Book Reviews proper and reviews of periodical literature. All four journals are active in this field, and the writer notes incidentally that the MEDICAL RECORD covers some of the Italian medical journals, as *Il Policlinico*, *La Riforma Medica*, and the *Annali d'Igiene*. The writer states that the German abstracts were originally suppressed at the outbreak of our war, but adds that they were afterward resumed by the MEDICAL RECORD. He applauds this course, for there is no reason, he states, why we should not learn from our enemies. The Anglo-Saxon journals are strictly impartial and catholic in their selection of literature.

Under the head of miscellaneous rubrics the author shows interest in the MEDICAL RECORD's examination questions and answers. Dr. Verney will devote a second paper to some of the special periodicals of the Anglo-Saxon medical world.

MEDICAL MOBILIZATION AND MEDICAL STUDENTS.

IT has been proposed that the medical profession of the country should be mobilized. This will be a long step in the right direction, for many more medical men will be required for army needs than have yet entered the service. It is, however, not only with the view of selecting or gaining information as to the most fitting ones for this service that the profession should be organized, but in order to be in the position to apportion, or suggest, to each man the medical duties for which he is best adapted. A fairly large proportion of the medical men of this country, for good reasons, cannot serve in the army, but by being properly organized they will be enabled to perform civilian services to the best advantage from the point of view of the community at large and of the military situation in particular. To each practitioner will be allotted the task which promises to be of the greatest benefit to the country as a whole. Undoubtedly, sacrifices will be called for, but when the stake at issue is taken into consideration such sacrifices should count as nothing. Moreover, judicious mobilization of the profession will make a fair disposition of its individual members possible, and greatly reduce the possibilities of abuse of opportunities brought about by the war.

The proportion of medical men to the population is much greater in this country than in Europe. In Great Britain, for instance, there are about 28,000 qualified practitioners to a population of 45,000,000, and from this number had to be taken sufficient to serve an army of 6,000,000 or so and a navy of more than 300,000. In America, with a population of 100,000,000, there are in the neighborhood of 140,000 medical men, and, as a matter of fact, at the present time there are in the American army more surgeons than in the entire British army and navy. Conditions in this country as regards the supply of available medical men are far more favorable than in the European countries at war, and if mobilization of the profession is carried out wisely there is every reason to believe that the army and navy will be adequately provided with medical service, and that there will still be enough medical men left to care for the health of the civilian population.

It will not be necessary in America to call upon medical students to serve in the army or navy. In Great Britain this has been done for some time, and the destroyers, as a rule, have fourth and fifth-year medical students, known as surgeon probationers, acting in the capacity of all-round naval medical men. There has been some confusion in Great Britain recently as to the manner in which the War Department makes use of medical students, and Professor Bryce of Glasgow has published the facts in the *Glasgow Medical Journal* for June, 1918. These, in brief, are as follows: No man who has been graduated in medicine within the past four years has entered civil life unless he suffered from some serious physical disability. On the day of his graduation every man has passed automatically into the service, either on sea or on land. Any release of men on service to continue their studies, or any exemption of men actively engaged in their studies, has been dictated by the public interest solely, the immediate object being to recruit the ranks of the medical service of the navy or army.

This being so, the principle that has ruled has been the release or exemption of the men who could in the shortest time become available for the medical services of the navy and army. As the war went on, and the fourth and fifth-year men were all drafted, it became necessary owing to the depletion of the third-year men by some 80 or 90 per cent., to release third-year men already in service, and recently it has been found necessary to extend this to second-year men. Students who had actually become second-year students by passing their first professional examination, or who could pass this examination by July 31, 1918, were temporarily exempted in order that they might complete their second examination at the first opportunity, and then take service as surgeon probationers in the navy. This applied only to men who entered on their studies not later than October, 1917. No others could fulfill the conditions.

All men of military age who are temporarily exempted under the instruction are required to combine military training with their professional studies in order that they may be ready for service when called upon at the appropriate stage in their curriculum.

It will be gathered from a perusal of the above that virtually all students are liable to military service, if they have not proceeded far enough with their studies to render their medical services of probable value in the war.

Pituitary Extract in Obstetrics.

The introduction of preparations of the pituitary body into the practice of obstetrics has practically revolutionized this branch of the medical art. But unless the indications for its use are strictly adhered to, it can do much harm, and in consequence unjustifiably fall into disrepute. By its use, difficult labor from failure of the uterus to contract is practically overcome. It is essentially a reenforcer of contractions. In multigravidae its effect in this respect is sometimes almost miraculous; in primigravidae it is less remarkable, but the drug is still successful in over 50 per cent of the cases where the fault is distocia uteri. But the use of pituitary extract must be confined to actual labor, for at other times it is valueless. It is a question whether it is of any service in bringing on labor at term, because it is difficult to determine this time to the day, and if given at any time before term, no matter how short, it is of no avail. Its action is that of an internal secretion. Labor at term being a sort of magnified menstruation, is brought about through the influence of the secretion of the posterior lobe of the hypophysis. During pregnancy there is a sort of inhibition against its action, which inhibition is probably exercised by an internal secretion given off by the placenta. It is not known what it is that removes the inhibitory action of the placenta, but in all likelihood it is a secretion from the decidua and the uterus. When the placental inhibition to the action of the hypophysis is removed labor begins; the secretion of the gland then stimulates the contractile action of the uterus, and it is the province of pituitrin to reenforce this action. But if there is some obstruction to labor it is neither desirable that the usual labor contractions go on until the obstruction is removed, nor of course that these undesirable contractions be reenforced artificially. It is, therefore, a rule that allows of no exceptions that pituitary extract must not be used unless the head is engaged in and through the brim of the pelvis. When it is given in small doses, 2 to 5 minims every half hour, it intensifies uterine contractions and shortens labor. Chloroform, however, seems to inhibit its action, but if the patient is not completely under and is given the pituitrin the expulsion may be so precipitate as to cause severe lacerations. While it is a rule that pituitrin must not be given before labor or before the engagement of the head through the brim, it must likewise not be given in the third stage of labor, for while it produces marked contractions, the equally marked periods of relaxations may cause severe hemorrhages. In any event, the drug is a powerful one, and must not be administered unless the medical attendant can remain constantly in attendance, both because of the tendency to rapid delivery and the consequent possibility of laceration, and because of the danger of subsequent hemorrhage.

Strychnine in Neurasthenia and Anxiety Neuroses.

The use of heroic doses of nux vomica and strychnine in nervous collapse is well enough known to neurologists, and recently Heckel in a monograph on neuroses of anxiety has recommended the alkaloid in those states as well. Hartenberg regards strychnine as almost a specific in the nervous asthenia of neurasthenia and gives it in increasing doses—always in excess of 6 milligrams (1/10 grain) daily dose. By reason of the fact that strychnine is not retained in the body certain individuals can acquire a tolerance of several centigrams a day. In anxious states this high dosage is not indicated and by the mouth a tenth of a grain daily dose need not be exceeded, while a fifteenth suffices by the hypodermic route. To give larger doses would very likely increase the severity of the anxious state. The remedy is indicated, according to Hartenberg, in secondary neurasthenia due to organic disease and wherever there is a somatic substratum. In endogenous cases with obsessions and phobias the results are less happy. When the drug is given *per os* it exerts an action on the digestive apparatus as shown by acceleration of the food passage. Given subcutaneously a nervous reaction soon follows and if this is in excess the patient is irritable and restless. To strike the ideal dose it is well to begin with a milligram by the mouth. On the ninth day Hartenberg would change to 2 milligrams in two daily doses, one on waking in the morning and the other during the day. One may or may not increase the dose further, but 3 mg. daily should not be exceeded. After three periods of treatment the patient should rest a fortnight, after which the treatment is begun again with daily doses of 2 mg., which may be gradually increased until benefit arrives or the limit is reached. If the digestive organs demand it the alkaloid should be given *per os* in pill form.

News of the Week.

The Value of School Lunches.—The following statement was issued by the Public Health Committee of the N. Y. Academy of Medicine, on August 8, 1918: Malnutrition among our children is much more widespread than people as a rule realize. It is a condition found in a considerable proportion of the children. In New York, the premier city of America, at least 10 per cent. of the children suffer from some degree of under-nourishment. Ignorance of food values is one of the several major causes of this phenomenon which, if unchecked, will cause a serious impairment of our vital resources. Since the war the importance of the problem has become palpably intensified. The necessity for food conservation and the scarcity of some customary foods and the high prices have combined to focus our attention on the problem of nutrition as never before. Changes in strongly intrenched habits cannot be wrought precipitately. Even when mothers have learned how to adapt the menu to scientific dictates and to conditions indicated by our conservation policy, their efforts fail unless the children learn to like the food placed before them. It has been proved by demonstration in this city and elsewhere that in groups children will much more readily eat food to which they have not been accustomed. Peculiarities of taste and racial customs are readily overcome through the stimulation of group feeding, the children eating the new foods with relish. In this wise they develop habits for wholesome and nutritious foods, which they have not been receiving at home. They take back into the homes the taste for the new foods and by the thus stimulated demand improve the home dietary. Herein lies the educational value of the so-called "school lunches" which in many cities of our country and in other countries have proved to be of genuine benefit to the children in a great variety of ways. School feeding, on a self-supporting basis, should be made a part and parcel of our educational system. Hitherto a committee of private citizens have maintained the "school lunch" in a number of schools, but the existing urgent demand for the extension of this service makes it imperative for the city to assume control over it and extend it in accordance with the well-recognized needs. The cost involved in the municipalization of the school canteens is so insignificant in comparison with the total budget of the Department of Education that it should not deter our city government from instituting this important service at the opening of the new school year in September.

The Baltimore Quarantine Station, which was finally taken under the control of the Federal Government the latter part of May, has been placed under the direction of Dr. J. A. Nydegger, surgeon of the U. S. Public Health Service. New York is still under State control, although the officer in charge, Dr. Cofer, is in the Public Health Service.

Disease on Incoming Steamships Not Influenza.—As the result of an investigation made by the New York Health Department, Commissioner Copeland announces that the patients taken from incoming steamships recently, supposed to be suffering from influenza, did not have the disease. Eleven patients taken from one vessel had penumonia or bronchial trouble, but no germs of influenza were found.

Fire in Brooklyn Hospital.—A fire occurred in St. Mary's Hospital, Brooklyn, on the morning of August 23 which caused $5,000 damage. The Sister Superior had the shades of all windows facing the blaze drawn so that patients could not see the flames and handled the entire situation so skilfully that none of the two hundred patients was disturbed.

Hospital Aid for Aisne Civilians.—A report received by the American Committee for Devastated France announces that hospitals for the care of civilians have been established in the Aisne disthict by the American Woman's Hospitals.

Anniversary of the Bureau of Child Hygiene.—The personnel of the Bureau of Child Hygiene of the New York Department of Health celebrated its tenth anniversary on August 19. Health Commissioner Copeland called attention to the fact that this was the first bureau of its kind in the world and that it had set a standard in the conservation of child life and health. In 1907, a year before the founding of the bureau, the baby death rate for Greater New York was 144 per thousand births; in 1917 there were 88 deaths out of every 1,000 babies born, and up to date this year the average mortality has been 85 per thousand. It is not reported that Mayor Hylan was present.

Gifts aand Bequests.—The Lyons Home for Crippled Children and the Davis Industrial School for Crippled Children, New York, receive each $2,500 and the Homeopathic Hospital $5,000, under the will of Alphonse Galôt.

By the will of Ethelaide Bump the Corning Hospital, Corning, N. Y., receives the principal of a trust fund amounting to several hundred thousand dollars on the death of a beneficiary.

Obituary Notes.—Dr. Louis H. A. Schneider, a graduate of the College of Physicians and Surgeons, New York, in 1890, died at his home in New York, August 22, aged 49 years.

Dr. Jacob H. Gallinger of Concord, N. H., died of cardiovascular disease on August 17. He was born at Cornwall, Ontario, March 28, 1837, and was graduated from the Medical Institute, Cincinnati, in 1858, and from the New York Homeopathic Medical College in 1868. He practised medicine in Concord from 1862 to 1885 and was surgeon general of the State in 1879-1880. He served a number of terms as representative and as senator in the State legislature, and since 1891 had been a U. S. senator.

Dr. Arthur D. Dryfoos, formerly a captain in the Medical Reserves of the United States Army, died suddenly at his home in New York City on August 22. He was a graduate of the College of Physicians and Surgeons, New York, in 1899, a member of the New York Academy of Medicine and the Neurological Society, assistant neurologist to the Lebanon and Vanderbilt Clinics, and attending neurologist to the German Dispensary.

Dr. John H. Landis, a graduate of the Medical College of Ohio in 1890, died at his home in Cincinnati on August 22, aged 58 years. He was an international authority on public health and medico-legal questions.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE DEVELOPMENT OF MEDICAL EDUCATION—DEATH OF TWO DISTINGUISHED CONSULTANTS—HYSTERIA IN SOLDIERS.

London, August 2, 1918.

A MEMORANDUM has been addressed to the president of the Board of Education, Mr. H. A. L. Fisher, by Sir George Newman, chief medical officer and principal assistant secretary to the board, dealing with the present position of medical education in England, and making many suggestions for its reform in practical directions. The origin of the memorandum is the strictly business position epitomized in the proverb that "he who pays the piper should call the tune." Just ten years ago an application was made by the medical school attached to St. Mary's Hospital in London to have that school recognized as eligible for a grant from the Board of Education as a regular technical school. The British medical profession has been, ever since it became an educated profession, accustomed to paying for its own training, to supporting its own professors by the fees of its pupils, and its own examiners by the fees of the examinees, so that the application came as something of a shock to the medical mind, while officialdom contemplated the request with deep distrust. The Board of Education, however, was an enlightened board at the time, while events were happening in every department of life to prove that a high standard of medical education, which could alone secure to the country a thoroughly competent medical service, was a public asset for the obtaining of which public money might well be expended. In the end the application of the St. Mary's School was favorably received, when applications quickly followed for the recognition of other medical schools in similar substantial manner, both in London and the provinces. But before recognizing a medical school as eligible for a grant the Board of Education had to be satisfied as to the nature of the arrangements, the government and management of each school, the permanency of its work, and the directions in which the allocated grant would be employed. This necessitated a system of periodical inspection by the board, and for this purpose the board associated with Sir George Newman Sir Clifford Allbutt, regius professor of medicine at Cambridge, and Sir Thomas Barlow, a late president of the Royal College of Physicians and consulting physician to University College Hospital. Sir George Newman's memorandum sets out the conditions under which medical schools have been recognized for these government grants, and the principles on which the grants are made. That the scope and the necessity of the grants may be understood, he deals in great detail with the present position and needs of medical education in England, with the character of our university training in medicine, and with the educational course laid down by the various universities and corporations through which the medical student can obtain admission to the roll of the profession. The memorandum, which is issued from His Majesty's Stationery Office at the modest price of 9d., is thus a compendious history of medical education in England to-day, coupled with running criticisms on its merits and defaults; and it concludes with recommendations for many particular reforms. These last may be summarized as follows

1. Unnecessary and redundant burdens should be eliminated from the medical curriculum proper by (a) relegating the study of the preliminary sciences (chemistry, physics and biology) to school life, and (b) reserving of work along special lines until a postgraduate epoch.

2. A more thorough linking up of the study of the intermediate subjects with the study of the clinical subjects, so that lessons learned while acquiring the science of physiology can be applied directly to the science of perverted physiology or pathology.

3. Large reorganization in the machinery of education in clinical medicine and surgery such as the provision of modern equipment, of adequate clinical and pathological laboratories and radiographic and electrical appliances, and of annexes for instruction in various remedial procedures, such as massage and hydrotherapy.

The memorandum may be of the greatest educational importance if its message is well received. Many of the medical education centers of this country are very well found. Some are very ill found. And the energies of the traveling committee of inspection instituted by the Board of Education must find full scope in the attempt to bring the less advanced schools up to the best standards. And this will mean the expenditure of much money, so that it is of good omen that the board should be willing to collect evidence, for a willingness, if satisfied of the necessity, to make further and substantial grants is thereby implied.

Death has removed this week two consultant physicians of widely differing age and equipment, but having this in common: that their careers were distinguished, and that they owed their distinction entirely to their devotion to the medical profession. Dr. Frederick Roberts, consulting physician at University College Hospital, was 79 years of age at the time of his death, and had retired from active practice for 15 years; while Dr. Frederick Batten, physician to the National Hospital for Paralysis, and the Great Ormond Street Children's Hospital, was but 52 years of age, and at the top point of his energetic career. Each lived for medicine. Professor Roberts, a Liverpudlian, was a triple gold medallist at the University of London, and after a short sojourn at Liverpool, as physician to one of his native institutions, returned to London, to be immediately appointed physician to University College Hospital, and the Brompton Hospital for Diseases of the Chest. At each center he made his mark as clinician and instructor. At Brompton his exhaustive methods of diagnosis were imitated by many generations of his house physicians; and at University College he was speedily elected professor of clinical medicine. But he will be best remembered by the textbook on medicine, "A Hand Book of Theory and Practice," which was the result of his garnered experience, and which was used as an examination manual by countless students during its nine editions.

Dr. Batten, the son of a distinguished London lawyer, was a Cambridge and St. Bartholomew's

student, who, after being casualty physician at St. Bartholomew's, specialized in neurology and pediatrics, and achieved while quite young a commanding position in both sections of his art. He was a really scientific and learned man, so that his diagnoses were trustworthy, but he was also a persevering and ingenious therapeutist, and the originator of many practical devices for rendering the treatment of paralyzed patients of all ages more tolerable and rapid. He was also an untiring worker in general professional interests and an honorary officer in many medical societies. The ranks of modern medicine can ill spare this devoted member, who succumbed suddenly to hemorrhage after an operation.

It is becoming abundantly clear that the separation of hysterical from organic conditions among soldiers is one of the most difficult problems which the medical profession will have to face, and they are already facing it with energy. From the very beginning of the war it was recognized that purely hysterical cases, if taken in hand early, yielded quickly and completely to treatment along many lines, and, somewhat to the disgust of the more materialistic school of therapeutists, two of the most useful agents for bringing about this happy result were discovered to be hypnosis and psychoanalysis. General anesthesia, carried to a certain point, was also useful in many cases, while electricity and reeducation along the indicated lines bore good fruit. Especially has reeducation been found to give extraordinary good results, illustrations of which are detailed in an interesting paper by Major A. F. Hurst, neurologist to Guy's Hospital, and Capt. J. L. N. Symns, neurologist to the Royal Victoria Hospital, Netley, in the columns of the *Lancet*. The experience of these specialists in the rapid cure of hysterical symptoms in soldiers is most encouraging, inasmuch as they are able to state that they are distinctly disappointed if, in many cases, complete recovery does not occur within twenty-four hours of commencing treatment, and this even where the patients have been in other hospitals for over a year. It is true that if a man with severe hysterical paraplegia of some months' duration is taught to walk in half an hour, and treatment is then discontinued on account of his fatigue, he will probably not walk normally until he has undergone reeducation for several weeks; but, continue the authors, "if the officer in charge not only ignores the patient's fatigue, but also his own, and continues the treatment for another half hour or hour, or even for two or three hours, the patient will end by walking with a normal gait, although, of course, some time will elapse before he completely regains his strength. In the same way, a mute or aphonic soldier who stammers on recovering his voice should not be left until the stammer is also cured, or he will only recover completely after receiving daily lessons for some weeks."

Major Hurst and Captain Symns rely upon simple percussion or reeducation, continued with manipulation, rather than upon hypnosis, where they find the results capricious; but they attach great importance to the creation of a proper atmosphere. A hopeful patient is for them a half-cured patient, while experience shows that if a cure is obtained within three or four weeks of the onset of symptoms relapse is very rare. The illustrative cases on which these optimistic conclusions are based are very interesting. Patients who had suffered from such conditions as paraplegia for eight months' duration, from talipes, tremors, and stammer, of 14 months' duration, from hysterical gait and tics of six months' duration, from hysterical paraplegia mistaken during three months for sclerosis, and from tremors of jaw and limbs lasting sixteen months—in these, and in other cases every whit as serious, sensational cure followed manipulation and suggestion in a few hours, occasionally in a few minutes. Of course, the weak spot in this cheerful record is the fact that the hysterical nature of many cases cannot be early recognized. Rapid recovery may follow the recognition of the true nature of the condition, but much time will often be wasted by the detention in bed of hysterical subjects who are supposed on very good grounds to be suffering from the organic results of shell shock or spinal concussion. Therefore, the more cases of cure that are accurately reported the greater will be the number of cures in the future.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

LIBRARIES FOR THE ARMY—THE NEGRO IN THE ARMY —ARMY BASE HOSPITAL NO. 6.

PARIS, July 16, 1918.

THE American Library Association has arrived in France with loads of books for Uncle Sam's fighting men on land and sea. Good, breezy, Western fiction, tons of it, and lots of reference books, dictionaries, histories, books of science, etc., straight from home and in sectional bookcases. Dr. M. Llewellyn Raney, librarian of the Johns Hopkins University in Baltimore, Md., and director of the Overseas War Service of the American Library Association, is the bearer of this good news. One hundred and ten cases have reached Paris, while hundreds of others are in the ports.

Dr. Raney was sent to Europe to map out the Association's procedure overseas. After study of British and French methods and extensive observations afield and at sea he presented to General Pershing and Admiral Sims a plan of operation. This they have not only approved, but have given practical aid to effect. At their request the tonnage necessary has been granted by Washington. The Quartermaster's Department is to erect a warehouse at an important interior point for the receipt of this material. Admiral Wilson has granted the use of a coast vessel for the distribution of books to naval aviation stations. The heart of the plan is the cooperation effected between the American Library Association on the one hand and the Y. M. C. A., Red Cross, Knights of Columbus, and Salvation Army on the other. These organizations, having already established contact with the men, are to be the chief distributing agencies. The A. L. A. thus becomes virtually the American base of books supply.

The service of the A. L. A. will in no way interfere with the technical work of the cooperating associations, such as their religious, educational, and medical service, any more than the public library in America disturbs the operations of the

church or school. The aim of the A. L. A. is to supplement, not to supplant.

A strong khaki-colored box, with screwed-on top, and a central shelf form the unit of shipment. Stacked, these constitute a neat sectional bookcase. The books are given out purely on the honor system, without deposit or fine, though a strict record of them is kept. "Play square with the other fellow, he has played square with you" is the motto adopted for the placard surmounting the shelves. Nor are the prisoners of war forgotten. Dr. Raney has been to Switzerland and effected an arrangement through the Y. M. C. A. for supplying these unfortunates with home consolation.

En route to America Dr. Raney expects to visit England again and effect final arrangements for service there. He left for home about the middle of May to cooperate from the home base. His place in Paris was taken by Burton E. Stevenson, the author, who with his wife has arrived at the Hotel de Crillon. Mr. Stevenson organized one of the most successful of the cantonment libraries in America, that at Camp Sherman, Chillicothe, Ohio. He is at present looking for A. L. A. headquarters. These quarters will constitute virtually an American reference library in Paris.

Strange as it may seem the American soldiers most susceptible to homesickness are the negroes from the South. One of them is a cook for a medical unit, and is probably the best cook outside of Mississippi. He can't, like the French chef, make a dish for a king out of bully beef, a blade of grass, and a bit of vinegar, but he can make a rice pudding such as France never saw. He can also serve hot-baked potatoes in a way which Americans thoroughly appreciate. Recently he was asked if he liked it in France. "Well, sah," he replied, "France is a fine place, I reckon. I say I reckon because I hain't seen much of it; but I understand, sah, that all that paht I hain't seen is pretty fine country, and once in a while they have sunshine there too. This mud we have round heah's a little different than the mud we have in Georgia and Mississippi, but there's one good thing about it, it never gets deep enough to drown in and that's where it differs from the Mississippi River." "Would you go back if you were released?" "Say, sah, I was foh years the chef on a diner between Birmingham and Atlanta and maybe that wasn't the best job in the world, but if I were told to go back, sah—well, you've heard of those homing pigeons." I told him I had. "Well, that's me, sah. I am a homing pigeon."

A former lyceum somewhere in France has been converted into an American hospital, technically known as Base Hospital No. 6. The situation is remarkably fine and does credit to the Medical Department of the United States Army, for the hospital is in the midst of green trees and pleasant views. It is worked out in all details with precision and a view to order. At the head of this beautiful hospital is Major Frederic A. Washburn, and the heads of departments are: Major Richard C. Cabot, chief of the medical division; Major Lincoln Davis, chief of the surgical division; Captain Roger Kinnicutt, pathologist; Captain James H. Means, adjutant; Captain William J. Mixter, registrar. This hospital is located in buildings the nucleus of which is the stone building of a boys' academy. The academy was taken over by the French army at the outbreak of the war and fourteen pavilion wards were erected outside it. Since this hospital was taken over by the Americans the adjoining large estate has been leased. This gives us a total of sixty acres for the hospital enclosure. Upon this land are being erected some sixty-six new buildings—wards, kitchens, quarters for men and nurses, recreation rooms, dining rooms, and warehouses. The hospital has a capacity of 2,000 beds authorized. It is now reporting 1,800 beds available.

The names of fifty officers are borne on the rolls; these include the medical officers, sanitary officers, quartermaster, chaplain, and dentists. Many of these officers are continually on detached service. At the present time there are two surgical teams at the front. There are 82 women nurses and 228 medical department soldiers. The hospital at the present time serves two functions—it cares for the more serious cases of sickness and accidents in the large rest camps at other posts in this base section, it cares for patients transferred from other base hospitals nearer the front, and also for cases directly from the front. Most of the officers of Base Hospital No. 6 are drawn from the Massachusetts General Hospital.

146 Avenue des Champs Elysées.

CANADIAN LETTER.

(From a Special Correspondent.)

INFANTILE MORTALITY AND TUBERCULOSIS IN THE PROVINCE OF QUEBEC—INFLUENZA IN MONTREAL—DEATH OF DR. LACHAPELLE—MEMBERS OF M'GILL MEDICAL FACULTY IN ACTIVE SERVICE—NEW DEAN OF THE MEDICAL FACULTY OF LAVAL UNIVERSITY—THE SALE OF SOOTHING SYRUP TO BE PROHIBITED IN TORONTO.

Montreal, Aug. 12, 1918.

Infantile mortality is high in Montreal, but the vigorous steps which are being taken by the Board of Health of this city are already having a good effect and undoubtedly in the course of time will bring down the death rate of infants to the level attained by many other cities. The sanitary conditions of some parts of Montreal are somewhat primitive and it is said that the French Canadian habitants of the poorer class have a prejudice against free ventilation of their houses. Also the women of this class are ignorant of the best methods of rearing infants and young children, and this lack of knowledge has had a good deal to do with the high death rate. However, "nous avons changé tout cela" or are in process of doing so. The Montreal Board of Health has inaugurated a system of visiting nurses who go into the houses of the poor and teach mothers how to feed babies properly and otherwise instruct them in the principles of domestic hygiene.

In the rural districts of Quebec, the state of affairs as regards household hygiene, the infant mortality rate, and the prevalence of tuberculosis is worse than in the cities. There are no visiting nurses to advise the mothers and the habitants are largely left to their own devices so far as rearing

their families and combating tuberculosis are concerned. This is not to say that the Provincial Board of Health is not efficient. Its members are doing excellent work, but the care of infants and children and means of effectually fighting tuberculosis are beyond their scope. The co-operation of the people themselves is essential for success in these spheres of endeavor.

It has been suggested by Dr. Elzear Pelletier among others, that the situation in the Province of Quebec is exceptionally favorable for the creation of a competent antituberculosis league or organization, more favorable, in fact, than in the English speaking provinces of Canada. In Quebec there are 891 Roman Catholic parishes of which no fewer than 390 possess communities of nuns. The suggestion then is, that the antituberculosis leagues should request these religious orders to take a more active part in questions of social hygiene. For example, almost half of the Catholic rural parishes have convents, and therefore half of the territory of the province could be covered by nuns trained as nurses who could carry an effective campaign against tuberculosis. It would seem, indeed, entirely feasible that the nuns could attend not only to their own parishes but also to all the provincial parishes. Neither need such beneficial work be restricted to fighting tuberculosis, but, as in the cities, these nuns could instruct mothers in domestic hygiene and especially in the most hygienic methods of bringing up children. Moreover, it would appear to be wholly within the powers of these nurses to inspect school children. That is to say, to tender advice as to children not up to the normal standard of health and when necessary to suggest that a physician be consulted. By proceeding along these lines, infant mortality would be greatly decreased, tuberculosis would be checked, and the health of the rural community would be immeasurably bettered.

There has been somewhat of a "scare" in Montreal with respect to what is termed "Spanish" influenza. Although no cases have been reported in the city, the fact that Montreal is constantly receiving soldiers returned from the war fronts, causes a certain amount of concern. A most common-sense view of the situation has been taken by Dr. Pelletier, who has given it as his opinion that the disease is just "grippe" and not a deadly new malady.

Dr. E. P. Lachapelle, the president of the Provincial Board of Health of Quebec since 1885, died on August 1, following an operation at St. Mary's Hospital, Rochester, Minn., whither he had gone for treatment. Dr. Lachappelle was 73 years of age and had a distinguished career. He was practically the founder of Notre Dame Hospital, Montreal, the dean of Laval Medical Faculty, and president of the Dominion Medical Council. He was educated at the Montreal College and the School of Medicine and Surgery and was graduated from that institution in 1865, also receiving the medical degree of the Victoria University two years later. Dr. Lachapelle played an important role during the smallpox epidemic of 1885, espousing the cause of those who favored vaccination, which was not popular among many of his compatriots at the time. He was controller of the City of Montreal for four years. He was a delegate from Canada to the Pan-American Medical Congress held in the City of Mexico in 1896 and acted in a like capacity at the International Congress which took place in Paris a few years later. He was decorated by the Government of the Republic of France. At a special meeting of the Superior Board of Health of the Province of Quebec held on August 6, a resolution was passed eulogizing the deceased physician in the highest terms, as a hygienist, a leader, an administrator, a philanthropist, an economist, and in addition as a most delightful personality. At this same meeting the Board named as temporary president Dr. Arthur Simard of Quebec, and as assistant president Dr. J. A. Hutchinson of Westmount.

A luncheon was given in London on July 10, to meet Sir William Peterson, K. C. M. G., principal of McGill University and its treasurer, and Mr. J. W. Ross. All those present were members of the Medical Faculty of McGill University actively engaged in the war. The chair was taken by Sir Auckland Geddes, K. C. B., Minister of National Service (late Brigadier-General) and Professor of Anatomy in that University. Those present represented only a portion of the teaching staff of McGill University, who were or who had been on active service. Two professors have returned recently to Canada after service overseas. These are Colonel G. E. Armstrong and Colonel H. S. Birkett, professor of Larynology, and Dean of the medical faculty.

At a meeting of the medical faculty of Laval University, Montreal, held on August 7, Dr. L. de Lotbuisere Harwood was elected dean in place of the late Dr. Lachapelle.

As the result of a conference between the members of the Toronto Board of Health and officials of civic milk stations on August 9, some action will be taken to secure powers to have the sale of soothing syrups prohibited. The concensus of opinion was that half of the mothers who come to the notice of the civic health department are killing their children with these dangerous drugs.

Progress of Medical Science.

Boston Medical and Surgical Journal.

August 8, 1918.

1. The Physical Examination as a Civil Service Instrument. Andrew F. Downing.
2. Studies in Personality Among Feebleminded Delinquents Seen in Court. V. V. Anderson and C. M. Leonard.
3. Fracture of the Long Bones: A Clinical Study. Francis Reder.

2. Studies in Personality Among Feeble-Minded Delinquents Seen in Court.—V. V. Anderson and C. M. Leonard point out that feeblemindedness does not necessarily imply bad social adjustment; that certain persons, though undoubtedly mentally deficient, are able to earn a living, avoid serious social difficulties, and adjust themselves fairly well to the conditions of normal living, and therefore are not necessarily—because they are feebleminded—vicious, incorrigible and irresponsible. They state, however, that the majority of feebleminded delinquents seen in court are institutional cases and are incapable of living up to the social standards of the community. They strongly emphasize the fact that a well rounded, thorough going study of the possibilities of each individual delinquent, though he be feebleminded, is essential for an adequate adjustment of his case. Anderson and Leonard have reached these conclusions as a result of a consideration of one hundred cases of feebleminded delinquents in court. The only stipulation made in choosing the cases was

that sufficient information bearing on the career of the person should be available to determine the general character of the behavior, together with information in regard to the personality sufficient to give a general idea of the abilities and disabilities of the individual. The cases were all adult women, from 17 to 55 years of age. The mental age of these persons was determined by means of the Yerkes-Bridges Point Scale and Goddard's Revision of the Binet Scale. The diagnostic methods employed were: a psychiatric examination to eliminate psychoses, deterioration, etc., and a psychological examination, including the two scales referred to, together with Healy's supplementary tests, the application of tests for school knowledge and general information, and the gathering of a life history bearing upon the careers of the individuals. The case histories furnished evidence of marked differences in behavior, which seemed to correlate less with their age and mental level than with certain fundamental trends of personality. Of the one hundred cases, sixteen were self-supporting, were steadily employed, and apparently gave satisfaction where they worked; thirty-eight, while more or less self-supporting, changed positions frequently, and worked irregularly; thirty-five never worked at all; and eleven did housework at home. Eighteen per cent. never used alcohol or drugs; 82 per cent. used alcohol, and 5 per cent. used alcohol and drugs. Nineteen per cent. were moral, while 81 per cent. were undoubtedly immoral. Twenty per cent. were first offenders, and 80 per cent. were repeaters, among whom a record of 25 to 50 arrests was common. In short, about 19 of these women showed good or fair social adjustment, whereas 81 were considered to have shown poor or bad social adjustment.

Boston Medical and Surgical Journal.

August 15, 1918.

1. Hospital Standardization—Its Meaning. John T. Bottomley.
2. The Administration of a Military Base Hospital and Its Comparison with a Civil Hospital. Channing Frothingham.
3. The Need of Systematic Teaching of Hospital Internes. Edward H. Bradford.
4. Social Service and Follow-up Work. Richard M. Smith.
5. Hearing Test to Detect Malingering. John F. Callaghan.

5. Hearing Test to Detect Malingering.—John F. Callaghan has evolved the following technique in order to determine whether there is actual deafness in cases suspected of malingering. The basis of his test is the fact that tuning forks vibrating with the same pitch and loudness one inch from each ear are heard in each ear, but if one fork is removed to a point three inches from, let us say, the left ear this sound is lost and only the fork remaining one inch from the other ear is heard. If the latter fork is now removed six inches from the right ear, it will no longer be heard, but the left one will again become audible. Callaghan found that similar results were obtained if a tuning fork were placed against a rubber tubing and his experiments were first conducted with a stethoscope as tube. He now uses a seven-foot length of rubber tubing, hole 3/16 inch, wall of tubing 3/32 inch, to either end of which is attached an aluminium funnel. The funnels are held to the ears, and about one inch away from them, by a simple attachment on the headrest of the examining chair which permits of adjusting them to cover the ears without touching the patient. As the test is one of air conduction, it is important that no part of the apparatus comes into contact with the patient's person at any point. Callaghan found that tuning fork 256 C 1 was heard by the normal ear when placed against the tubing at any point up to 7½ feet from the ear; with a larger size tubing the fork is heard as far away as 30 feet. As a routine, however, he used the 3/16-inch, 3/32 tubing mentioned. The application of the test is as follows: The 7-foot tube is connected with one funnel which is placed about one inch from the right ear. The tuning fork vibrating is applied to the tubing about 6 inches from the ear and is then moved along the tube until no longer heard. The tube is then disconnected from the right funnel and attached to the left and the same procedure followed. After this the tube is attached to both funnels; the vibrating fork is applied to the tube one foot from the right ear and moved along the tube toward the left ear. If hearing is normal, the sound will be heard only in the right ear until it reaches a point about 3 to 3½ feet from the right ear, at which point it will be heard also in the left ear and will continue to be heard in both ears for a distance of about 4 to 6 inches in the middle of the tube; this 4 to 6 inches the author calls the "neutral" space. Beyond this, the sound is heard only in the left ear. Callaghan points out that whereas when the tube is attached only to one ear, as in the first part of the test, the sound is heard for 7 to 7½ feet, when attached to the two ears, it is heard only up to 3 or 3½ feet, because as the tuning fork passes through the neutral space from the right to the left ear, the sound is heard only in the latter ear. As these tests are done behind the patient's back, he does not know whether one or two tubes are being used or which ear is nearer the tuning fork, and it is easily possible to detect any misstatements he may make in regard to his hearing. An 8-foot tubing may be used and may be cut about 14 inches from one end and joined by a simple wooden coupling—such as a meat skewer cut to 2 inches in length and tapered at either end—or, preferably, a coupling of hard rubber tubing. This makes it possible to determine exactly which ear is hearing the sound, as the tube can easily be uncoupled and the fork touched to one end or the other. The degree of hearing can also be determined by this test, modified as follows. Two tubes are taken, each the length of the hearing in the good ear. Funnels are attached to both ears. The fork is touched to the end of the tube connected with the good ear and at exactly the same time a fork is touched to the other tube near the head and is run down that tube. As the fork is touched further away from the bad ear the patient will cease to hear it and, if malingering, will then admit hearing for the first time. This point will be the measure of the distance he hears with the bad ear. Callaghan's test can be applied for bone conduction by the use of lugs, as the vibrations transmitted along the tubing are easily transmitted through lugs to the bony parts in the region of the ear. All that is necessary is to place the funnel in contact with the cranial bones of the ear. In applying the test the author states that he always uses a tube which is 6 inches shorter than the distance of hearing in the good ear of the patient.

New York Medical Journal.

August 17, 1918.

1. Righthandedness in Its Relation to Visual Conditions. George T. Stevens.
2. The Blood and the Soul. Jonathan Wright.
3. Congenital Syphilis and the Doctor. J. M. Wallfield.
4. The Preventive Treatment of Bone and Joint Maladies. Frederick Fridham.
5. The Thyroid Gland. L. J. Simonton.
6. The Heart in Pulmonary Tuberculosis. H. Schmatt.
7. Immunization Therapy in Bronchial Asthma. A. I. Rubenstone.
8. Prevention versus Treatment in Tuberculous Laryngitis. Max Lubman.
9. Reconstructive Therapeutics. J. Madison Taylor.

1. Righthandness in Its Relation to Visual Conditions.—George T. Stevens points out that though we have no records of more remote antiquity, the early European races of 30,000 years ago were almost unanimously righthanded, as is shown by the greater development of the left side of the cranium in skulls still in existence. He suggests that the custom originated in a realization of the vulnerability of the left side of the body and the necessity of leaving the left hand free to protect that side. As dextrality is still the common custom, asymmetry of the cranium remains and has its effect upon vision. Since the cerebral location for the control of movements of the arm and hand is near the anterior portion of the hemisphere, the more general use of the left hand has resulted in a corresponding increase in development of the left side of the cerebrum at its anterior part, and the upper arch of the orbit is consequently pushed outward and the axis of the cavity changed from a vertical to an oblique direction. The globe of the eye is thereby tilted, its vertical meridian leaning outward toward the temple. This is extremely common, so much so that its absence suggests, but does not prove, lefthandedness. This tilting outward of the

vertical meridian of the eye does not imply any disease, insufficiency, or muscular disability; the eye merely maintains its normal relation to the orbit, while the orbit does not maintain its normal relation to the cranium. The clinoscope has demonstrated that the vertical meridian of the left eye leans outward above; the vertical meridian of the right eye, on the other hand, frequently has a tendency to lean toward the median plane, which has been shown in a large number of cases to be a synergic response to the unconscious effort to adjust the left eye. The positive (i.e. with the upper end toward the temple) declination may occur in the right eye of course, or there may be an outward leaning of the verical meridian in both eyes. As a result of the absence of symmetry of action of the motor influences upon the two eyes, binocular vision is less perfect than it otherwise would be and it is easy to understand that imperfect adjustment of the eyes may work to the disadvantage or dulling of vision. Stevens therefore concludes that the custom of being righthanded is one to be discouraged. This does not mean that children should be taught to be lefthanded, for the case would then be no better; but they should be encouraged to use both hands and no effort should be spared in teaching them to be ambidextrous. It should be remembered also that an unevenly developed brain may strongly tend toward an unevenly developed mind.

Journal of the American Medical Association.

August 17, 1918.

1. Glucose Intravenously as a Therapeutic Measure. Lawrence Litchfield.
2. A Study of Diaphragmatic Movements in Acute Abdominal Inflammation. Llewellyn Sale.
3. The Responsibility of Industrial Boards to Employer and Employee, as Influenced by the Opinion of the Medical Examiner. Charles S. Andrus.
4. Systematic Manifestations of Chronic Nasal Infection in Childhood. Albert H. Byfield.
5. Sounds Heard in the Auditory Method of Measuring the Blood Pressure: Their Mechanism and Significance. Clyde Brooke and A. M. Bleile.
6. Botulism: A Method of Isolating Bacillus Botulinus from Infected Materials. Ernest C. Dickson and Georgina E. Burke.
7. Intrarectal Administration of Arsphenamine. Augusto S. Boyd and Morris Joseph.
8. Hay Fever Resorts in the United States and Canada. William Scheppegrell.
9. Neurocirculatory Asthenia. William H. Robey, Jr., and Ernst P. Boas.
10. Impregnation of the Underwear as a Means of Controlling the Clothes Louse. William Moore.
11. Immobilization of Patient on Standard Army Litter. A. E. Lemon.
12. Typhoid in a Company of Immunized Soldiers. Samuel Bradbury.

1. Glucose Intravenously as a Therapeutic Measure.—Lawrence Litchfield. See MEDICAL RECORD, June 29, 1918, p. 1146.

2. A Study in Diaphragmatic Movements in Acute Abdominal Inflammation.—Llewellyn Sale. See MEDICAL RECORD, July 6, 1918, p. 41.

4. Systemic Manifestations of Chronic Nasal Sinus Infection in Childhood.—Albert H. Byfield. See MEDICAL RECORD, June 22, 1918, p. 1108.

5. Sounds Heard in the Auditory Method of Measuring the Blood Pressure: Their Mechanism and Significance.—Clyde Brooks and A. M. Bleile enumerate as follows the phases of sounds heard in the normal adult on raising the cuff pressure to a high level and allowing it to fall gradually: (1) Silence, which may be called the upper phase of silence. (2) Upper phase of murmurs, which are soft and remind one of swirling fluid; they are short in duration and occur at systole. (3) Arrhythmic or desultory snapping sounds or "thumps," which occur at about every third or fourth systole, singly, in pairs, or even in threes, each one corresponding with a systole. They occur at about the end of inspiration or the beginning of expiration, are distinct, snapping, irregular sounds and may easily be overlooked. (4) The phase or regular rhythmic snapping sounds, which grow louder as the cuff pressure is lowered and occur synchronously with systole. (5) The phase of friction sounds or "thump-sh-sh." The double character of these sounds is expressed by "thump-sh-sh." (6) The phase of regular snapping sounds. This may be called the lower phase of snapping sounds and is similar to the fourth or upper phase, the difference being that in the upper the sounds are growing louder, whereas in the lower they are growing fainter, as the cuff pressure is lowered. (7) The lower phase of murmurs, which are more constant and distinct than those of the second phase. (8) The lower phase of silence. A knowledge of the behavior of the artery during compression of the cuff affords an explanation of the mechanism of these sounds. Brooks and Luckhardt showed that during cuff pressure, even at the highest point of systole, an artery does not open at all; this occurs during the upper phase of silence. As the pressure is gradually lowered, the segment of artery that is under the cuff opens with wedge shaped spaces at each end and apple seed shaped spaces at the corners of the flattened tube. The blood currents, as they rush down to these openings, probably produce the indistinct and often unnoticed murmurs. As the cuff pressure is still further lowered, the openings increase in their penetration until at the crest of the systole they break through the occluding pressure of the cuff. The result is the beginning of snapping sounds. Uncertainty still exists as to the mechanism of the production of these sounds. Brooks and Luckhardt suggested that they are due either to the thumping together of two ends of the divided column of blood or to the snapping together of the walls of the artery; another possibility is the snapping open and sudden tension of the vessel walls. The next phase, when the thumps become stronger and regular, may be explained on the hypothesis that as the cuff pressure is lowered it reaches the level where all systoles break through. The friction sound is caused by the blood passing through the narrow slitlike opening of the artery, and as the pressure is further lowered and the opening becomes wider, more blood can squirt through, thus producing a longer and more pronounced friction or nozzle sound, which may overshadow the thump sound. The cessation of the snapping sound is brought on by the still further lowering of cuff pressure which results in the failure of the artery to close completely even at the lowest ebb of diastole. During diastole there is a sudden diminution in the caliber of the artery, and during systole a sudden distention. This produces alterations in the size and shape of the cuff arterial segment which results in vortices and other irregularities in the blood stream, and to these are due the murmurs heard in the seventh phase. From a consideration of the significance of these arterial sounds, the authors come to the following conclusions: That the beginning of regular, rhythmic snapping sounds is the best criterion point for use clinically in measuring the so-called systolic blood pressure; that the criterion for measuring the so-called diastolic blood pressure is the lowest point where the snapping sounds are heard, or where they just cease; and that the auditory method of measuring blood pressure is more satisfactory than the palpatory or sphygmographic methods by the use of such instruments as the Uskoff or the Erlanger apparatus.

9. Neurocirculatory Asthenia.—William H. Robey and Ernst P. Boas. See MEDICAL RECORD, July 6, 1918, p. 36.

The Lancet.

July 27, 1918.

1. Remarks on the Pathology of War Neuroses. An Address Given to the Officers at the Lord Derby War Hospital, Warrington. Major Judson S. Bury.
2. Gunshot Wounds of the Peripheral Nerves. Major C. Noon.
3. Gunshot Wounds of the Thorax. Their Later Stages. J. A. Wilson.
4. Abstract of a Paper on Capsulate Mucoid Forms of Paratyphoid and Dysentery Bacilli. Captain William Fletcher.
5. On a Method of Preparing Medium for the Culture of Pfeiffer's Influenza Bacillus That Gives Profuse Growth and Is to a Marked Degree Selective for the Organism. John Matthews.
6. Useful Media for Isolation and Cultivation of Meningococcus, Enterococcus, and B. Typhosus. Major W. James Wilson and Georgina Darling.
7. Military Orthopedic Surgery: Its Scope and Aims. Major-General Sir Robert Jones, C.B.

2. Gunshot Wounds of the Peripheral Nerves.—Major C. Noon emphasizes the importance of treatment, preoperative and postoperative, in cases of injuries of the peripheral nerves. Under the head of postural treat-

ment, Major Noon points out that a position of relaxation should be maintained in all nerve injuries. In lesions of the musculospiral nerve a Jones's "cock-up" splint, or some modification of it, may be used to relieve the extensor muscles of strain. Operations on this nerve are doomed to failure if the paralyzed muscles are allowed to become overstretched and lengthened by permitting the wrist to be in the flexed position of "drop" wrist. If the wrist is kept in good position, injuries of the musculospiral nerve are among the most favorable for treatment. Electrotherapeutic treatment, including electric treatment and massage, should be employed to preserve the nutrition of the muscles, and it is important that the limbs should be kept warm; it is futile to apply electrical stimulation to cold extremities. Joint stiffness must be prevented by passive movements. Operation, if decided upon, should be done under a general anesthetic. Any lesion of the skin is an absolute contraindication to operation. Application of an Esmarch bandage is not recommended. The procedure is as follows: Skin incision, which should be of ample length; isolation of nerve trunk above and below site of lesion; freeing of nerve at actual site of lesion; passing the sutures and exact coaptation of ends of divided nerve; formation of a sheath at site of lesion; suture of deep fascia and closure of wound. The chief complications met with in the author's series of cases were (a) those due to septic infection of the wounds, extensive destruction of the soft parts, and severe injuries to the bones; (b) extensive destruction to the nerve, resulting in a gap in its continuity, making end to end suture impossible. Drainage and rest for the inflamed parts were relied upon chiefly to overcome the septic conditions. In cases associated with compound fractures Major Noon points out that very careful treatment is necessary if necrosis with development of a persistent sinus is to be avoided. These cases should be thoroughly drained at the earliest possible date, and all loose pieces of bones which have not firm attachment to periosteum removed Carrel-Dakin treatment or continuous irrigation should be employed when necessary. In cases of extensive destruction to the nerve, with care it will usually be possible to perform end to end suture. It is important that the incision should be of ample length, so that the nerve may be separated from the surrounding structure, both above and below the lesion; in lesions of the ulnar nerve it can be displaced in front of the internal condyle of the humerus; and during and after the operation the position of the limb should be that of maximum relaxation, so that all tension is taken off the nerve. When nerve suture is impossible or when the functional result attained by nerve suture is unsatisfactory, this operation may be replaced or supplemented by tendon transplantation, the most favorable cases in which this may be done being those of injury to the musculospiral and posterior interosseous nerves. From a study of 364 cases, 250 of which came under his personal observation, Major Noon has come to the following conclusions: (1) That the diagnosis of an injury to a peripheral nerve ought to be made at the earliest possible time. (2) Successful recovery depends upon early, correct, and continuous treatment. (3) Primary suture should be considered and practised whenever possible. (4) That there should be no unnecessary delay in exploring a nerve if there is sufficient evidence that it has received some injury resulting in a macroscopic pathological lesion. (5) It is almost certain that some macroscopical lesion is present in cases which show no signs of recovery after four months' treatment. (6) That operations on injured nerves should only be done in well-equipped general hospitals, and by those surgeons who have ample experience of such cases. (7) That sufficient attention is not usually paid to the early preoperative and postoperative treatment, and that paralytic deformities and shortened muscles are often the result of ignorance and neglect. (8) That the extreme gravity of an injury to a peripheral nerve is not sufficiently realized by the general profession.

British Medical Journal.

July 27, 1918.

1. Broken Sleep. Guthrie Rankin.
2. The "Buffer-salts" of the Blood. W. M. Bayliss.
3. The Part Played by the Bone Graft. Marcus Mamourian.
4. A Report on the "Influenza" Epidemic of 1918. Oliver H. Gotch and Harold E. Whittingham.
5. The Doctor's Problem. Lieut.-Col. A. Lloyd Jones.
6. Vanghetti's Operation. Eric Pearce Gould
7. Treatment of Acute Septic Gingivitis. Percy Bigelow.
8. The Reduction of Temperature by Local Ice-Bags. Capt. M. G. Dobbyn.

1. Broken Sleep.—Guthrie Rankin comments on the widespread prevalence of sleeplessness since the outbreak of the war. The nervous system of the man on active service breaks under the terrible strain, while the wife or mother at home is worn out by constant mental anxiety. Then there are those who have inherited a gouty diathesis and who are of the neurasthenic type, who find after middle life that their sleep is broken between 2 a. m. and 4 a. m. by a sensation of gastric discomfort. Air raids and other disturbances are also factors which interfere with the normal night's rest. Rankin suggests that the remedy for insomnia in many cases may be found in attention to the details of routine habits and abstention from serious work after dinner. A tablespoonful of paraffin before breakfast will lubricate the intestine and keep the bowels in order, and once or twice every week 1 grain of calomel with ⅓ grain of extract of colchicum made into a pill with 3 grains rhubarb or colocynth will provide for hepatic efficiency. A mild aperient water may also be used. To prevent gastrointestinal fermentation, he suggests periodical courses of about two weeks of 3 grains each of charcoal, betanaphthol, ox gall, guaiacum, taken in capsule form forenoon and afternoon. The evening meal should be light and meat and tea taken only once a day; a glass of some light wine may promote digestion, and an ounce of brandy in hot milk, arrowroot, or Benger's Food may be useful as a nightcap. Whenever possible of course, drugs should be done without, but suitable drugs, wisely chosen, should be given if necessary. Bromides should be administered in full doses of 30 grains and are more efficient if combined with small doses—ten grains—of chloral hydrate. The influence of this drug upon the cardiac centers Rankin believes to have been grossly exaggerated. If this combination fails, bromidia in dram doses, chloralamide in 30-grain doses, or chloralose in 6-grain doses may be tried. Other alternatives are: Medinal, 7 grains; trional, 15 grains; sulphonal, 20 grains; adalin, 10 grains; chloretone, 15 grains; or bromural, 10 grains. Paraldehyde is valuable in cases where there is mental excitement and extreme restlessness. One-quarter grain of morphine with 1/100 grain of atropine, administered hypodermically, is indicated in cases where pain contributes to the sleepless nights. Rankin points out that the abuse of morphine is no argument against its legitimate use; it will bring relief when other remedies are of no avail and should not be withheld because of the possible creation of a drug habit. Whatever hypnotic is chosen, the best results are obtained by giving it three or four nights in succession rather than leaving it to the patient's judgment to take as he pleases. If often happens that better results are obtained by the administration of two or more hypnotics instead of any one by itself, and Rankin mentions the following: 15 grains trional with ½ grain of codeia; 20 grains chloralmide with 30 grains potassium bromide; 10 grains aspirin with 7 grains Dover's powder; 10 grains bromural with ⅙ grain morphine; 5 grains zinc valerianate with ¼ grain heroin. He adds that in cases with persistent high-tension pulse dependent upon sclerotic changes in the arteries, nitroglycerine is of inestimable value. A tabloid containing 1 minim of a 1 per cent. solution of the drug should be put into the cheek the last thing at night and left there to melt gradually. It prevents increase of tension during sleep and may be repeated should the patient awake during the morning hours. Electricity may be useful, but its effects are uncertain. Hypnotism Rankin considers a doubtful and experimental remedy, which may be of some value in carefully selected cases. He adds that it is well to recognize the value of philosophy as a hypnotic.

Berliner klinische Wochenschrift.

June 10, 1918.

Experiments with the Treatment of Malaria, Particularly the Quinine Resistant Cases.—C. Seyforth be-

lieves that it is necessary to prevent the quinine habit by exhibiting the drug in interrupted series of treatments. Here is the typical treatment as advised by the writer: During eight days one gram of quinine is given by intramuscular injection daily, then five days' rest; eight days, one gram of the drug is given by mouth daily in fractional doses, then five days' rest. Two days a one-gram dose is given, then five days' rest. Then one gram is given two days each week for six to eight weeks. Old or badly treated cases are benefited by a combined treatment of quinine and neosalvarsan, the writer proposing the following method. An intramuscular injection of one gram quinine is given daily for four days, and on the morning of the fifth 45 centigrams neosalvarsan and in the afternoon 1 gram of quinine are given by intramuscular injection; then for three days one gram of quinine daily by intramuscular injections and then five days' rest. Next one gram quinine is given daily *per os* for two days, then five days' rest and after this the treatment is continued as already mentioned above. Chronic cases which have been treated with insufficient doses of quinine should first be severed from the drug for two to four weeks before taking it again. Manifest cases, with the plasmodium in the blood, are more accessible to treatment than the more or less latent ones; therefore it is well to provoke the entrance of the organism into the circulation. Arsenic is necessary during convalescence in order to renovate the blood.

Observations on the Resistance of Hematozoa to Quinine.—C. Seyforth mentions several possible causes in cases where quinine has proved itself useless. In the first place, the drug may be insufficiently absorbed (vomiting, diarrhea, constipation), the quinine itself being the cause of these disturbances. Intramuscular injections of the drug in these cases shows that the pretended inactivity of the drug does not exist. The mixed infections (typhoid, dysentery) may conceal the drop in temperature. A true acquired habit to the drug may exist in the plasmodium or the organism and is the result of prolonged but insufficient doses of quinine. It likewise explains the general weakness of these patients and the particular virulence of certain races of the plasmodium.

Münchener medizinische Wochenschrift.

June 11, 1918.

Interpolated Ventricular Extrasystoles and the Theory of Contraction from Excitation.—H. Straub endeavors to show by electrocardiographic tracings taken in a case of extrasystolia that each extrasystole is followed by a prolongation of the auriculo-ventricular interval for the following systole. This prolongation is not to be attributed to a slowing of conduction but to an increase of the latent period of ventricular excitation.

An Operative Procedure for Radial Paralysis.—Guetsche proposes to correct the position in flexion and the impotency which results from shortening of the paralyzed extensor tendons. In two cases he has also been able to bring the hand into the position of moderate flexion, thus relieving the drooping which existed before the operation. The thumb is no longer in apposition with the palm and the fingers are in slight flexion. In this position, when the hand is opened, the patient is unable to execute any movement of extension, but as soon as he closes the fist the entire hand becomes raised on the forearm. This combination of extension of the hand with flexion of the fingers is eminently favorable for the function of prehension. The writer is unable to say whether or not the phenomenon observed is to be explained by the reëstablishment of a certain amount of functional activity of the extensors or by a purely mechanical action derived from the new position given to the hand.

Clinical Studies on the Functions of the Thyroid.—E Herzfeld and R. Klinger come to the following conclusions: (1) The thyroid secretion cannot be an albuminoid body, but a dialysable product of disintegration. (2) Goitrous degeneration is to be explained by an insufficient autolysis of the cell albumin of the gland. (3) Iodine is united to the products of albuminous disintegration and is not an essential part of the secretion; it merely acts as an agent favoring the formation and excretion of the secretion. (4) The effect of the nerves consists in an increase of the hydrolytic process in the cells.

Deutsche medizinische Wochenschrift.

June 6, 1918.

The Operative Treatment of Pulmonary Tuberculosis.—Schottmüller is absolutely in favor of treating unilateral pulmonary tubercular lesions by bringing about compression of the diseased organ. Besides pneumothorax, the writer describes two procedures which are to be resorted to when pleural adhesions are present. One consists of a thoracoplastic operation, the extensive resection of several ribs. To show the admirable effect of this operation Schottmüller reports *one* case. The second procedure is rather more personal with the writer and consists in a modest costal resection sufficient for the introduction of the hand into the thoracic cavity for the purpose of manual breaking up of adhesions. After suture, the results obtained by the interference are maintained by injections of nitrogen under very high pressure. Schottmüller says that this procedure has resulted in a marked improvement, also in a single patient.

On Spontaneous Pneumothorax in Non-Tuberculous Subjects.—This question is discussed in two articles, one by Teske, the second by Cahn. The discussion bears upon the mechanism of the production of superpressure in the involved pleura (it is entirely confined to *closed* pneumothorax). Cahn wishes to explain the process by the inspiratory effort which little by little aspirates the pulmonary air into the pleura. From this it appears that he does not take into consideration the production of a positive pressure in the two phases of respiration. Teske, with more reason, admits that the play of the pressures in a diseased pleura is determined by the respiratory play of the healthy lung. At inspiration the air is inspirated into the diseased pleura, while during expiration the healthy lung forces the air into the diseased organ by virtue of the greater elasticity conferred upon it by its normal condition. The narrow fistula acts like a valve so that the passage of the air can only take place in one direction, namely, from the bronchi to the pleural cavity.

Treatment of Pulmonary Hemorrhage by the Sitting Position.—Von Niedner thinks that a hemorrhage resulting from a stasis in the pulmonary domain should be treated with the patient out of bed, seated in a chair. On the contrary, a hemorrhage due to rupture of a vessel should be treated by absolute immobility in bed.

Deutsche medizinische Wochenschrift.

June 13, 1918.

Cleansing and Disinfection of the Hands.—F. Neufeld has undertaken to verify the effect of various procedures of hand cleansing, the hands having first been infected. His results appear quite paradoxical in several points, namely, the superiority of alcohol over other disinfectants upon the condition that it is not too concentrated; the uselessness of brushing with a nail-brush, this being more applicable in gross soiling of the skin than to its tenor in bacteria. The reputation of tincture of iodine is greatly exaggerated, he says. Hands infected with the *Bacterium coli* are better disinfected with sublimated alcohol at 1/10 per cent., then come alcohol and alcoholic soap (containing 80 per cent. alcohol). The chlorite solutions, namely, Javel water at 3 per cent. and Dakin's solution, take the last place from an exclusively bactericidal standpoint. The use of the brush and washing with soap hinder the subsequent action of alcohol. Alcohol quickly kills bacteria; its effect is by no means due to the fixation of the germs. Its action on the spores is very greatly inferior to that of other antiseptics. The writer does not believe, for that matter, in the possibility of fixation of bacteria. For example, mastisol becomes rapidly dissolved on the cutaneous surface and gives free vent to the exit of the microorganisms. Washing with soap, although not sufficient for surgical disinfection, is of great value in hygienic prophylaxis. As a substitute the writer has obtained good results with lime (one

or two spoonfuls taken in the hands and mixed with water). This procedure will even result in a more effective sterilization than with soap itself.

How to Be Sure of the Cure of Gonorrhea in the Male.—Zieler is of the opinion that the best means to attain this end is to dilate the urethra with a Kollmann instrument. After this has been done the urethral discharge should be examined microscopically for four or five days in succession. The injections of vaccines will render the procedure still more sensitive.

Le Progrès Médical.

May 18, 1918.

The Gauze Mask in the Prophylaxis of Contagious Diseases.—Bernard first refers to the original use of the blouse by those exposed to contagious disease in hospitals. This was put on before the exposure and afterward removed. Protection with such a resource was of course confessedly incomplete. At that period not much was known of carriers. An attendant, himself perhaps immune, could receive and harbor infectious matter projected from the throat and nasopharynx, while if not immune he could contract the disease himself. A radical prophylactic resource consists of the isolation of patients in sterilizable cubicles. A similar resource used to some extent is draping the bed with mosquito netting which is sprinkled thoroughly with weak solution of eucalyptol. Naturally such methods of isolation are indispensable when victims of different contagious affections are confined in close proximity. It has been successfully used in the army. During the present year Weaver, an American practitioner, has caused a gauze mask to be worn by the hospital personnel in connection with cerebrospinal meningitis. This idea is of course far from new, for surgeons have frequently included this simple device under aseptic technique. The experiment proved instructive, for not a carrier developed among the exposed personnel (as a rule 12 per cent. of the exposed become carriers). The measure was extended to diphtheria wards, with the assistance of the Schick test. The per cent. who became carriers was thereby reduced from 23 to 8.2, while not a single case of infection occurred during the observation period of two years. An experience with the gauze mask of six months in the scarlatina wards with 73 nurses exposed was quite negative although an average of three nurses annually had been contracting the disease.

Vincent's Angina.—Chalier seeks to gain some idea of the frequency of this affection. If we reckon by percentages of cases of sore throat, the disease is rare, for both Vincent and Simonin found it to be a little over 2 per cent. In civil practice it is certainly rare in hospitals. In a large service one may hardly see a case a year. But the incidence of the malady is so large among soldiers as almost to make of it a military one. A peculiar feature is the tendency to relapse, so that one soldier may represent three or four cases. It has occurred clinically as a stomatitis. The author has had charge of 2500 men over a period of 22 months and has treated 46 cases of angina with an average absence from service of 4 or 5 days (cases with but 1 to 2 days' absence are not included). Of these 46 cases 13 were examples of Vincent's disease—over 28 per cent. as against 2 per cent. in civil practice. The fact of contagion in individual cases is well established.

Cholera Nostras Syndrome in an Alcoholic with Degeneration of the Liver.—Lesieur and Jacquet treated a man of 43 employed in auxiliary military work for what appeared to be cholera. There was no suspicious case in the camp, however, and the algid, collapsed patient was thought to have acute inflammation of the adrenals, a crisis of uremia or perhaps an anomalous form of spirochetic icterus or finally a poisoning from without. Of these four possibilities the latter appeared the most probable—suicidal poisoning. The patient could not be saved and autopsy appeared to justify the diagnosis. There was an intense hemorrhagic gastritis with recent well marked degeneration of the liver. In the intestine, however, were found evidences of an infection, due probably to the bacillus proteus. To explain the fatty change in the liver, which might have been produced in acute phosphorus poisoning, the patient was an alcoholic who drank much champagne. Such a sequence is rare, but the author has seen it a number of times in hard, daily drinkers. Apparently the same factor, when less massive, produces the interstitial lesions of hepatic cirrhosis. The insufficiency of the liver was probably the predisposing cause of the proteus infection.

Norsk Magazin for Laegevidenskaben.

April, 1918.

Constitutional Hypersensitiveness and Asthma Bronchiale.—De Besche states that in 31 cases of asthma 12 presented a definite relationship to certain animals, viz.: 11 to horses and 1 to cats. A thirteenth case presented relationship to some vegetable sensitizing agent —presumably wheat. In the other 18 cases no animal or vegetable protein sensitizing agent could be discovered. In horse asthma a peculiar conjunctival reaction is obtainable, as follows: One places a finger tip on the skin of a horse and then touches the conjunctiva bulbi of a patient subject to horse asthma. At once redness, lacrimation and slight edema appear. In 5 cases a cutaneous reaction also developed. When a drop of horse serum is applied to a vaccination scratch a bleb develops. In the case of cat asthma both conjunctival and skin reactions were obtainable. In a case suffering from horse asthma an injection of 2 c.c. of antidiphtheritic horse serum produced a state resembling anaphylactic shock in a guinea pig. After recovery the patient was free from horse asthma for 4 months—could drive a horse or enter a stable or circus with impunity, but eventually the affection reappeared. By injecting 5 c.c. of blood serum from a patient with horse asthma into the peritoneal cavity of a guinea pig the hypersensitiveness to the horse protein may be passively transmitted to this animal. In some cases of horse asthma the asthma is due entirely to the horse, while in other cases it is also set up by the presence of other animals —cow, sheep, rabbit, dog, etc. Others again are hay fever subjects, and one patient exhibited asthma after eating strawberries. Some horse asthmatics are ignorant of the fact that their asthma is due to the horse, and in such cases the eye and skin reactions are of value. Others have known the nature of their asthma from early childhood and still others knew that the hypersensitiveness to the horse was a later development. In one case asthma was accompanied by mild colic and diarrhea, in another by vomiting and abdominal pains, and in certain individuals these manifestations appear not as complications but equivalents. Horse asthma is not *per se* familial but may occur in several members of families with family tendency to bronchial asthma and hay fever. While spoken of familiarly as animal protein, the sensitizing substance does not so behave as it is volatile and can be present in dandruff and perspiration. It is very dangerous to inject antidiphtheritic serum from horses into subjects with horse asthma but there appears to be no danger in asthma of other origin nor in hay fever subjects, especially after the reactions, eye and skin, are negative.

Mortality of Physicians in the United States.—During the year 1917, 2300 deaths occurred among the 160,000 physicians of the U. S. and Canada, a rate of 14.37 per 1000.—*Cronica Medico-Quirurgica.*

Peripheral Nerve Injuries.—Desconts formulates the proper method of dealing with soldiers who have been invalided with these lesions. The results thus far have left much to be desired and in future it will be well to have no fixed periods for hospital sojourn, but simply place the men in special observation services. No victim should be sent to a physiotherapeutic institute until he has been in an observation service under the care of a neurologist. At this period he may be fitted with prosthesis if he can benefit from it. When they are referred to the physiotherapeutic institute it is not for a specified time, but long enough for wound regeneration to occur and voluntary motion reappear. When it has become evident that there will be no functional recovery the soldier is retired on his pension. During long periods of observation or treatment the soldier should receive a week's furlough every four months. —*La Presse Médicale.*

Book Reviews.

Les Fractures de Guerre du Maxillaire Inférieur. Par Le Dr. A. Herpin, Chef de Service de Stomatologie de la 18e Région (Centre de Bordeaux). Avec 100 gravures dans le texte. Price, 4 fr. 40. Paris: Librairie Félix Alcan, 1917.

Fractures of the lower jaw have been rather numerous during the present war, hence there has been an unusual opportunity to study them and to test the various methods for their reduction and retention. The department of which the author was chief cared for 921 fractures of the inferior maxilla in the course of one year, and this book is written on the basis of a very large experience in handling such fractures.

The anatomy, the physiological action of the various muscle groups and individual muscles attached to the lower jaw, pathology, symptomatology of lower jaw fractures in general and those in the various portions of the bone, processes of repair—all these subjects and more are considered in detail before taking up the methods of treatment.

The method employed by the author for fractures in each part of the bone and with various degrees of loss of substance is discussed and thoroughly illustrated. Though there are other methods that will be preferred by many, the results claimed by the author are certainly remarkably good. Whatever methods of treatment one prefers, the book presents the entire subject well, contains many valuable suggestions, and is well worth reading.

American Addresses. By Sir Berkeley Moynihan, M.S., F.R.C.S. 12mo of 143 pages. Price, $1.75 net. Philadelphia and London: W. B. Saunders Company, 1917.

This volume contains five addresses delivered by Sir Berkeley Moynihan during his recent visit to this country. Several, if not all, have been published in the medical journals; but it was a happy thought on the part of the publishers to combine them in one volume, for they are all exceedingly interesting and, with the exception of the first, deal with surgical problems that are likely to engross a fairly large percentage of our profession before the war is ended. The titles are: The Causes of the War; Gunshot Wounds and Their Treatment; Wounds of the Knee-joint; On Injuries to the Peripheral Nerves and Their Treatment; and Gunshot Wounds of the Lungs and Pleura.

In every one of the surgical conditions discussed methods of treatment have changed, sometimes radically, during the progress of the war, and Moynihan has summarized the situation in each case in his usual masterly fashion. Certainly all who have not already read and possess copies of these addresses in some form will be well repaid for securing this book.

A Practical Text-book of Infection, Immunity and Specific Therapy. With Special Reference to Immunologic Technic. By John A. Kolmer, M.D., Dr. P.H., M.Sc., Assistant Professor of Experimental Pathology, University of Pennsylvania; Professor of Pathology and Bacteriology, Philadelphia Polyclinic, and Pathologist to the Department of Dermatologic Research; Pathologist to the Philadelphia Hospital for Contagious Diseases. With an Introduction by Allen J. Smith, M.D., Sc., Ll.D., Professor of Pathology, University of Pennsylvania. With 147 original illustrations, 46 in colors, by Erwin F. Faber, Instructor in Medical Drawing, University of Pennsylvania. Second edition, thoroughly revised. Price, $7.00. Philadelphia and London: W. B. Saunders Co., 1917.

To those who are familiar with the first edition of Kolmer's book no words of commendation are needed for the present volume, which follows the same general plan as the previous one and includes several additions that bring the work up to date. Among the new subjects found in this edition may be mentioned the following: the Shick toxin test for immunity in diphtheria, and active immunization in diphtheria with toxin-antitoxin mixtures; complement fixation in tuberculosis; a quantitative Wassermann reaction; Lange's colloidal gold test; and blood transfusion. Many other topics have been amplified and rewritten to fit in with advances made since the appearance of the first edition. The research work which the author has carried out with the aid of Drs. Schamberg and Raiziss on salvarsan and allied synthetic preparations, particularly with regard to their toxicity, is considered in detail. The book covers a great deal of ground both theoretical and practical. It is divided into five parts. Part I deals with general immunological technique, laboratory equipment, animal inoculation, and the preservation of serums. Part II is devoted to a discussion of the principles of infection. Part III takes up the principles of immunity and special immunological technique. In this part the theoretical basis of immunity is first considered. Following are several chapters on the different kinds of immune substances with their methods of detection, and practical application. The chapters on the various types of complement fixation are especially worthy of note. Here the laboratory worker will find much valuable information well set forth and extensively illustrated. In Part IV applied immunity in the prophylaxis, diagnosis, and treatment of disease, bacterial, serum, and chemotherapy are dealt with. Part V comprises exercises and experiments on infection and immunity; this part is particularly designed for medical students.

Leçons Pratiques d'Alimentation Raisonnée. Par Armand Hemmerdinger. Prix, 1 franc 25 centimes. Paris: Masson et Cie., 1918.

This little volume is semiofficial in origin, having been published under the auspices of the Société Scientifique d'Hygiène Alimentaire. The significance is far greater than a work of this kind would ordinarily suggest, because there is embodied an effort to secure daily calories from substitute foods in place of staple commodities. The cheapest calories are seen to be obtainable from bread, rice, dried onions, breast of mutton, cocoa butter, chestnuts, sugar, etc., which cost in a menu less than one franc daily. At the other extreme, costing over three francs daily, are potatoes, eggs, gruyère cheese, lean beef, rabbit flesh, and carrots.

Les Blessures du Cerveau. Par Charles Chatelin. Préface du Pierre Marie. Deuxième édition. Collection Horizon. Prix, 4 francs. Paris: Masson et Cie., 1918.

The first edition of this work comprised a separate monograph. "Traitement opératoire des plaies du crâne," by T. de Martel. Each of the two productions is now separately published, so that the present volume is practically a new book, the original having been revised and augmented. It comprises 200 pages, illustrated by thirty-nine text figures and two plates. The wounds of seven separate areas are separately considered, in addition to symptoms common to all and various complications.

Les Premières Heures du Blessé de Guerre. Par P. Bertein et A. Nimier. Préface du Médecin Inspecteur Général Jacob. Collection Horizon. Prix, 4 francs. Paris: Masson et Cie., 1918.

In the first chapter of this volume we find a necessary description of a modern battle. Next are considered as separate entities the wounded soldier and his wound. The third chapter covers the evacuation from the front to the *poste de secours*, including first-aid dressings. The static aspect of the *poste* is described in detail with the changed conditions which are initiated by a battle. Chapter V covers conditions already abundantly described elsewhere, to wit: the actual treatment of the wounded. A postscript deals with the Sanitary Service at the battle-front.

Therapeutic Immunization Theory and Practice. By W. M. Crofton, M.D., Lecturer in Special Pathology, University College, Dublin; Visiting Physician, Royal National Hospital for Consumption in Ireland; Pathologist to Dr. Steevens' Hospital; late Temp. Capt. R. A. M. C. Price, $2.50. Philadelphia: P. Blakiston's Son & Co., 1918.

The book contains the substance of the lectures Dr. Crofton has delivered during the past seven years at University College, Dublin. Perhaps the feature of the book is a description of a more complete theory and practice of vaccine therapy founded by the author, on account of the general belief in the medical profession that this form of treatment is a comparative failure. The book is decidedly interesting.

Society Reports.

AMERICAN THERAPEUTIC SOCIETY.

Nineteenth Annual Meeting, Held at Richmond, Va., June 7 and 8, 1918.

DR. W. WAYNE BABCOCK OF PHILADELPHIA, IN THE CHAIR.

(*Concluded from page 352.*)

Second Day—Saturday, June 8.

A Clinical Study of the Variable Therapeutic Potencies of the Galenicals and Their Inherent Unreliability.—Dr. HARRY BEATES of Philadelphia presented this communication. (See page 357.)

Clinical Observations on Ouabain.—Dr. ERNEST ZUEBLIN of Cincinnati read this paper. (See page 359.)

Neurocirculatory Myasthenia.—Major ANDREW MCFARLANE of Albany, N. Y., gave an informal talk on a certain class of cases encountered in the army camps, which he designated "neurocirculatory myasthenics." His presentation, he said, reminded him of a negro soldier, at a Camp, who gave his name as "Extra" Routledge. When asked why he was called "Extra" he said "Well, you see, doctor, my mother had 6 children, and then I turned up unexpected like, and she called me "Extra." The society could call his remarks "extra." Dr. McFarlane said he was not a heart specialist, nor did he claim to be. He was chosen by the Surgeon General to do heart work and he was kept busy at it. His work was among the National Guard from North Carolina, South Carolina, and Tennessee. They were poor specimens and 33 per cent. of them had hookworm. All were anemic from malaria. Diet, it would seem, was poor in the South, and the men were worse nourished than the corresponding class of Northern soldier. In the process of training many of these soldiers broke down. The efficiency of the army depending on the ability of the unit, it became the duty of the medical officer to determine which men could be made into efficient soldiers and to eliminate those who would be sure to break down. It would not do to have these men drop out after they had been transported 3,000 miles. It was also unwise to deprive the State of a self-supporting civilian, who, at best, would make only a "near soldier." Exophthalmic goiter, tuberculosis, tachycardia would obviously unfit a man for performing the soldier's task. Preliminary examination was necessarily rapid, 15,000 recruits were examined in 9 days by 7 medical men, at a rate of 1,800 a day. Two men were employed in making a final examination. Under these conditions only manifest cardiac lesions could be detected, and in a few weeks soldiers not able to keep up with their work would complain to the army surgeon. Often it was difficult to determine with justice the claim of these men, and doubtful cardiac cases were graded in a separate detachment. A little camp of ten tents was instituted and 41 soldiers were placed under observation. Five of these were returned to command, and ten were referred to the board. The remaining 29 were recorded as inefficient soldiers, but no determining lesion was found. There was cyanosis, coldness, and sweating of the hands; tremor; sweating under the arms; marked thrill in the precordium; a booming sound over the apex; mental instability; breathlessness after exercise; and abnormal exhaustion. It was necessary to adopt some standard to determine the efficiency of the men and for this a French code called "Pignet's Formula" was adopted. The author of this schedule was a contemporary French Surgeon and Dr. Blake had translated the work into English. It was supposed to be an invaluable aid in the French Army. It was compounded of the relationship of the height in centimeters to the weight and chest measurement and maximal expiration. The resulting calculation was: 10 = strong; 25 = fair; 25-30 = weak; 35 = very weak; + 35 = useless. This formula was tested in the 29 cases mentioned. The result was: 1 strong; 2 good; 5 fair; 6 weak; 6 very weak; 9 useless, according to their physical measurements. The board, however, had refused to discharge these men because no diagnosis could be made. Only one of the 29 was strong. Examination was next made by dentists and other specialists. Infections were found in every case. Some had double infections of teeth and tonsils. Examination of the blood in a few cases, before and after a two hours hike, gave an increase of leucocytes from 8 to 15 thousand, one hour after exercise. These cases, while few in number, represented a large group of potential inefficients. They were a group of substandard men who had been subjected many years to a low grade infection. Suddenly they were thrown into a new environment. These three factors occurring together forced the man to break down. Sir Thomas Lewis had established the prognosis and diagnosis in these cases. The only treatment was by gradually progressive exercise. The disability was half constitutional and half toxic in origin. Fifty per cent. of these men would never be fit for front line or any other military work. They would become a burden and it was for the medical man to weed out those who never could become fit soldiers. These patients were not seen in civil life because they naturally fell into the line of least resistance. They drove wagons, or chose some other easy task where they felt well and had to make no effort. Lewis had called this lesion "effort syndrome." It occurred in one out of every two or three hundred cases. Dr. McFarlane said he had named it "neurocirculatory myasthenia." This term was his own child and he was naturally proud of it. Some of these cases could be built up, and by attention to teeth and tonsils and by graduated exercise could be restored to normal. Each man was exercised according to his own weight according to the Pignet chart. All the soldier had to do was graded according to his own physique. Much of scientific value would be discovered about these cases by keeping them under rigid observation. There was a marked tendency to introspection and mental depression in the psychology. Some of them could be retained, others would have to be returned, but all would be better and wiser men for their experiences in the army.

The Place of Ipecac in the Treatment of Auricular Disease.—Dr. L. F. BISHOP of New York presented this communication. (See page 356.)

Some Points in the Management of Heart Disease.—Dr. E. E. CORNWALL of Brooklyn, New York, read this paper. (See page 353.)

On the Differentiation of Auricular Fibrillation and Flutter and Their Treatment.—Dr. THOMAS E. SATTERTHWAITE of New York presented this paper. He offered the following as a simple classification of the cardiac arrhythmias: (1) Sinus or vagus arrhythmias; (2) extrasystolic arrhythmias; (3) heart block; (4) Adams-Stokes disease; (5) auricular fibrillation with its subvarieties, flutter and flicker; (6) ventricular fibrillation; (7) pulsus alternans. The auricle, he said, is a sac with thin walls, a reservoir and not a pump. Fibrillation of the auricle had never been traced to a pathological sinus. The following were the signs of auricle fibrillation and flutter: (1) A pulse deficit in which a large number of ventricular contractions are not felt in the pulse at the wrist; (2) complete lack of coordination between the jugular and radial pulses; (3) great variation in strength between the beats, best shown by the electrocardiogram; (4) complete lack of uniformity between the interventricular intervals; (5) usually a rapid action of the heart; (6) control of this condition to a large extent by digitalis or strophanthus. In the differentiation of auricular fibrillation we had to distinguish it from the other arrhythmias above noted. Sinus arrhythmia was merely a temporary variation from normal within physiological limits. Extrasystole arrhythmia was of varying types; the distinction between the auricular and ventricular types could be made with the electrocardiograph or polygraph only. In heart block there was a slow arterial pulse as compared with the venous. In Adams-Stokes disease there were syncopal attacks. Ventricular fibrillation was extremely rare; in it the normal ventricular waves were supplanted by a series of large waves of peculiar character. Pulsus alternans, when well developed, could be distinguished by the finger, but always definitely by means of the electrocardiograph or polygraph.

Dr. JACOB DINER of New York said that Dr. Beates' paper on the physiological standardization of drugs

was of considerable importance to the pharmacologist. There was, however, no uniformity as to the best method of standardization. Many methods had been suggested, but until pharmacologists were united in their suggestions pharmacological control was an impossibility. Where the Pharmacopœia was used as a guide the Pharmacopœial Committee might be responsible for any damage done. If they stated the maximal dose that could be given they might legally be held responsible for ill effects to any patient who might be susceptible to a given drug. Therefore, an average dose was in all cases stated. It was assumed that the practitioner would know best how to employ the physiological dose in a given case. No drug had a given dose. There were always examples of different inactivity. In the laboratory one could only take the average according to the number of animals employed. One never based conclusions on a single animal. There were idiosyncrasies in animals as well as in human beings. The duty of the physician was to determine the given dose for a given patient. In regard to Pignet's formula, he presumed that the metric system was used, and not inches and pounds, or the latter would give a minus quantity.

Dr. Douglas Vander Hoof of Richmond, Va., said that these papers were excellent and entertaining. All were indebted to Dr. Satterthwaite for the valuable work presented in cardiovascular investigation. The principles governing arrythmias had only been worked out within the last ten years. To many men, certain types still were confusing. The sinus arrythmias in children were very common. One was called by the anxious parents, who had put the child to bed for irregularity of the heart action. These children did not need treatment for the heart, but they needed hygiene, and plenty of exercise. Putting them to bed did more harm than good. Dr. Bishop's paper on ipecac was an eye opener. Had he used ipecac without digitalis in these cases? Dr. Beates had presented a well-timed paper. The great vice of the profession was apathy. They all went back and prescribed galenicals which had been shown time and again to be unreliable. Dr. Beates had done distinct service in presenting this communication. The older men had been accused of using placebos. The doctor gave bread pills to fool the patient, and the patient threw them out of the window to fool the doctor. The same thing practically was done now, only unintentionally. By prescribing galenicals the modern doctor was giving placebos. The doses prescribed in many textbooks were absolutely innocuous. In achylia, one or two minims of hydrochloric acid were prescribed, instead of one or two drams. All had been greatly impressed by Dr. McFarlane's talk. These cases were occasionally seen in civil life. One would have been glad to have had more extensive laboratory investigations in those cases cited. The designation of "neurocirculatory myasthenia" did not cover the whole question. They were dealing with a focus of infection—teeth, tonsils, etc.—and unless a routine Wassermann was made there were still points to be cleared up. Many of these patients would show achylia, on gastric analysis. They had achylia gastrica with secondary intestinal toxemia. They often showed a secondary vasomotor instability. Dr. Cornwall's advice as to rest in the cardiac cases was very commendable. In all cases prolonged rest was not possible. In the cases of cardiopaths, business men who found it impossible to leave their business entirely, one day each week in bed gave them a good measure of rest and comfort. Staying in bed each Wednesday and half the day on Sunday was extremely helpful. He would like to hear more of the lacto-vegetarian diet, as advocated by Dr. Cornwall. Did this lower blood pressure? Dr. Vander Hoof had one patient, an extremely successful lawyer, aged 35, at the top of his profession, of excellent physique and habits. Life insurance examination disclosed the fact that he had a blood pressure of 200 systolic, and retinal hemorrhages. He went to Nauheim and was put upon a diet of milk, cereals, and vegetables. He was on that diet till death two and one-half years later. The blood pressure remained constant, and he died of cerebral hemorrhage. Another patient, a woman of 52, leading a most careful life, had a systolic pressure of 210. This remained constant in spite of diet. These facts made the question of diet and blood pressure rather confusing. It would seem as if diet played a very minor part. Dr. Vander Hoof said he would be glad to be convinced if some one would furnish proof that diet did lower blood pressure.

Dr. Ernest Zueblin of Cincinnati said that he was much interested in the *x*-ray pictures of the bulging of the right heart in auricular heart lesions, as shown in Dr. Satterthwaite's series. Although in his personal opinion the advantage of stereoscopic *x*-ray plates over flat plates in the dissociation of *x*-ray shadows were evident, he called attention that in chronic heart disease the adjoining lung presented also an infiltration which on a flat and single plate may be ascribed as belonging to the heart and pericardium proper. Such a density might be due to circulatory disorders in the lung itself and with the increased cardiac action of the heart could reveal a pulsating movement. In regard to the instability of the drugs, he was very much pleased to see his opinion confirmed by other investigators. He had already published part of his studies of radioscopic examinations of drugs, which experiments showed the gradual decrease of radiation corresponding to the lessened therapeutic activity. These drugs even protected from light, from humidity, and kept at constant temperature for months and years revealed the same process of disintegration. In his opinion great stress had to be laid upon fresh and well preserved drugs in order to obtain better therapeutic results. He demonstrated charts of digitalis and strophanthus preparations which had been tested at various periods, illustrating the gradual deterioration.

Dr. Cornwall said that Dr. Vander Hoof's question, if the "easy diet"—*i.e.* the regulated nearly or quite lactovegetarian diet—really did produce the results claimed, was a pertinent and vital one; and in answering it he would say that there were few conclusions in medicine based on clinical observation that seemed surer to him than that this easy diet greatly relieved the symptoms of cardiovascular disease and prolonged life and usefulness. In fact, where there was any serious sickness, either acute or chronic, an easement of the dietetic burden was rationally called for; even the animals knew this, and stopped eating for a while when they were sick; and the loss of appetite which was naturally present in most diseases was a rational suggestion of nature. In regard to the conditions with high blood pressure, most striking results often followed the taking of the easy diet, with little or no animal flesh in it; for reducing to a lower plane and keeping there a persistently high blood pressure, this diet was far and above the most effective thing. Of course there were some cases with high blood pressure which no modification of diet could relieve, but they were cases of advanced nephritis or arteriosclerosis or particular circulatory obstruction which imperatively called for the high pressure as a compensatory thing. In regard to strophanthin, Dr. Cornwall said that when the larger doses were given hypodermically morphine often was also called for, and could be given in the same deep injection, thereby relieving the pain of the injection, when that was prominently present; but he wished here again to record his observation that strophanthin did not always or regularly produce severe distress when deeply injected, and that often it did not produce enough disturbance to cause the patient to complain about it; especially if the strophanthin was dissolved in a full hypodermic syringe of water and thus injected. In regard to the use of belladonna, was it not possible that the employment of hyoscyamus might be preferable for the use indcated? Some authorities believed that the latter had less tendency to dilate the pupil and affect the accommodation than the former. The alkaloids in belladonna consisted principally of a mixture of atropine and hyoscyamine, the latter being readily transformed into the former, and practically identical with it in action. The important constituents of hyoscyamus were the alkaloids, hyoscyamine and hyoscine, the former existing in much larger amount than the latter. Hyoscyamine, as just stated, was practically identical in its action with atropine. Hyoscine, or scopolamine, as it is also called, resembled atropine in its action when applied to the conjunctiva, except that the effect passed off more quickly. Possibly this fact accounted for the opinion of some observers that hyo-

scyamus had less tendency to interfere with the pupil and accommodation of the eye than belladonna. Referring to bismuth preparations, some years ago he had occasion to investigate the comparative spreading properties of bismuth salts as ordinarily occurring on the market with the so-called cream of bismuth, milk of bismuth, or lac bismuthi, a non-proprietary preparation of basic carbonate, made by precipitating a dilute solution of subnitrate of bismuth in a very dilute alkaline solution, and dispensing the same in the form of minutely divided suspension. This minute state of subdivision gave cream of bismuth enormous spreading power, as could readily be demonstrated by administering it to a rabbit or other animal and then examining the intestinal mucosa with a microscope. Therapeutically its effects were superior to the bismuth salts as usually dispensed, the reason therefor being readily demonstrated by a similar test. Magnesium sulphate had been referred to. It might interest those present to know that a patent was granted early in 1917 for flavoring Epsom salt with aromatics. The report of the committee on patent-law revision of the A. M. A. so stated.

Dr. Henry Beates of Philadelphia stated he would like to quote from that too little known and valuable brochure of Harrington Sainsbury entitled "Principia Therapeutica," which so tersely explained the relationship existing between the circulation through the myocardium and the arterial blood pressure, and this, again, as related to the vitality of the patient. "Let us suppose a case of heart failure, no matter its cause, in which the left ventricle is unequal to its task, and, in consequence, the blood pressure is low in the ill filled arteries, the capillary stream sluggish and the great systemic veins congested. To attack such a problem as this with digitalis, a drug which by causing contraction of the arterioles sets up a new impediment to the already overburdened ventricle, this, at first sight, would appear to be the veriest midsummer madness; yet this very thing we do, and do again with *great success*. In explanation let us observe the steps which follow upon the administration of this drug. First, the arterioles contract and the blood, gathering behind the obstruction, begins to distend the arteries; the arterial distension is immediately followed by an increased gathering of blood within the ventricle, the pressure here rises and the heart muscle, responding to the stretch of its fibers by a more vigorous contraction, expels a large volume of blood into the aorta. We have, in fact, then, made a further call upon our already enfeebled heart, and its impoverished reserve stores are by so much the poorer. But observe what now happens. The increased volume of blood thrown into the aorta causes a corresponding rise in the aortic blood pressure, and on this there follows a more forcible recoil upon the semilunar valves and in fuller stream the blood enters the coronaries. Accordingly the first capillaries to feel the effects of the blood pressure rise are those of the heart-muscle itself. The improved circulation through its fibers raises its vigor and the heart, repaid now for its recent exertion, is prepared to respond to the stimulus of an increased intraventricular pressure by another more vigorous contraction. Slowly the whole aspect of the case changes: the arteries become well filled, the pulse more regular, forceful and measured, the capillary circulation freer and more sustained, the venous system less gorged. This is no question of theory or of interpretation, it is a sequence of events daily witnessed, not to be denied; neither is there any need to dispute the facts; for as we follow step by step this sequence the seeming therapeutic paradox that the proper treatment for a failing heart is to increase its burden, finds its simple explanation." Should the myocardial and arterial retrograde changes be such as to be beyond restoration the above phenomena would be impossible; again, should the vital unit with which the patient was born be almost spent, recuperative processes could not be activated. The practical point of vital import was to treat apparently hopeless conditions upon the principle of the Harrington Sainsbury therapeutic paradox, because experience proved that very frequently, where success was believed impossible, the test proved to the contrary. In this connection it would be well to bear in mind an histological fact too frequently overlooked, to wit: cells of all structure, excepting the splenic corpuscles and some perivascular lymph spaces of the central nervous system were not in direct contact with the blood. They were bathed with intercellular fluid, metabolism and functions were conditioned upon the normality of this intercellular fluid and the normality upon a mean pressure existing between the arterial side of the circulation on the one hand and the venous on the other. The fundamental principle to be applied in circulatory disturbances was therefore to be utilized in the treatment of metabolic and nutritional diseases as well as myocardial.

Dr. Zueblin said that for a final conclusion regarding ouabain medication a study of a great number of cases was required. He would not claim that ouabain would always help. It was one of the remedies that should be at hand in emergencies. It should be judiciously tried, but not repeated too often. It should be followed up by another medication—perhaps digitalis, perhaps strophanthus. Dr. Cornwell recommended the use of smaller doses of strophanthus. There was evidence that small doses of an active drug produced better results than large doses of an old preparation. In his observation the ionic properties of drugs had a great bearing upon therapeutic efficiency, and a great deal of information ought to be dug out by further experimental studies dealing with colloid chemistry and its relation to cell function. A better knowledge of these relations would be a help in therapeutic efficiency and an asset to the medical profession.

Dr. Andrew McFarlane of Albany, N. Y., said that his work was very superficial. It was impossible to get the work done with the thoroughness desired, as the laboratories in the camps were crowded to the utmost. In the South there were so many hundreds of examinations to be made for hookworm and tubercle bacilli. He tried to make some inquiries as to gastric capacity and defecation, but as far as answers went these things seemed to be normal. In presenting this subject it was not easy to make the necessary tests. In regard to high blood pressure, he thought that in man and in woman this was an entirely different proposition. What caused the high blood pressure? In man, toxic elements played a larger part. A woman might have a blood pressure of 200 and go on living quite comfortably. In man, he had often tried to reduce high blood pressure, but sometimes without result. Venesection had been found a satisfactory method. This could be done easily and satisfactorily with the aspirator. It made no mess with the blood, which usually so frightened the family, and by inserting the needle into the vein 12 to 14 ounces of blood could be withdrawn with no trouble, and no sign of bloodshed. One could tell exactly how much blood was removed. Rest should include physical rest, dietetic, and mental rest. There should be a therapeutic compromise between rest and exercise. It was a very wise man who knew just how to balance these two necessities.

Dr. Bishop said that his paper was merely suggestive. He had not tried ipecac alone, but always in combination with digitalis. In regard to Dr. McFarlane's paper, as a member of the Advisory Board he was interested in the special rôle of the heart. He had been impressed by this type of patient. When looking for the left ventricle they did not seem to have any. In the electrocardiogram these patients' hearts were relatively right-sided. They represented a heart that was a reversion to the infantile type. When the child was born there was no left-sided preponderance. In the first few hours of life the left ventricle came into its own. He did not know how to classify this type of individual. Dr. Mackenzie had spoken of their having "x-disease." They had the disease that the specialist they went to happened to treat. They showed cold cyanosed extremities, a systolic sound, and when fluoroscoped the heart was found in the middle of the chest, like congenital heart cases. One could not convict these people with heart disease; as far as the heart was concerned they might go on with their work. Some few of them were definitely congenital heart cases, with moderate pulmonary stenosis, possibly open foramen ovale. But the type certainly presented reversion to infantile characteristics. One thing that stood out in the speaker's mind after taking thousands of polygrams and hundreds of electrocardiograms, these arrhythmias were not distinct entities, but merged one into the

other. People started with palpitation, later they had flutter, and they might go on to fibrillation. The underlying cause was probably one and the same. It was no doubt toxicity. As to diet, it seemed that the heart was an engine that ran by the explosion of food. Like the gas engine, the best fuel for it was the one that left least waste to be cleaned up. It would seem then that the lactovegetarian diet best fulfilled this condition. In regard to fuel, a very observing Englishman had cured a great many cases by stoking them up with cane sugar. Dr. Bishop had a patient last winter, at Newark, a very obese woman, who had tried a reduction cure, and her heart was down and out. The Newark doctor telephoned one day to say she was in an extreme condition. The idea came to his mind to suggest the use of cane sugar. This was tried, and the patient immediately got better. He could not say whether this was a random shot, or whether there really was a good deal in the theory. The best food, it would seem, would be the one to burn with least residue, and if instant energy were required it would seem that cane suger filled the requirement. Old people did not need to have their structures built up, and so the proteins were not required. A carbohydrate diet would seem to be sufficient. As to the question of rest and exercise, he did not do anything but consultation work, and he did not therefore observe people in bed for a long time. He had to prescribe what exercise was needed. Sometimes he had the pleasure of liberating people from unnecessary confinement, but sometimes he had to advise the opposite thing. In regard to the electrocardiograph, it was an autograph of the heart's action. He did not believe that the intricate interpretation of these things was necessary, but he did think that the profession needed to learn more or less what was shown. He was beginning to collect these tracings, with the idea of teaching the profession what these things looked like and what they indicated. Many men at medical societies, when shown these things, took them in their hands upside down.

Dr. SATTERTHWAITE said that rest and exercise were both essential. In children, especially in endocarditis, to get a satisfactory cure they had to rest in bed. That rest might be for two or three weeks, or for as many months. Another condition requiring complete rest was fibrillation or flutter. One could not control it without putting the patient to bed. Rest in the horizontal position was essential. Exercise was just as necessary in some chronic cases. The Nauheim cure commenced with passive exercise and graduated walking distances. Keeping the patients too long in bed put them back. After a while it became necessary to get out and take moderate exercise. In regard to "irritable heart," the society owed a debt to Major McFarlane for his talk. Da Costa, in the Civil War, used this term until Sir Thomas Lewis changed the term to "effort syndrome." This emphasized the idea that there existed a muscular weakness, but he thought that Major McFarlane's term carried out the idea further; he had called it neurocirculatory myasthenia. That was a distinct progress. One should, however, regard Sir Thomas Lewis as the foremost exponent of the physiological action of the heart. The cure was effectively graduated exercise. There was a neurotic element behind all these cases. The introduction of the adjective "neuro" into the term was illustrative of the condition. There might be something more behind that, but the neurotic element was certain. In reference to diet, they would agree with Dr. Cornwall that in acute infection or acute exacerbation of heart disease one should limit the diet to milk for several days, followed by a more liberal diet. The general diet had to be studied according to the individual requirements; one could not lay down hard and fast rules. The diet must be restricted, the stomach must not be overloaded, food must be satisfying and yet not heavy. In regard to the use of morphine, he had never employed it, having had success with the use of bromides and veronal. He felt a fear of using morphine. It did the work, but it had the danger of habit-forming. The physician should reasonably fear to have the charge of habit formation laid up against him in these chronic cases. Dr. Vander Hoof had said that one was often disturbed by the irregularity of the heart in boys and girls. In sinus arrythmia the heart was extremely irregular, weak, and changing in character. This was a frequent condition of growing youth. It required no treatment except regulation of manner of life and general hygiene. People were unnecessarily alarmed, but the condition was transient. As to high blood pressure, this question had become a nightmare. Patients came one day with a pressure of 200; without any change, another day showed it to be 150, then 180, then 140. There was a neurotic element in such cases, but a good deal of study had to be done on that as yet. Many people had cerebral hemorrhage with a low pressure. Insurance men required a pressure of 28 to 30 diastolic. Doctors never saw that; they saw 60 to 80. One did not know that a low pressure was normal in diseased conditions, and it had not been worked out what the average blood pressure should be in tuberculosis or uremia or diabetes, for instance. While they knew the normal, they did not know what it should be in disease. People did fairly well for a long time with high blood pressure. In reference to the shadow of the heart shown in the skiagram, Dr. Hirsch claimed that it was due to the vibrating of the heart and dilatation of the right auricle. That was the interpretation of the *x*-ray man. Dr. Satterthwaite was not absolutely convinced that they were getting skiagrams of actual auricular disease.

Papers Read by Title.—"Modern Therapeutics in the New York State Hospitals for the Insane," by Spencer L. Dawes of New York; "A New Case of Uterine Rheumatism and Its Management," by William A. Porter of New York; "Phenylcinchoninic Acid," by Reynold Webb Wilcox of New York; "The Physiological Chemistry of the Duodenal Contents in Cholelithiasis," by John C. Hemmeter of Baltimore.

Election of Officers.—The following officers were elected: *President*, Dr. Douglas Vander Hoof, Richmond, Va.; *First Vice-President*, Dr. Harry B. Anderson, Toronto, Canada; *Second Vice-President*, Dr. Thomas E. Reilley, New York City; *Third Vice-President*, Dr. C. F. E. Mattison, Pasadena, Cal.; *Secretary*, Dr. Lewis H. Taylor, Washington, D. C.; *Treasurer*, Dr. Spencer L. Dawes, New York City. *Council*, Drs. Noble P. Barnes (1921), chairman; Robert T. Morris (1921), vice-chairman; Lewis H. Taylor (1923), secretary; Thos. E. Satterthwaite (1919), John Blake White (1919), G. H. Evans (1919), Wm. A. Campbell (1920), W. Wayne Babcock (1920), F. M. Pottenger (1920), Jacob Diner (1921), A. D. Blackader (1922), C. E. Jennings (1922), J. N. Hall (1922), S. L. Dawes (1923), Stuart McGuire (1923). *Committee on Admissions*, Drs. Satterthwaite, Pottenger, and Jennings. *Editor of Transactions*, Jacob Diner, New York City.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held May 21, 1918.

DR. SAMUEL A. BROWN IN THE CHAIR.

Neurological Phenomena in Cardiovascular Diseases.—Dr. H. CLIMENKO presented this paper. (See page 366.)

Organic Nervous Manifestations in the Course of Diseases of the Blood and Blood Forming Organs.—Dr. I. ABRAHAMSON presented this paper, in which he said that the structural changes in the nervous system which accompanied severe anemia, pernicious anemia, leucemia and chloroma, Hodgkin's disease, grave malaria, pellagra, polycythemia vera, Addison's disease, general carcinosis, tuberculosis, diabetes, lues, lead and ergot poisoning, all resembled one another so strikingly that one could distinguish a definite group picture characteristic of the nervous system in these blood conditions. The structural changes which most frequently occurred in this group were multiple hemorrhages and myelitic foci surrounded with infiltrated areas. Thus a diffuse myelitis, mainly in the dorsal region, was produced which was accompanied by a secondary degeneration, affecting the posterior columns, pyramidal tracts, Clarke's columns, Flechig's and Gower's tracts. This morbid change was commonly called subacute combined sclerosis. The essayist, after reviewing the various theories which have been advanced regarding the way in which the disease was spread,

stated that Nonne's theory was the one most widely accepted today. Nonne ascribed all the changes to a funicular myelitis and pointed to the significant fact that the disease of the roots rarely extended beyond the cord proper and that only the intra-spinal portions of the roots were implicated. The degree of anemia seldom corresponded with the degree of nerve destruction. The nerve changes might not merely persist, they might increase in severity concomitantly with the amelioration of the anemia. Experimentally induced anemias such as that following the injection of lycopodion powder were not, as a rule, accompanied by any nerve lesions. In uncomplicated chronic anemias the occurrence of structural changes in the nervous system was so rare as to be doubtful. The exciting cause of the structural change in the nervous system in blood disease was therefore not the anemia *per se* but an accompanying toxemia. In the anemia accompanying the *Bothriocephalus latus* infection the nerve changes were of frequent occurrence and the toxin which produced them had actually been isolated. The toxin produced relatively slight anemia but relatively grave nervous changes. In discussing the symptomatology, the essayist said there was no distinct parallelism between the extent of the nerve lesions and the severity of the symptoms that arose from them. With slight lesions grave symptoms might exist; with few symptoms the nerve tissues might be invaded to a surprising extent. This seeming anomaly depended in part on the rate of development of the lesions, partly upon the compensatory activity of the unimpaired portions of the nervous system, and partly upon the psychic reaction to the structural alterations. A similar discrepancy between symptoms and lesions might also be often seen in tabes and in multiple sclerosis. The extent to which the nervous system was implicated depended upon the stage of the disease; at the onset the localized irritability alone might exist; later the invasion spread and the manifestations of the disease become more pronounced, until finally widespread paralysis might result. The nature of the manifestations varied with the essential site. The signs of motor column degeneration were chiefly atony, loss of tendon reflexes, and ataxia, and loss of the deep muscle reflexes. The signs of pyramidal tract involvement were motor weakness, hypertonia, and exaggerated deep reflexes. These signs might be found in all possible combinations, depending upon the degree to which each of these columnar systems was respectively implicated. In addition, pains and paresthesias and objective sensory disturbances were usually present. Rarely optic atrophy occurred and still more rarely pupillary disturbance. Under the title, subacute ataxic paraplegia, Risien Russell, Batten, and Collier gave a very comprehensive study of this syndrome. The disease lasted from six to eighteen months. It could be differentiated into three stages: (1) That of paresthesia, pain, mild spasticity, and ataxia. (2) That of definite spastic paraplegia with objective sensory disturbances in the trunk and legs. (3) That of flaccid paraplegia, loss of tendon reflexes, complete level anesthesia, loss of sphincter control, general and local muscular wasting, electrical changes in the muscles and nerves, girdle sensation, herpes zoster, disturbance of pain and temperature sense, edema, and trophic skin disorders. With these marked mental symptoms occurred confusion and disorientation, and apathy and coma. The prognosis in general was very unfavorable; the progress of the disease, however, might be slow and characterized by remissions. A few cases of apparent recovery were recorded. The disease thus described was that characteristically met with in the nervous system as an accompaniment to most blood affections. The writer also directed attention to a less well-known structural alteration of the nervous system which was sometimes seen in Hodgkin's disease, in leucemia, and in chloroma. In these conditions foci of dense infiltration with lymphocystes might occur in the meninges, along the nerve roots in the cord itself, and in the vertebræ. Such cellular infiltrations superadded to the picture outlined gave the symptoms of a transverse myelitis, either of intraspinal origin or actually secondary to compression of the cord by meningeal or extraspinal accumulations. Hence a syndrome was produced which needed to be very carefully distinguished from Pott's disease and from tumors of the cord. From a large number of cases which the essayist had encountered he selected the following as specially illustrative of the diseases of the nervous system which accompanied blood affections: (1) Severe secondary anemia with myelitis. (3) Pernicious anemia in a luetic with a clinical picture of tabes. (3) Hodgkin's disease presenting a tabetic picture with no evidence of lues. (4) Polycythemia vera showing affection of the nervous system.

Tuberculosis of the Stomach, with Report of a Case of Multiple Miliary Tubercles.—Dr. GEDIDE A. FRIEDMAN read this paper, in which he stated that tuberculosis of the stomach was a very rare condition. A report from the Mayo clinic showed in a series of 2,501 gastric operations but one instance of tuberculosis of the stomach. Gastric tuberculosis might be divided into six types, as follows: (1) ulcer (single or multiple), (2) miliary tubercule, (3) solitary tubercle, (4) pyloric stenosis, (5) tumor nodule (single or multiple), and (6) lymphangitis. In the ulcer type there was no difference between the gross and microscopical appearance of the tuberculous gastric ulcer and the tuberculous intestinal ulcer. Both might be associated with miliary tubercles. Miliary tuberculosis of the stomach was usually associated with general miliary tuberculosis. The solitary tubercle was very rare. Tuberculous stenosis of the pylorus was of two types, the true and the false. The true type included the cases in which the pylorus was obstructed by an old tuberculous ulcer, with an excessive amount of scar tissue and tuberculous granulations, or by a diffuse and non-ulcerative tuberculosis of the pylorus. In the false type, the stenosis was brought about by enlarged tuberculous peripyloric lymph glands, or by tuberculous peritonitis in the region of the pylorus, accompanied by adhesions, often involving other organs in the process. Tumor or nodule and lymphangitis were very rare conditions. The mode of infection of the stomach might be through the mucosa, the blood stream, the lymphatic system, and by continuity or contiguity of structure. There seemed to be a relative immunity to tuberculous gastric ulcer. Arloing was able to produce experimentally only one ulcer in the stomach and one in the duodenum, both times in dogs. The rarity of gastric ulcer was ascribed to the sparsity of the lymphatic supply of the gastric wall and by Kleber to the same cause, and also to the deep-seated location of the lymph follicles. Of 306 cases reported in the literature, 157 were positive or probable cases of gastric tuberculosis and the remainder Broder considered doubtful or rejected altogether. The cases were considered positive that contained a histological picture, and in addition the presence of the bacillus of tuberculosis in the depths of the lesion or the presence of the specific bacillus in the depths of an indefinite histological lesion. He considered as probable all cases that possessed a histological picture of tuberculosis. Of these 157 cases, 108 occurred in adult, 35 in children, and in 24 the age was not indicated. Eighty-nine occurred in males and 48 in females, while in 30 cases the sex was not indicated. The tuberculous process in the stomach was considered primary by several writers, but the consensus of opinion was that no case should be considered primary unless a thorough search failed to show any evidence of the disease in any other part of the body. The case which the speaker reported occurred in a woman, twenty years of age, a clerk, who was admitted to his service at the Beth Israel Hospital on February 21, 1918, complaining of pain in the epigastrium and precordial region, vomiting, headache, loss of weight, weakness, and constipation. The father and two sisters had stomach trouble; otherwise the family history was negative. The patient had had the usual diseases of childhood and had been anemic in early childhood. The history of her present illness covered four months. She had never noticed any blood in the stools nor were they at any time tarry. Physical examination revealed nothing except a high arched palate, slight prominence of the thyroid, fairly marked rigidity of the abdomen, tenderness in the upper left quadrant, and exaggerated knee jerks. The laboratory findings were as follows: Blood examination showed erythrocytes, 4,800,000; leucocytes, 12.000; hemoglobin, 85 per cent.; polymorphonuclears, 69 per cent., and lymphocytes, 31 per cent. The urine was practically normal. The stomach con-

tents, after a test breakfast, showed total acidity, 56; free hydrochloric acid, 18; no blood. The *x*-ray examination showed an ulcer at the lesser curvature with adhesions. The patient was operated on by Dr. A. O. Wilensky on March 5, 1918. At the operation an area of the lesser curvature about two inches long, extending along the anterior and posterior surface of the stomach for an equal distance, was thickened and inflamed. There were numerous fresh fibrinous adhesions and large numbers of miliary tubercles were thickly scattered in the inflamed area. The process extended upward into the gastrohepatic omentum for about one inch. The gross diagnosis was tuberculosis. The rest of the abdomen was explored and no other focus of tuberculosis found. The pathological report showed caseation of the tubercle and giant cells and nuclei. The patient made a good recovery and showed no evidence of tuberculosis elsewhere in the body. The von Pirquet and the complement fixation tests were positive, that latter being weakly so.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

SECTION ON INDUSTRIAL MEDICINE AND PUBLIC HEALTH.

Stated Meeting, Wednesday, May 15, 1918.

DR. JAMES M. ANDERS IN THE CHAIR.

Hazards of Metal Mining.—Dr. A. J. LANZA, U. S. P. H. S., Pittsburgh, Pa., pointed out that metal mining in contradistinction to coal mining has always been recognized as hazardous to health. Moreover, metal mining had contributed to medical science an occupation disease of the first magnitude, the socalled miners' consumption, not confined, however, to the miner. Miners' consumption—silicosis—he said was a pneumonoconiosis caused by the inhalation of silicious dust. It was among hard rock miners, however that it had become the scourge of mining camps. Hippocrates had spoken of "the metal digger who breathes with difficulty and is of pale complexion." From 20 to 35 per cent. of hard rock miners were said to be affected, a condition taking precedence over any other occupational disease. Individual susceptibility played little part. The amount of silica in the dust, the duration of exposure, and the intensity of work were the determining factors. The cardinal symptoms of silicosis were given as dyspnœa on exertion, pain in the chest associated with diminished expansion. The dyspnœa appeared insidiously in from two to ten years and grew gradually worse until total disability might result. This might be the only symptom. Pain in the chest became definitely located and there was generally a bronchitis with cough; in some cases cough was not present. Loss of weight was said to be not as great as in tuberculosis. Aside from their dyspnœa, the patients felt and looked well; they had no fever, or nightsweats; hemorrhage was occasionally present. Physical examination showed little except in advanced cases. At any stage of a silicosis tubercular infection might occur and this usually ran a fairly rapid course. In Joplin, where the type of silicosis was very severe, tubercle bacilli practically always appeared in the sputum before death. In Butte, where the condition was not of such an aggravated type, tubercle infection was not so frequent. The prognosis was said to be bad after silicosis was well established; and when tubercular infection had occurred the prognosis was usually hopeless. An outdoor life seemed to afford the only chance for recovery in early cases. In the pathology of the disease there was first a peribronchial thickening followed by small nodular fibrous areas tending to coalesce in dense fibrous areas which might undergo anemic necrosis. The relation of the tubercle bacillus to this process was not clear. Inability to obtain necropsies prevented study of this feature. It has been shown that dust particles lodging in the lungs were not larger than from two to five microns, and even smaller. The prevention of the disease lay in the use of water in drilling, a matter not always as simple as it would appear to be. It was evident from the small size of the dust particles that the use of respirators was futile.

Dr. HENRY K. PANCOAST referred to his privilege of having interpreted for Dr. Lanza about fifty pairs of stereoscopic plates made among the hard rock miners at Butte, Montana. A great similarity was noted in the appearance of these plates and those made in connection with the investigations of Drs. Landis, Miller, and Smyth, and himself, in dusty occupations in the eastern part of the country. The Roentgen ray he regarded as the most accurate method of determining the condition of the lung in the living subject. Authors were practically agreed upon the interpretation of the *x*-ray plates in pneumonoconiosis. There were said to be three stages. In the first the appearance was that of an enlargement of the hilus shadow and an increase in the thickness of the linear markings. The age of the patient and place of residence were to be considered; those living in large cities were apt to have more or less evidence of pneumonoconiosis with advance in years. In the second stage there was mottling in the parenchyma of the lung, due to small deposits of dust and and associated circumscribed fibrosis. These spots gradually enlarged and finally coalesced. In the third stage there was a diffuse fibrosis which selected certain portions of the lungs and seemed to originate from a coalescence of the small areas mentioned. There appeared to be certain anatomical distributions for the mottling and the diffuse fibrosis; the findings in this connection had been fairly uniform, both in Dr. Lanza's plates and in those of Dr. Pancoast and his confreres. In the appearance of the second stage the mottling began especially around the root of the lung and in most cases there was greater progress on the right side. The mottling then spread around the lung from base to apex. In the plates examined for Dr. Lanza the most intense mottling was a little above the center of the lung from the second to the fourth interspace, and in this region most of the diffuse fibrosis was to be seen in the older cases. In some of the more advanced second-stage cases it was often most difficult to find very marked enlargement of the hilus shadow or thickening of the bronchial trunk shadows. This was true also of the third-stage cases. Of this *x*-ray workers had at the present time no explanation. It seemed as though some of the cases progressed rapidly in the second stage, while others remained in the first stage for a long period of time. Fluoroscopic examinations were always valuable in this study and explained in large measure the difficult breathing. In some instances the diaphragm seemed not to move owing to the fibrosed condition of the lungs, particularly in a line with the linear trunk shadows running to the bases. The real cause was without doubt an inability of the lung to expand. In some cases the inner portion of the diaphragm was fixed, whereas the outer portion moved to a certain extent and seemed to be hinged at the point of contact of the linear trunk shadows.

Dr. H. R. M. LANDIS observed that the cases studied by Dr. Lanza in Joplin, so far as he knew, presented the most serious cases of silicosis, even outranking those of South Africa. The *x*-rays had done much in discriminating between dusts entirely harmless, in the sense of producing no definite pathological changes in the lungs, and those causing serious and crippling lesions. They differentiated the effects produced by the organic and the inorganic dusts. At one end of the scale there were to be observed pure silicosis, which of itself and entirely aside from any secondary tuberculous lesion was sufficient to cause absolute incapacity. There were other forms of inorganic dust, however, exposure to which did not prevent workers from being able to follow their trade for from forty to sixty years. In one instance a potter who had been apprenticed when a boy of ten had worked at the trade until he was seventy. The effect of the concentration of the dust was well shown in the slides exhibited by Dr. Pancoast. One showed the lungs of a man who had been working in a coal mine for thirty-two years; another had worked outside on a breaker for thirty-eight years. While there was much dust in the work on the breaker, being outside there was not the same concentration as in the mine. In the case of the man working outside for thirty-eight years, there was probably not one-quarter of the pulmonary change shown in the man working for thirty-two years underground. The only explanation Dr. Landis could offer of the susceptibility to tuberculosis of the cases studied at Joplin was that the condition was so very acute *x*-ray workers had no

means of knowing whether the great irritation produced an acute inflammatory change rendering the tissues more susceptible to the tubercle bacillus. The sociological background referred to in Dr. Lanza's studies was an important feature. Furthermore, Dr. Landis stated that it was perfectly clear that without the tubercle bacillus there could be no tuberculosis. Tuberculosis and pneumonoconiosis were designated as distinct problems. The knowledge of pneumonoconiosis had been greatly increased by the use of the *x*-rays. As Dr. Pancoast had said, physical signs were absent or extremely indefinite in the first stage. In the advanced stage the ability to elicit marked physical signs was of no particular moment, so far as the patient was concerned, as the damage was already done.

Dr. Alfred Stengel said that the important question encountered was that of the management of the industries, in view of the war situation, with the unprecedented conditions presented. There was the matter of the excessive speeding up of industries, with a certain degree of carelessness which was being excused on the ground of war conditions. Sooner or later cognizance must be taken of this prevailing form of excuse. Fortunately the Government, through various agencies, was taking up the regulation of industries in this connection. The new industrial poisons, suddenly let loose and concerning which there had been until very recently the most inadequate knowledge, had occasioned many cases of illness and perhaps a considerable number of deaths. Physicians, apart from those few who happened to have special knowledge of industrial medicine, were not familiar with even the scanty literature which now existed upon this subject. Cases of apparently obscure illnesses, located at times some distance from the industrial plant, were very ordinary instances of industrial poisoning, perfectly plain to those experienced with them. He had had in his service at the University Hospital quite a number of cases of, to him, entirely new types of disease which would have been obscure had he not known of them through the literature. The probability of encountering such industrial disease should be realized by the medical profession. Dr. Stengel had heretofore suggested that there be instituted public meetings, which physicians should be encouraged to attend, at which an educational program might be enforced. It was not known, he said, how many hundred thousand in the industrial center of Philadelphia were exposed to fumes of the most intense poisons, who were in the habit of going from place to place, as mentioned by Dr. Patterson, and in each industrial plant having renewals of the poisoning so that the amount of incapacitation and death was a serious matter. He believed all medical schools had consented to incorporate in their curriculum definite courses of lectures, with examinations and tests, and to make it incumbent upon students to acquaint themselves with these diseases. This was one of the good things he remarked, that had come out of the stirring events of the present time.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners of Maryland.

December, 1917.

(*Concluded from page* 310.)

OBSTETRICS AND GYNECOLOGY.

1. What changes occur in the breasts during pregnancy?
2. How can you predict the day of confinement?
3. Give some of the causes of abortion and premature labor.
4. In the case of twins, how can you tell from the placenta whether they are from the same ova or from different ones?
5. What is strictura uteri, and what is its treatment?
6. What are some of the dangers of precipitate labor?
7. What is the chief cause of hemorrhage prior to the time of labor, and what is your treatment for this condition?
8. Under what conditions would you do an internal podalic version, and describe in detail how you would perform it?
9. Give treatment of vaginitis of pregnancy.
10. Differentiate between a sloughing myoma and a cancer of the uterus.

SURGERY.

1. Give the differential diagnosis between acute catarrhal conjunctivitis and gonorrheal ophthalmia.
2. Give symptoms and treatment of acute catarrhal otitis media.
3. Give symptoms and treatment of tuberculosis of the hip joint.
4. What technique and treament would you employ for a gunshot wound of the leg?
5. What do you understand by a Colles fracture? Give signs, symptoms, and treatment.
6. What are the symptoms of a chronic luxation of a semilunar cartilage of the knee joint? Give treatment.
7. Describe rodent ulcers. Give their common locations and treatment.
8. Name the varieties of goitre and mention the indications for surgical interference.
9. What is the most frequent dislocation of the shoulder? Give diagnosis, two methods of induction, with after-treatment.
10. Give diagnostic characteristics of (*a*) varicose, (*b*) tuberculous, (*c*) luetic ulcer.

ANSWERS.

OBSTETRICS AND GYNECOLOGY.

1. *During pregnancy* the mammary glands increase in size, fullness and firmness; Montgomery's follicles become pronounced; the primary areola becomes larger and darker; the secondary areola appears; the nipple becomes larger, more prominent and more erectile; and colostrum may be expressed.

2. *To predict the day of confinement*, it is customary to add seven days to the first day of the last menstrual period, and then count back three months. Sometimes this gives the exact date, and usually it is within a few days of the date.

3. *The causes of abortion and premature labor* may be briefly enumerated as follows: "(1) Any pathologic condition of the ovum, membranes, or placenta, such as apoplexies, cystic degeneration of the chorionic villi, and cellular infiltration of the placenta. (2) Certain general diseases of the mother, including syphilis, typhoid fever, the exanthemas, and conditions interfering with proper aeration of the blood, as pneumonia and valvular heart disease; various systemic poisons, as malaria, lead, and arsenic; certain blood diseases, as grave anemia and leukocythemia; various local conditions, such as metritis, salpingitis, and ovaritis, cystitis, appendicitis, and placenta prævia. (3) Diseases of the father, such as syphilis, phthisis, and nephritis, in which the spermatozoa are diseased or of lessened vitality. (4) Death of the fetus from any cause. (5) Traumatism, as from a fall, a blow, or a kick on the abdomen. (6) Spasmodic muscular action, as in chorea, uncontrollable vomiting or coughing, convulsions of any kind. (7) Reflex causes, as violent emotion or mental shock. When the uterus shows a tendency to contract under the slightest stimulus (irritable uterus), any trivial cause, such as a long walk, a hot bath, or even the sight of another woman in labor may result in abortion. (8) Criminal abortion, caused by the use of drugs, vaginal and uterine injections, and the introduction of an instrument into the uterus."—(*Pocket Cyclopedia.*)

4. If the twins are from two ova, two placentæ may be expected; if from one ovum, one placenta may be expected. But in the former case there may be fusion of two placentæ.

5. *Stenosis of the cervix* may be congenital or acquired. The latter may be due to uterine displacements, inflammations of the cervix, contraction after labor, or to operations such as amputation or the frequent application of strong caustics to the cervix. *Treatment* consists in dilating the cervix and curing any local condition that may be present (such as endometritis). Incision is often advisable with the dilatation. For the dilatation, the patient is placed in the lithotomy posi-

tion and anesthetized; the cervix is pulled down with a volsella, and the canal enlarged with a series of Hegar's dilators, or a Sims' dilator.

6. *Dangers of precipitate labor:* Lacerations, premature detachment of placenta, rupture of the umbilical cord, postpartum hemorrhage, syncope, inversion of the uterus, shock, asphyxiation of the fetus.

7. *Severe ante partum hemorrhage* is most likely to be due to (1) accidental hemorrhage, due to premature separation of the placenta; (2) to placenta prævia.

The treatment is practically the same in each case, namely, to check the hemorrhage and promote delivery. In *accidental hemorrhage* the membranes should be ruptured and the vagina packed, or *accouchement forcé* performed; vaginal cesarean section has been employed. In *placenta prævia:* (1) Introduce one or two fingers within the os (the hand being in the vagina) and dissect the placenta from the uterine wall for about three inches from the os uteri in all directions, pushing it to one side if necessary. (2) Rupture the membranes, and if there is an unfavorable presentation turn the child and make the breech engage in the os; or, if the head presents forceps may be used if speedy delivery is necessary. The strength of the woman is then the main point to be cared for, and if in a reasonable time the uterus seems to be incompetent, the child may be delivered by art. In some cases of central placenta prævia, where rapid delivery is required, cesarean section may give good results for mother and child.

8. The *indications for podalic version* are: (1) In transverse presentations; (2) in placenta prævia; (3) in malpresentations of the head; (4) in simple flattened pelvis, and in minor degrees of pelvic contraction; (5) in prolapsed funis; (6) in sudden death of the mother; and (7) in any case where speedy delivery is imperative.

"*Internal version* is done by passing one hand into the uterus, seizing and bringing down one or both feet. The cervix must be sufficiently dilated to allow the hand to pass. It should be done as soon as possible after the membranes have ruptured. If there is only slight retraction of the uterus it may be done, by an expert operator, by deeply anesthetizing the patient, but one who has not had much experience of the operation should not attempt it. If the uterus is firmly retracted it should never be attempted. The patient may lie on her left side, or preferably on her back. The right hand may be used in all cases, but in some the left one does better. It depends on which way the child is lying. Use the hand which will most easily reach the front of the child. Thus, if its back is toward the mother's right side, use your right hand, and if the back is toward her left, the left hand; but if you are not accustomed to working with your left hand always use the right. The hands and arms should be thoroughly sterilized, and well washed in lysol solution. Pass the hand in a cone shape to dilate the cervix, if it is not sufficiently dilated already, and pass the hand on to the front of the child, rupturing the membranes, if they are unruptured. As much of the liquor amnii as possible should be retained in the uterus by damming it back with the wrist. If a contraction comes on, spread your hand flat on the front of the child and wait until the uterus relaxes. If you do not do this the pressure upon your closed hand will almost paralyze it, and may cause rupture of the uterine wall. Catch one or both feet, making sure it is a foot and not a hand. As soon as you get a foot, pull the leg down steadily into the vagina, if the uterus is quiescent, but if a contraction comes on, wait, spreading your hand out as before. The child's body usually rotates quite easily, unless the uterus is retracted around it. If version is attempted when the uterus is retracted, as in a transverse case, care must be taken to unhitch the shoulder from under Bandl's ring, if it is caught, but only an expert should undertake such a risky operation, and it should only be undertaken if there is a chance of saving the child's life. The final part of the delivery is carried out in exactly the same way as when the breech presents."—(Jardine's *Delayed and Complicated Labor.*)

9. If the *vaginitis* is *non-specific*, the vulva and vagina should be bathed daily with warm antiseptic lotions. In the *gonorrheal* type, vaginal douches of mercuric chloride (1:3000) or potassium permanganate should be administered twice daily, and a tampon with glycerol of tampon should be inserted. Application of a 1 per cent. solution of lactic acid to the vaginal walls has been advised.

10. The following table of differential diagnoses is given in Dudley's *Gynecology:*

ADVANCED CARCINOMA OF UTERUS.	SLOUGING SUBMUCOUS MYOMA.
1. Cachexia, hemorrhage, and very foul discharges.	1. Anemia from hemorrhages; discharges less foul.
2. Sloughing tissues very friable.	2. Tough, not friable.
3. Cervix may be involved by extension.	3. Cervix not so involved.
4. Characteristic epithelial proliferations seen by microscope.	4. Absent.

SURGERY.

1. In *acute catarrhal conjunctivitis:* "Patients complain of stiffness of the lids, photophobia, epiphora, burning, and sensations of a foreign body. There is no actual pain, but considerable discomfort, especially in the evening. The lids are swollen and red. The conjunctiva of the globe is more or less deeply congested, and that of the lid is thickened, congested, and rough. Occasionally there are subconjunctival hemorrhages. The mucopurulent discharge is collected at the roots of the lashes or lies on the surface of the conjunctiva. The lids are stuck together in the morning. The vision is only slightly affected by the mucous discharge on the surface of the cornea, which is otherwise clear, although minute ulcerations of the cornea are occasionally seen."

In *gonorrheal conjunctivitis.*—"The patient, who generally has a gonorrheal urethritis, presents himself with great swelling and tension of the eyelids, more or less purulent discharge escaping between the lids. The conjunctiva is swollen and thickened. There is little pain but great discomfort. The cornea soon shows infiltration, and ulcers form. These perforate, leading to destruction of the eye or at best deep corneal opacities."—(From *Epitome of Eye and Ear.*)

2. *Acute catarrhal otitis media* is frequently caused by acute coryza and the infectious fevers. There is a painless obstructed sensation in one or both ears, impairment of hearing, and tinnitus. The inflammation causes closure of the eustachian tube. Inflation and aspiration of the middle ear and syringing and douching the nares and nasopharynx must be avoided. A moderate spray of Dobell's solution may be used. If pain is present, dry heat, in the form of hot-water bottle, hot stone wrapped in flannel, etc., may be applied. A few drops, warmed, of a carbolic acid solution (1:40), or one of formalin (1:2000), may be instilled into the ear.

3. TUBERCULOSIS OF THE HIP JOINT.—"There are three stages of the disease: (1) That which extends from the beginning to the development of pus in the joint, and is characterized by localization of the disease, flexion, limping, pain, usually referred to the knee, slight induration about the joint, fixation and atrophy of the muscles, and enlargement of the neighboring glands. (2) The stage that extends from the end of the first stage until the development of pus outside of the joint, or the stage of joint involvement, and is characterized by abduction and apparent elongation, night cries, abscesses, joint crepitation, and failure of the general health, in addition to the symptoms of the first stage intensified. (3) The stage that extends from the end of the second stage to the termination of the disease or the stage of destruction of the capsule and external suppuration. Adduction, flexion and real shortening are present, and dislocation and ankylosis or suppuration, destruction of the joint, asthenic symptoms, and death result.

"*Treatment:* In the early stages the patient must be kept in bed, with a weight extension applied in the line which the thigh takes, and as the flexion disappears, the pulley is lowered. When the pain has disappeared and the limb is horizontal, the patient can get about with a Thomas's hip-splint, a patten on the sound leg, and a

pair of crutches. These must be worn for at least six months after symptoms have disappeared. The general health must be attended to by good feeding, sunshine, and fresh air. Phelps' box is a useful apparatus in this stage. If abscesses form, they should be opened, scraped out with a flushing spoon, and stitched up. Excision of the head of the femur and free scraping out of the joint by the anterior incision is sometimes done in the early stage; but much shortening and a weak, movable joint are the results, while complete removal of all the diseased tissues is difficult. However, excision should be done where the disease progresses in spite of treatment, and where the disease is primarily acetabular. In the *late stages*, where septic sinuses are present, the head of the femur should be excised by the posterior incision, diseased bone removed from the acetabulum, and the tuberculous synovial membrane completely dissected away. Amputation is required if the disease still progresses, if amyloid disease has commenced, or if the patient's general health is too low to stand a prolonged operation."—(*Aids to Surgery.*)

4. "The treatment of gunshot wounds is conducted in accordance with general surgical principles, although it may have to be somewhat modified by the patient's environment and by the fact that after a battle the pressure of work may be such that all lengthy operative procedures have to be discarded. The first essential is to protect the wound from infection, and for this purpose the small packet of antiseptic dressing carried by all soldiers is admirable. Bleeding is controlled by a tourniquet, and splints must be improvised for broken limbs. As soon as the wounded man reaches the field hospital, the wound is more thoroughly explored and cleansed; foreign bodies are removed, bleeding-points secured, and if the bullet has not escaped and can be readily detected, it should be extracted. When lodged deeply, its position may be determined by skiagraphy, or by such appliances as Nélaton's porcelain-ended probe, or more complicated electrical contrivances, such as the telephone probe. Comminuted fractures are carefully investigated, detached fragments of bone are removed, and if an attempt is made to save the limb, splints, etc., are carefully applied. Primary amputations for bullet wounds are not very common at the present day, except when great comminution of bone or hopeless involvement of vessels and nerves has occurred."—(Rose and Carless' *Surgery*).

5. *Colles' fracture* is a transverse fracture at lower end of radius; it is due to falls on the outstretched palm. The line of fracture is about an inch above the wrist, and runs obliquely downwards from behind. The lower fragment is driven backwards and upwards, and rotated to the radial side, carrying the hand with it into the position of abduction, and leaving the tip of the radius at the same level as, or higher than, the tip of the styloid process of the ulna. The internal lateral ligament of the wrist is ruptured or the styloid process torn off. The fracture is usually impacted, the upper fragment being driven into the lower. The deformity is characteristic, viz.: (1) the hand is abducted; (2) the styloid process is on the same level as, or lower than, the tip of the radius; (3) the upper end of the lower fragment projects above the back of the wrist; on the front is a corresponding depression, while above it the upper fragment projects forward. Union occurs readily, but it is common to get deformity and adhesions about the site of fracture. *Treatment:* Disimpaction and reduction are brought about by grasping the hand by the "shaking-hands" grip, extending and adducting the hand and lower fragment. The arm is then fixed on a splint. It is very important in this fracture to start massage and passive movement not later than the end of the first week, to prevent stiffness. Union is firm in three weeks.—(*Aids to Surgery*).

6. Luxation of Semilunar Cartilage of Knee.—*Symptoms:* "Violent pain in the knee joint, chiefly on the inner side over the lateral ligament. The knee is locked in a semi-flexed position. Synovial effusion with its usual signs appears within a few hours. Later, and in the absence of proper treatment, recurrent attacks of synovitis often occur in any action of flexion and rotation of the knee. Tenderness is most marked on pressure over the tibial attachment of the internal lateral ligament. Very rarely a lump or gap can be felt in the position of the cartilage."—(Grove's *Synopsis of Surgery.*)

Treatment: "Reduction by flexion and extension of the joint. Immobilization on a back-splint for six weeks, followed by firm bandaging for three months. This treatment should be adopted in all recent cases occurring for the first time. Operation (for all recurrent cases): If thorough immobilization has been neglected at first, it is useless later. Incision in a transverse direction over the edge of the affected cartilage. Open the joint. Remove completely all injured or displaced parts of the cartilage. Cut any tags of hypertrophied synovial membrane. Close without drainage. Retentive apparatus (when operation is refused or undesirable in chronic cases): The mechanism embraces the joint and while allowing flexion does not permit of any rotation."—(Grove's *Synopsis of Surgery.*)

7. *Rodent ulcer* is a carcinoma beginning in sebaceous glands. It generally occurs in patients over forty, and is of very slow growth. It begins as a smooth, rounded knob in the skin about the nose, eyelids, orbital angles, or cheeks, slowly increasing in size. In time ulceration occurs. The ulcer has a smooth, depressed base covered with ill-formed granulations, and bounded by a slightly raised, indurated, rolled-over edge. There is little discharge if sepsis is prevented, and little or no pain. The lymphatic vessels and glands are not affected, and dissemination does not occur. The ulcer spreads and destroys surrounding structures; even bone is not spared, so that the brain may ultimately be exposed.

Treatment: Free excision, allowing a margin of half an inch all around. If the situation or extent will not permit this, *x*-rays should be used for ten minutes daily till healing occurs.—(From *Aids to Surgery.*)

8. *Parenchymatous goiter:* "Operative treatment is indicated when there are symptoms referable to pressure on the air passages, esophagus, or blood vessels, especially if there are signs of commencing cardiac disturbance; and in goiters which are steadily increasing in size. The evidence of a goiter becoming malignant is also a reason for removing it by operation. Kocher considers it advisable to operate if the patient becomes breathless on making pressure on the goiter from side to side."

Adenomatous goiter: "The only treatment is to enucleate the adenomata or cysts from the gland. The thyroid is exposed by a transverse curved incision, the tissue covering the nodule is incised, and the adenoma shelled out."

Malignant goiter: "It is only in the earliest stages that a malignant goiter can be successfully removed. In the later stages complete extirpation is not to be attempted, as it usually involves the removal of a portion of the trachea or esophagus, and the operation generally proves fatal. Operative interference is often called for, however, for the relief of respiratory embarrassment. Tracheotomy may prove a very difficult and dangerous procedure, owing to the trachea being buried under the goiter and displaced or narrowed by it, so that it is not easy to reach the trachea or to introduce an efficient tube beyond the point of obstruction. A more certain method consists in exposing the goiter by an incision as for thyroidectomy, rapidly removing sufficient of the growth to expose the trachea and admit of a tube being introduced. If there is a retrosternal prolongation compressing the trachea within the thorax, a long flexible lead tube may have to be passed down beyond the site of the compression before the dyspnea can be relieved."

Exophthalmic goiter: "Excision of one lobe of the thyroid together with the isthmus and the pyramidal lobe is indicated in all cases that do not present degeneration of the heart muscle, with irregular pulse and low blood pressure. The superior thyroid artery of the opposite side may be ligated with advantage."—(Thomson and Miles' *Manual of Surgery.*)

9. The most frequent dislocation of the shoulder is the subcoracoid. "In *subcoracoid dislocation*, the head of the bone lies below the coracoid process upon the neck of the scapula. The tendon of the subscapularis is torn or stretched over the neck of the humerus. The supraspinatus, infraspinatus, and teres minor are either tightly stretched, producing external rotation, or torn (sometimes with great tuberosity), with internal rota-

tion. There will be found: Local contusion; restricted mobility; flattened out border of shoulder; head of the bone is felt below outer end of clavicle; elbow is displaced from the side outward and backward, and cannot be made to touch the chest wall when the hand is placed on the opposite shoulder; there is little or no shortening of the arm.

Treatment consists in reduction by manipulation or extension. For reduction by manipulation chloroform is advisable, and in most cases, as soon as the muscular spasm is relaxed, the slightest movements are sufficient to produce reduction.

Kocher's Method.—The forearm is flexed and the elbow pressed to the side; the arm is then fully rotated outward. The arm is now brought forward and upward to a right angle with the body, and then rotated inward, while the elbow is brought down over the body so that the fingers sweep the opposite shoulder. These movements relax in turn the tense parts of the capsule, and bring the head of the bone down to the rent, and then through it back into the joint.

Extension.—The patient is placed flat on a mattress on the floor, while the surgeon firmly grasps the arm and places his unbooted foot in the axilla. Traction is then applied till the contraction of the muscles is overcome and the bone slips back into its socket. Outward or upward traction may also be used.

After-treatment: "An adhesive plaster strap three inches wide is placed around the middle of the arm (so arranged as to permit two fingers to be introduced between it and the skin) and then drawn across the back and fastened just beyond the middle of the chest, a small folded pad of gauze being loosely placed in the axilla. A broad sling reaching from below the wrist to above the elbow completes the dressing. A sling is also used. . . . No initial dressing should remain on the part beyond two weeks; and from the beginning light daily massage over the joint (the adhesive dressing being in place) will promote absorption of the effusion, prevent adhesions, and restore muscle tone. Some passive motion after a week is allowable, with active motion beginning ten days later. After three weeks the adhesive or other dressing can be abandoned, and in a month the sling also."—(Moorhead's *Traumatic Surgery.*)

10. "*Varicose ulcer* is associated with varicose veins, and is common in the legs, especially when the small venules in the skin are involved. There is at first congestion, then exudation, and often eczema, and deeply penetrating ulceration. This leads to spread of the inflammatory process in the adjacent veins (phlebitis), and so it progresses. Inflammatory thickening increases the congestion, and cuts off arterial supply, thus adding to the weakening conditions, which are also intensified by any injury to the skin. The ulcer is liable to destroy the wall of a varicose vein and lead to alarming hemorrhage. The skin is dusky, congested, and often discolored by brown stains, which are due to destruction of red blood cells and freeing of their pigment. These ulcers, if neglected, are the most common origin of callous ulcers.

"*Tuberculous ulcer*, usually of the edematous type. It occurs in tuberculosis affecting any surface, and shows a tendency to heal, but to break down again, sometimes healing on one side and spreading on the other. The edges are healthy, or in spreading conditions the skin is often greatly thinned, dusky in color, and deeply undermined. The floor is pale, the granulations are edematous, and there are sometimes sloughs in the middle from poor blood supply. Where there is much discharge, as at the mouth of a sinus, the granulations are very large and flabby.

"*Syphilitic ulcers* occur in secondary syphilis from involvement of the skin in the disease, and more commonly in tertiary, from breaking down of a gumma. When the ulcer is superficial, the edges are 'punched out'; the base is covered with sloughs or scabs, and the surrounding skin is red. In shape it is circular, and, being multiple, the tendency is to coalesce and form irregular patterns (*serpiginous* ulcer), and it tends to heal at one side and spread on the other. When due to breaking down of a gumma the ulcer is deep and of any shape. The base is covered with grayish, broken-down gummatous tissue. The edges are clean-cut or undermined. The surrounding skin is often brown in patches."—(Buchanan's *Surgery.*)

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THE SUPERIOR LONGITUDINAL SINUS IN INFANTS; ITS VALUE IN TRANSFUSION, AND FOR RAPID MEDICATION.

ITS ADAPTABILITY IN PROCURING BLOOD FOR DIAGNOSIS.*

BY LOUIS FISCHER, M.D.,

NEW YORK.

WHEN Marfan in 1898 suggested the use of the superior longitudinal sinus for saline injections he opened up a new field for both diagnosis and therapeutics. By this route we are not limited to saline injections, but can give other intravenous medication. Tobler advocates the use of the sinus route for blood transfusion, and it is to his credit that one of the greatest life saving measures is now being used in infancy.

During the last three years we find in the literature records of many successful cases of transfusion, and there is hardly an article but gives some new point perfecting the technique and enlarging upon the many adaptations of this particular anatomical point. In the many articles published we find Helmholz of Chicago, Dunn, Howell, and Vincent of Boston, Earl Tarr of Montreal, Lambert, Goodman, Peterson, and Fischer of New York, all advocating the use of the sinus route for transfusion.

When we consider the difficulty encountered in trying to enter a vein the size of the median basilic or even the femoral in infancy, and compare the ease with which we enter the sinus located at the posterior aspect of the anterior fontanel, our choice will readily fall in favor of the sinus route. The method is so simple that even an inexperienced operator need not hesitate to try it.

By the use of the longitudinal sinus we have a direct channel through which a small or large quantity of blood can rapidly be taken from, or added to, the circulation. Since time counts for a great deal in depleted and marasmic infants, the simpler the route, the more advantageous to the infant.

Many obscure conditions exist in which intestinal intoxication and faulty metabolism of the food elements is diagnosed. Before a positive diagnosis can be made, if a leutic basis is suspected a Wassermann or Noguchi reaction may be required.

The shock incident to the exposure of a vein and the loss of time encountered thereby are factors which one must bear in mind when an easier, safer, and more rapid method offers itself. The risk of infection, if one exposed the jugular, femoral, or median basilic vein must not be overlooked, especially in the weakened and puny infant. In one of my cases it took thirty minutes to expose and enter a vein at the elbow. The median basilic vein is at times so small that it looked, in the case of an infant one month old, like a very fine white cord.

This sinus is also adapted for the abstraction of blood, as in venesection during convulsions. The relief afforded by this means is rapid and the operation does not produce shock. Intracranial pressure can be relieved quickly and this method of local depletion serves as well as a lumbar puncture. This route is also adapted for procuring sufficient blood in the most rapid manner for blood culture. This point should be noted in suspected sinus thrombosis or malignant endocarditis. It is the most convenient place to give salvarsan injections. In septic diphtheria, where rapidity of action is necessary to bring the antitoxin into the circulation, the sinus route is indicated.

In hemophilia we have an hereditary or congenital disease in which bleeding may be interstitial or synovial, external, spontaneous or traumatic. The coagulation time is usually delayed. Peterson reports six transfused cases of hemophilia, one of these through the sinus route, with excellent results.

As a hemostatic, human blood acts in many instances rapidly—almost specifically. In a hemophiliac infant, following circumcision, two ounces of blood injected into the longitudinal sinus checked the hemorrhage within twenty minutes, although the infant had bled for four hours prior to this treatment. In another case of continued hemorrhage following an excision of cervical glands, postoperative treatment was unavailing until one ounce of human blood was injected by the sinus route.

Normal saline solution and sterile serums may be injected during or following atrophic conditions due to enterocolitis. By this means the column of blood can be replaced and a marked stimulus added to cardiac weakness. Such injections may be repeated once in twenty-four hours without producing shock. The first injection of 100 c.c. may be followed by one of 150 c.c., and later 250 c.c. may be injected every twenty-four hours until good stimulation is produced.

The sinus route is well adapted for the injection of sodium bicarbonate solution in cases of acidosis. Dextrose solution may also be injected by this method.

My own experience has been in both hospital and private practice. Especially good results were found in cases of marasmus, in bronchopneumonia with otitis media following influenza in which continued

*Presented to the Section on Diseases of Children, American Medical Association, June, 1918.

fever saps the vitality of the infant, in toxic scarlet fever, in postoperative glands, and in severe hemorrhage following circumcision in a hemophiliac case. I have had failures—especially moribund cases failed to respond.

In young infants of one or two months, no more than 30 to 50 c.c. of citrated blood was injected into the sinus at the first treatment. The pulse, temperature, and general condition were carefully noted, especially the surface temperature of the extremities. If no improvement was noted a second injection was given on the following day, using the same dosage of 30 to 50 c.c.

In another part of this paper I mention a marked antipyretic effect in febrile cases. In some cases a persistent high temperature was reduced soon after the transfusion. There seemd to be a decided antipyretic effect much greater than when antipyretic measures such as packs and eliminatives were used.

The nutritional value of the transfusion cannot be stated in pounds and ounces, but it will be apparent to every observer that the stimulation of nutrition is aided by transfusion. The weight curve usually stationary for weeks will rise soon after transfusion. The infant will show a steady gain after the second transfusion although the nutritional value of the food was not changed. I attribute the gain in weight not only to the added volume of blood to the circulation but to the stimulation resulting in better food metabolism.

Cherry and Langrock have asserted that in newborn infants the mother's blood can always be used with perfect safety for a transfusion.

It is interesting to compare the experience of pediatrists in various parts of the country. While many are enthusiastic and advocate the sinus route in preference to any other method, others are not so favorably impressed with this route. Unger in reporting a number of transfused cases says: "The superior longitudinal sinus was not selected because of the possible danger associated with its use, and because the median basilic vein affords a comparatively simple approach. If the inferior wall of the superior longitudinal sinus is accidentally perforated, there is real danger of injecting blood on the brain or of active hemorrhage occurring, especially in malænic patients where there is a hemorrhagic tendency. Using this route for aspirating blood for examination (syphilis, bacteriemia) is quite another matter, particularly in nonhemorrhagic cases." Unger's experience, therefore, is entirely different and not supported by the experience of Dunn and Howell of Boston, of Tarr of Montreal, and very many others. Regarding traumatism by repeated puncture of the vein, let me quote Tarr, who says: "It has been suggested that one is apt to produce considerable trauma by repeated puncture of the vein. I shall dismiss this supposition by stating that in one case in which I entered the sinus twenty-one times during the course of ten days no evidence of trauma was noted at autopsy. In twelve other cases that came to autopsy the vein was examined very carefully and not the slightest evidence of a puncture was noted. These cases had been punctured from one to ten times and all were examined within three hours after reaching the autopsy room."

There are a few points which should be noted in procuring blood by this method. Carefully done, there is no danger of infection or of perforating the inferior wall of the sinus, nor is there any shock following the operation.

Technique.—The infant should be wrapped in a mummy bandage, well pinned so that the arms and legs are confined, and placed flat on its back on a table. The head should be steadied on both sides by an assistant while the needle is inserted into the sinus. As a rule the sinus can be entered through the anterior fontanel up to the end of the second year. Anatomically the sinus does not vary. It grows wider towards the back of the head, hence, we should always utilize a point as far posteriorly as possible. As the needle is pushed through the posterior angle of the fontanel it should be directed downward and backward in line with the sagittal suture. The landmarks are positive, and with but little practice we cannot fail to enter the sinus. As the sinus lies very superficial we need not go deeper than 1 or 2 mm. For this purpose a needle one-half inch long of a 20 or 22-gage, with a sharp point, is best adapted. For withdrawing blood a Luer or Record syringe should be attached. As the needle penetrates the sinus, resistance is lessened and we encounter the same sensation which we feel when the needle enters the dura in doing a lumbar puncture.

We are now ready to aspirate sufficient blood for diagnostic purposes, or to transfuse the required quantity of blood or medication. As there is negative pressure within the sinus, before injecting it is better to withdraw blood, thus making sure we are actually in the sinus. The fluid, be it saline or salvarsan solution, is best given by gravity (Helmholz) and should be given slowly. A cylinder with a capacity of 30 to 100 c.c. may be used. One end of a piece of rubber tubing is attached to the cylinder and the other end has a connecting tip which fits into the needle. It is of advantage to have a stopcock either at the end of the cylinder or near the end of the tubing. The needle is inserted into a small syringe attached. By slight aspiration one can determine whether the sinus has been entered; if so, the syringe is detached, and the apparatus, which has been filled and the air expelled, is connected.

During the injection the infant should be closely watched, his color, pulse, and respiration noted. Vincent warns against injecting too rapidly, as increase of intracranial pressure caused vomiting and disturbed respiration, which corrected itself as soon as the flow of blood was checked temporarily. Air pressure in the tube should be released by detaching the syringe before the needle is withdrawn. There is no danger of losing too much blood by the puncture even though a large needle is used.

Case I.—A marasmic infant, breast fed, when one month old weighed 6 pounds. The infant did not nurse well, was cyanotic, and the extremities were cold. The stools were green and contained curds. The weight was stationary for several weeks, and the infant was restless. I decided to transfuse. Thirty cubic centimeters of citrated blood was injected through the longitudinal sinus and an immediate change in color of the skin, also in the surface temperature of the extremities was noted. The infant cried louder, seemed more satisfied, and the stools showed a better metabolism. In three days after the transfusion the infant showed a gain of two ounces in weight. As the first injection

was successful, it was decided to wait one week and then inject two ounces of citrated blood. After the second injection the infant gained in weight, nursed better, slept better, and seemed to have a new lease of life. So rapid was the improvement that what appeared to be a lifeless infant was transformed into a very lively specimen within three weeks after the second transfusion.

Case II.—An interesting case is that of a child eleven months old, in the ninth week of pertussis. The paroxysmal stage was unusually severe. Convulsions both tonic and clonic in character followed most paroxysms. The fontanel was tense and bulging, and there was extreme cyanosis, and several times a condition of apnea followed. With the aid of violent massage at the apex, the heart responded. After respiration and the circulation was re-established a needle was introduced into the sinus and 30 cubic centimeters of blood withdrawn. A rapid change took place, the paroxysms of cough, although as violent as before, were not followed by convulsions after the intracranial pressure was removed.

Case III.—A third case equally instructive was that of an infant seven months old, suffering from bronchopneumonia which lasted over seven weeks. The temperature ranged between 102° in the morning and 104° to 105° every evening. The pneumonia was of the wandering type spreading from lobe to lobe. The appetite waned. The stools contained undigested particles. During the third week pus and casts were found in the urine. The infant also developed a double otitis which showed *Staphylococcus aureus*. As the vitality was low I decided to inject an autogenous vaccine beginning with 50 million, gradually increasing every three days until 100 million per dose was injected. The vitality remained low, the appetite poor, the extremities were cold, there was restlessness by day and insomnia at night. It was evident that the infant was losing ground and that the prognosis was grave.

Through the longitudinal sinus I injected 75 c.c. of citrated blood, after which a marked change occurred. The temperature suddenly dropped to normal. The infant became brighter and stronger, and the pulse was of better quality. The nurse reported considerable improvement. The temperature remained normal twelve hours, then gradually rose, although not as high as formerly. Four days later a second injection of a similar quantity was given, also with a marked antipyretic effect. This infant lived for fourteen days, then succumbed to exhaustion and sepsis. I was, however, greatly encouraged by the immediate effect of this transfusion, but believe it was given too late in the disease to prove beneficial.

The donor in most cases was a relative of the child, and when an immediate relative was secured, agglutination and hemolysis reactions were not made. When, however, a strange donor was taken, all blood tests were made.

Many cases are reported in which an intravenous injection of 35 c.c. of blood in the new-born infant saved life. Lambert reports the case of an infant suffering with a hemorrhage of the umbilicus after the cord dropped off. With an intravenous injection of 35 c.c. of blood the hemorrhage ceased and the infant recovered from shock due to loss of blood.

Peterson of New York saw an infant 18 days old, in a critical condition, after bleeding six days. On the twelfth day there was a hemorrhage from the umbilicus which continued for six days. By the syringe-cannula method blood was taken from the vein of the donor, and 35 c.c. was injected into the longitudinal sinus through the anterior fontanel. Also an intramuscular injection of 15 c.c. was given. The hemorrhage stopped immediately.

Summary.—A study of the anatomy of the longitudinal sinus shows that it is one of the largest venus channels in the body. It lies at the posterior angle of the anterior fontanel, and by piercing the skin and dura we cannot fail to enter the sinus. The head of the infant is steadied by an assistant. Unless a special indication exists, neither local nor general anesthesia need be given.

The duration of the operation depends upon the skill of the operator. The technique is simple. When the needle is pushed through the dura into the sinus, the same sensation is felt as one notes in doing a lumbar puncture.

A short bevel point needle is preferred by some, while I have had best results with a long bevel point. This is an individual preference. Aseptic principles should be applied and the skin thoroughly cleansed with soap and water, then tincture of iodine applied.

The large caliber of the sinus is especially adapted for procuring blood rapidly, when a Wassermann reaction is desired, or when intravenous medication or normal saline solutions are indicated.

Salvarsan injections are conveniently given through the longitudinal sinus.

The shock, associated with incision and exposure of a vein, be it ever so slight, is avoided when using the sinus route; therefore, when phlebotomy is indicated, as in convulsions, or when intracranial pressure exists, or in toxic and in septic diphtheria in which intravenous injections of antitoxin are required, they should be given through the sinus route.

Enthusiastic reports following sinus injections are based chiefly on the simplicity of the method and the rapid reaction noted. The stimulation of nutrition following sinus transfusion in marasmus far exceeded my expectations.

I am indebted to Dr. Minsk, former Assistant Resident of the Willard Parker Hospital, for his kind assistance.

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155 West Eighty-fifth Street.

Kala-Azar in Tunis.—Nicolle states that 50 cases of this affection have been seen in the past 10 years in which the diagnosis was confirmed by the microscope. From three-fourths to four-fifths were seen in the children of Italian migrants. The chief Italians to suffer are those of Sicily and Malta, in both of which islands the young children associate much with dogs. The native Tunisian is seldom attacked.—*Bulletin de la Société de Pathologie Exotique.*

PATENT FORAMEN OVALE AND ITS RELATION TO CERTAIN CARDIAC MURMURS.*

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DURING the academic sessions of 1916-17 and 1917-18 there were dissected in the regular courses of anatomy of the medical school with which I am connected twenty-three adult cadavers. The hearts of all were examined with reference to the existence of any direct communication between the right and the left atria, either as caused by the persistence of the foramen ovale or by defective development of the interatrial septum.

In eighteen of the twenty-three hearts a direct communication was found, and in five of the twenty-three there was no such communication. With but one exception the right orifices of the communications were in the fossa ovalis; in the exceptional case the right orifice was in the limbus foraminis ovalis. The left orifices of all were within the area of the left atrium that corresponded to the area of the limbus and fossa ovalis of the right atrium. The location of the right orifices was variable, but generally in the upper half of the fossa, and often so covered by the projecting border of the limbus that the orifice escaped notice on superficial examination. On the left side the orifices of the communications were placed either more cephalically or more ventrally than on the right side, so that the passageways ran obliquely through the membranous floor of the fossa or between it and the limbus. In length the passageways varied from oblique slits to channels of some length, several being about three-quarters of an inch from orifice to orifice. Some of the long channels showed cul-de-sacs extending from them. The caliber of the communicating openings varied from pin-hole to pencil-size or larger in diameter, one was large enough to admit the passage of the tip of the little finger. The shape of the openings on the right side was equally as variable as the locations; some were mere slits with slightly rounded margins, others dimple-like to funnel-like depressions, and others of irregular shapes. On the left side the openings were more regular and tended to resemble more or less the orifices of the foramina of the small cardiac veins. In several instances two openings occurred and in one case a forked channel, having one orifice on the right side and two on the left, was observed. The variability in location, shape, and size of the openings appeared insusceptible of classification into types. From the oblique course of the openings all were valvular in action, permitting fluid to flow through them only in one direction, and this was from the right atrium to the left atrium, with the exception of the opening located in the limbus; this opening permitted fluid to pass only from the left to the right atrium. The ages of the cadavers, as judged from appearances, were from young adult to advanced life. The clinical histories of all were unknown. All the openings observed were unquestionably failures of the foramen ovale, either to develop normally or to close normally after birth and, therefore, are to be regarded as cases of patulency of the foramen ovale in adult life.

The fact that such patulency was frequent has been remarked by anatomists and by pathologists from time to time and with more or less emphasis; it has been commented on also by clinicians, but with less frequency and decidedly less emphasis than the prevalence of the condition deserves, at least such is the impression given me by an examination of some of the current text and reference works. The series of hearts here reported shows a ratio of persistency as against complete closure of the foramen ovale of 18 to 5, or 78 per cent. persistency to 22 per cent. closure. This is a ratio greater than any other so far within my knowledge. There appears to be wide variability in the observed frequency of unclosed foramen ovale in adult life. Quoting but a few among the relatively recent writers referring to the subject: Cunningham[1] gives the ratio of patency to closure as about 1 to 5, that is about 20 per cent.; Parsons and Keith[2] as over 26 per cent., as determined from a collective investigation of 399 hearts; according to Welch and Rolletson,[3] Firket reported the foramen unclosed in 34 per cent. of his cases; Sewall[4] quotes Hochsinger as authority for stating that Kolb and Wallman found the foramen persisting in no less than 44 per cent.; and Babcock[5] states that according to Romberg the foramen persists in at least half of all cases. It may be interesting and not inappropriate to notice some of the non-statistical observations of a few of the earlier writers mentioning the persistence of the foramen ovale in adult life: Andrew Blake,[6] in reporting a case in 1828 of foramen ovale found open in a soldier dying of tuberculosis, quotes "that able anatomist, the late Mr. Shaw," as having observed that the condition "is so common that we cannot attach much importance to it." Farre,[7] in 1814, writes: "In considering the structure of the fœtal heart, the probability would seem great, that the valve of the foramen ovale might frequently be imperfectly united to the annulus foraminis ovalis by the pressure to which it is subjected in the double circulation after birth. But yielding up probability to antomical demonstration, an aperture of communication through the septum auriculorum is actually so often met with in subjects brought into dissecting rooms attached to the anatomical schools, that the observation of the student who has not witnessed it, even in adult life, must have been exceedingly limited." Allan Burns,[8] in 1809, remarks that "We very seldom find the foramen ovale and the ductus arteriosus both open, but we very frequently observe the foramen ovale pervious even in very advanced age." In the second edition of his "Traité de la Structure du Cœur," published in 1783, Senac[9] states: "Ce trou, bien loin d'être bouché dans l'adulte, est ouvert dans la plûpart des sujets, même de ceux qui sont parvenus à une extrême vieillesse." While Le Cat[10] is quoted in 1741 as follows: "This last winter I had opened a great number of dead bodies of men grown, and did not

*Read at the meeting of the American Climatological and Clinical Association, Boston, Mass., June 5, 1918.

find the foramen ovale open in any of them. The oldest male subject in which I found it open was a lad of fifteen years of age. Of twenty bodies of women, which I examined, in seven I found the foramen ovale open. Among the number of openings that remain of this foramen, there is a great variety in their shape, and in the number of cicatrices or adhesions of the valve." Le Cat then describes and figures three general types to which the openings may be reduced. Cheselden,[11] in 1722, in describing the method of closure of the foramen ovale by the adhesion of the valve, observes: "Sometimes this valve does not quite cover the foramen, in which case a small quantity of blood may possibly flow from the left auricle to the right, and so circulate twice through the lungs to once through the body, but none could flow from the right to the left and escape the lungs, which might be a bad consequence. Some have imagined, that men who have this passage open, cannot be drown'd: but tho' this passage has sometimes been found open, no man has been yet seen, that we have heard of, that could not be drown'd. I have seen the foramen open in a man that was hanged, to whom one might justly expect it should have been as useful as in the case of submersion."

All the subjects examined by me were negroes, showing less racial admixture than that of quadroon; it may be, therefore, that this increased ratio is a racial characteristic, but this is not to be considered as other than a very contingent explanation. I am inclined to think that present-day anatomical methods of preserving material, and the more leisurely and critical examination that such methods permit, will enable the finding of openings that in the ordinary post mortem procedure of examining fresh and unfixed hearts may easily be overlooked, and that the larger ratio I have found is due to dissecting room methods of examination.

The series of hearts herein reported is small numerically, and I should hesitate to depend on it as an index of the frequency of unclosed foramen ovale in the adult were it not more or less supported by the observations of others, and also by my own impressions drawn from an extended anterior, but unrecorded, experience in dissecting room work. The fact that such openings are frequent, almost the rule rather than the exception I am tempted to say, would appear to attach to them a clinical interest that they have not heretofore had as probable, and doubtless frequent, factors in the causation of cardiac murmurs, and particularly of that class of systolic murmurs unassociated with any other evidence of cardiac impairment. The frequency of the occurrence of these openings through the fossa ovalis in adults of all ages and their almost invariable valvular nature, indicates that they are not inconsistent with perfect cardiac function, and that so far as constituting a pathological condition they are virtually, as Humphry designates them, "without clinical significance." However, as factors that may and do cause unquestionably now and then signs that may be mistaken for those of pathological changes in the heart they are worthy of consideration.

The variability observed in the position, caliber, shape, and length of these openings, to which reference has already been made, would indicate, *a priori*, great variability in the physical evidences, as murmurs, that may be due to the existence of these openings. It is not surprising, therefore, that the clinical signs of these openings are not better understood at present. Romberg, according to Babcock,[5] states that the bruit caused by an unclosed foramen ovale is usually a loud systolic murmur, heard throughout the cardiac area, particularly over the base and apparently not limited to any area. Humphry groups the auscultatory sounds of all septal defects together and writes that "on auscultation there is commonly heard to be a loud, long, systolic murmur which can be traced with varying intensity over the whole of the precordial region, over the back of the chest, and is conducted widely in all directions." According to Hirschfelder,[12] "occasionally there is heard a well-defined presystolic murmur which is maximal" over the left third intercostal space, "and which when present is the most characteristic sign of the open foramen ovale." Thomas Oliver[14] describes the murmur as soft systolic, over the mitral area, loud, blowing, and somewhat rasping, over the base of the heart and mid-sternal area, faint as the aortic area is approached, loud and prolonged as the pulmonary area is approached, along which the murmur is conveyed for about half an inch. Sewall[4] reports the case of an infant, apparently less than a week old, clinically diagnosed as patent foramen ovale and the diagnosis confirmed subsequently by autopsy. In Sewall's case the "murmur was heard with the first sound of the heart, and was short, faint but distinct. The murmur was heard most distinctly in the segment which included the base line of the heart and curved over the right border of the sternum. In other words, the murmur had its greatest intensity in the area of the chest wall most closely approximating the auricles. Again the murmur appeared to be presystolic both in time and character. That is to say, in contradistinction to systolic murmurs. Its ending was abrupt, not gradual, its accent was acute, not grave."

The want of conformity to definiteness of type, or types, of these openings in the fossa ovalis, while it renders the certain recognition of their presence very difficult, sometimes doubtless impossible, and in so doing divests them of the clinical significance attaching to definitely recognizable conditions, yet it invests the significance of cardiac murmurs and their accurate determination and discrimination with a greater degree of importance and responsibility. In the light of the probability of openings of the kind herein described, cardiac murmurs, especially systolic ones, unaccompanied by other corroborative evidence of functional impairment become less indicative of real cardiac incapacity. How many healthy hearts have been doomed because of murmurs caused by open foramen ovales no one can say; one may guess. Apart, however, from any relation to cardiac murmurs, the frequency of openings in the fossa ovalis has a clinical importance not lightly to be passed by, and that is that these openings are potential avenues for the passage of emboli

from the venous circulation directly into the arterial circulation, the so-called "paradoxical embolism" of Zahn. That emboli do so pass has been demonstrated. Therefore, a foramen that does not invariably and completely close is always a menace, according to its degree of patulency and the occurrence of conditions favoring thrombosis and embolism in the venous side of the vascular system. It is also interesting, if not worth while, to quote Allan Burns' observation regarding the association of open foramen ovale with cardiac asthma: "This," says Burns, "is a much overlooked cause of dispnoea, but still it is one you will very frequently be called on to remove; I have seen many examples of this kind of asthma, and have ascertained, by dissection, the real cause of the symptoms."

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THE SIGNIFICANCE OF EARLY HEART LESIONS.*

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In no department of internal medicine has there been during the last two decades a greater advance in knowledge than in that of diseases of the heart. Important discoveries in the anatomy and in the physiology of the normal heart have contributed greatly. Research work in bacteriology has demonstrated that very many disease-producing bactera besides those formerly recognized as causative agents are capable of invading the heart in the course of an infectious disease, and it is generally agreed that the cause of rheumatic involvement is bacterial, though it can not be said to-day that there is unanimity amongst bacteriologists as to its identity. Pathologists have demonstrated that the cardiac lesions due to infections not only are not confined to the valvular structures of the heart, but that the invasion of the musculature of the heart is of much more significance.

By the use of the newer graphic, illuminating, and acoustic instruments of precision more exact observations have been recorded and by their help the entire subject of the cardiac arrhythmias has been clarified and rewritten in a form that seems permanent. All of these advances have made possible a surer prognosis. The heart to-day is considered to be an organ which can withstand serious pathological injuries and yet regain and maintain a considerable degree of power.

Many of us in this society were educated when the teaching concerning the relative importance of valvulitis was exactly the opposite of what it is to-day. We were taught the pathological changes in valves and the doctrines of the backset of the blood and were carefully drilled in the detection of murmurs and their exact location, and in the tracing back of the damaged valve the effect upon the general circulation and on the integrity of various organs. Very little was taught about the muscle of the heart. The modern conception of the physics and pathology of the heart is quite different. The clinician estimates at the beside the contractibility, the excitability, the conductivity, the rhythmicity, and the tonicity of each heart he studies.

The driving force of the heart due to its muscular contractions is the most important. If the driving power of the ventricles be efficient the circulation is maintained. In a disabled condition of the heart muscle, it is the failure of the forward propulsion of the blood, not back pressure, which retards the circulation and thus disturbs the function of organs, permits the collection of blood at the doors of the auricles and makes edema possible. Heart disease as a whole may be considered as a disturbance of the driving force of the heart muscle.

The force of every heart is a personal one and must be measured by the maximum amount of work which an individual can do habitually with perfect comfort.

A heart capable of exerting its maximum force with perfect comfort is of normal size, and of normal rhythm, and of normal rate. Any departure from this standard must of necessity change the classification of the heart presenting it.

The size of the normal heart is practically constant. It is accurately ascertained by an x-ray examination. It can be determined with relative accuracy by correctly locating with the stethoscope the apex beat and the second sound at the aortic cartilage. Palpation and percussion are valuable but less precise. The heart undergoes both hypertrophy and dilatation from causes outside of it. When such conditions are eliminated and the heart is still found enlarged or dilated, it is of itself an indication of a fault which must be explained.

The rhythm of the normal heart is exact, except in childhood and in adolescence. Sinus arrhythmia is but evidence of an instability of nerve control normal to those periods of development. Paroxysmal tachycardia, observed often in toxic states or even due to pressure from a stomach distended with gas or overloaded with food, particularly in

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the neurotic, is common. We have been in the habit of ignoring this symptom and it is of relatively little consequence. In chronic toxemia, as in Bright's disease, it adds to the embarrassments already existing. Premature contractions never fail to make themselves known to the consciousness of the patient. They are startling at first because of the heavy thud of the delayed beat. Premature contractions have been observed in those who otherwise have seemed perfectly normal. Auricular fibrillation and auricular flutter are of more significance. The advent of either one of these irregularities is positive proof of a considerable enfeeblement of the heart muscle. In some cases activities can be maintained and a comfortable life enjoyed for many years, but the average lease of life after the establishment of one of these irregularities which, as a rule, is permanent, is not more than ten years. Either may accompany another cardiac lesion, particularly mitral stenosis, but either can develop independently of other involvement. Cases in which paroxysms of tachycardia have later been accompanied by premature contractions and ultimately developed suddenly auricular fibrillation are already recorded and have undoubted significance. From those presenting such a series of phenomena one rarely fails to get the history of some infectious disease occurring in the early years.

J. P. at 12 was an unusually well developed boy. He had had many severe infectious diseases, including diphtheria, pneumonia, and typhoid fever, but without known cardiac involvement. After severe exertion he developed symptoms of heart failure, and dilatation and mitral murmur were discovered. A short period of complete rest restored the heart to an apparently perfect condition. In early manhood he had many brief attacks of paroxymal tachycardia attributed to errors in diet. At about 30 an occasional premature contraction was noticed but he was not inconvenienced. In the forties these attacks increased in frequency and were thought to be longer when too much tobacco was smoked. At 45, while exercising, he suddenly developed auricular fibrillation with a very rapid pulse. Under rest and digitalis the irregular pulse was brought down into the seventies and has been kept there. With care he is able to do a considerable part of his work as a counsellor at law. I have observed this case for some years and can detect no advance so far. There is no accompanying cardiac lesion or other complicating pathological condition.

Heart block is interesting and of importance in prognosis when progressive. A complete heart block, if the pulse be not reduced below the limit at which an uninterrupted circulation in the brain can be maintained, need not shorten life greatly.

In a woman under my observation for minor ailments throughout my entire practice, and now 76 years old, complete heart block with a pulse of 38 to 40 has been known to exist for at least five years. She is still active and doing her own housework for a family of four adults. On two occasions, when overexerting herself, she has lost consciousness for a period just long enough to fall and she has had more frequent dizzy spells. She had rheumatism early in life and phlebitis repeatedly in later years, but valvulitis can not be diagnosed from any murmur. Her heart is moderately hypertrophied. Her blood pressure is 170/80 and her hemoglobin is 80.

True pulsus alternans is always of grave significance. It usually expresses extensive degenerative changes and feebleness of the heart muscle. The majority of cases with this symptom do not survive two years.

The heart has a normal rate of contracting. A rapid pulse is one of the manifestations of a weakening muscle, but there are so many physiological and pathological conditions that are expressed by an increase in the pulse rate that it is always necessary to exclude extracardiac causes before considering the rate alone as a factor in prognosis.

That a heart of normal size, rhythm, and rate may present murmurs is a common observation. In many perfectly healthy young men a murmur may be heard at the situation of the pulmonary artery, due to a slight contact of that vessel with the chest wall. Cardiorespiratory murmurs, superficial, heard along the left costal arch, like a puff of air pushed out of an overlapping tongue of lung by each stroke of the heart, are relatively common. Functional murmurs due to temporary causes are not uncommon, but require careful differentiation. All of these are of no prognostic significance. But murmurs are heard at the apex, systolic, presystolic, or diastolic, and at the aortic cartilage, systolic or diastolic, which are significant of valve lesions, even though the heart be of exactly normal size and function.

The noisest murmur is not necessarily the one of most importance. One finds an aortic regurgitant murmur at times that is loud, but not accompanied by evidence of disturbance on the part of the heart. But even a prolongation of the second sound at the apex with a suggestion of a change in the tone, if accompanied by a fine thrill at the apex, is indicative of a beginning mitral stenosis and is of the utmost importance, however perfectly the heart muscle is doing its work. Mitral stenosis is a defect ultimately attended by grave consequences in every instance. Mitral regurgitation, however, is a condition to which the heart can accommodate itself perfectly for many years.

A young man of 24 came to me recently saying he had been refused for military service on account of his heart and because of underweight. He also said he fainted easily. He did not know that he had had heart disease, but he gave the history of infectious diseases, including tonsillitis, in childhood. He was perfectly proportioned, but was six pounds under the average weight for his moderate stature. He was very highly organized nervously. His heart was exactly normal in size, regular, of normal rhythm and rate, and his blood pressure was normal. At the apex there was a loud systolic murmur propagated to the left to the midaxillary line. After exercise the proportionate increase of rate was no more than normal. On questioning him, it was developed that his fainting spells had never occurred except when his imagination had exaggerated the effect of a gruesome recital—as Billy Sunday's sermon to men, an orator's description of the carnage of battle, etc. If he had been up to normal weight and I had been examining him for military duty, I should have been obliged to pass him. It was perfectly evident, however, that he had had nitral valvulitis with little or no impairment of the muscle of his heart.

At 15, C. F., had a savage attack of acute articular rheumatism with carditis, and that passive congestion of the lung often called pneumonia. He was confined to bed about three months. For a long time the persistent symptoms of cardiac impairment were in evidence. The heart finally became strong, the various evidences of impairment receded and disappeared to such an extent that ordinary methods of examination did not reveal a murmur except after most violent exercise, and even then there were no other evidences that the heart was not up to its job. He escaped further illness. He went through college and through a medical school with credit. He passed an exacting examination

for life insurance. When he was 25 and an interne in a hospital, he contracted an acute infection of first one and then of the other tonsil without suppuration. After a couple of weeks, during which his heart had remained as before, he got up, was about a few days, and then developed an acute, toxic, ascending, multiple neuritis. His heart was watched with great care. It gave no evidence of a reinfection, but with added weeks in bed, and possibly from the influence of the toxins producing the neuritis, his heart became dilated and rapid and the same old murmurs reappeared. The neuritis ran its course rather quickly for such an extensive involvement. At the end of four months from the initial infection the dilation had diminished so that the apex was inside the midclavicular line; the rate was in the seventies while at rest, and the murmur was faint. It is probable that he will regain good muscular tone, and that he will be able to engage in the activities of his chosen profession.

G. S., 43, a farmer, consulted me because, as he said, "my wife complains that my heart makes so much noise that she can not sleep." He had had no illness except influenza ten years ago. For the past year he had noticed a noise in his heart that is heard when standing and when lying and that is becoming somewhat louder. The heart was exactly normal in size, his pulse was 68, his blood pressure was 145/45, and his hemoglobin 85. Heard plainest at the aortic cartilage in diastole, there was a musical murmur like the twang of a high-pitched string of a violin. It really was transmitted so that it could be heard by anyone standing near him. The pulse was collapsible, as indicated by the low diastolic pressure. This man had done all the heavy work on a farm all his life and came not because he felt ill but because he was curious to know what the noise was and what it meant. There was no doubt but that he had aortic regurgitation with possibly a rent in one of the cusps.

A. P. came under my care for varicose veins when he was 63. He was born in England and began life as a blacksmith. He knew he had a heart lesion early in life and on that account had educated himself for business and became an iron manufacturer and at 60 had retired. With every beat of his powerful heart his whole body reacted. The arteries were greatly dilated, the ascending palatine being as large as "night crawlers," and writhed from their beds with each pulsation. His heart was hypertrophied with apex inside the mammary line. It presented a mitral systolic and an aortic diastolic murmur of great intensity. His pulse was always in the seventies when at rest, and never above 100 after exercise. Four years later Dr. Jacobson did a Whitehead operation for the removal of the pile bearing area under ether which he took without trouble. At the age of 76, after a siege with whooping cough contracted from a young member of the family, failure of heart supervened, rapidly progressed, and terminated a life that had been tolerable and not devoid of usefulness.

In my early practice I saw many men who worked in the salt yards. These men were always exposed to wet and bad weather and their work made necessary strong use of the muscles of the arms and trunk. In routine examinations the hearts of these men were almost always found to be hypertrophied, often more or less irregular, and sometimes gave various murmurs. It made one wonder, at that time, that their work could be continued; but, as the heart condition was a discovery which had little to do with the illness for which treatment was required nothing was made of it, but observations were continued sometimes over a considerable period. Many of these attained a good age and comparatively few of them died because of heart failure. In thirty-seven years of practice a considerable number of cases of acute heart disease have come under my care and some of them have been observed for many years. Of those who have survived the initial shock the majority have gone on with their chosen work successfully and with considerable comfort.

Very many of the adults who come to the consulting room with some form of cardiac impairment come without previous knowledge of an existing heart lesion, but I suspect that the great majority of the cardiac lesions that limit activities beyond the meridian of life trace their beginnings to childhood or to the adolescent period when infections are common. It is certain that very many cases of infectious disease in childhood involve the heart without recognition. In rheumatism and in scarlet fever the heart is usually watched with care, but in the other infections, all of which are potential causes of heart lesions, we had not been taught to be so careful. Another thing is certain, a destructive process, however slight, leaves a scar. No one who has studied preparations showing the results of experimental infections of the hearts of the lower animals can fail to have been impressed with this. In hardly any heart case, not even in the degenerative changes which are attributed to age, if there be any degenerative change in a heart due to age alone, does one fail to find the history of some infectious disease. It would be of the greatest interest to know the medical history of those grand old men who have maintained intellectual and physical power to a great age, like Gladstone, Premier of Great Britain at the age of 84; for one of the early manifestations of beginning heart failure is loss of memory and difficulty to sustain mental effort. This is a point of great importance now, when hundreds of thousands of our young men are being judged as to their fitness for military duty, and when hundreds have been under observation for a disorder roughly named "soldiers' heart." The standpoint of the deciding physician in these instances must be that of the State—not of the individual. His duty is to say whether the man examined is capable of military duty, not what remote effect will military duty have on the heart of the man. The conclusion that in this emergency of war the State can be sure of obtaining efficient service from a man presenting some of the forms of an impaired or disordered heart, is not the same as saying that military service is good for such a man or not harmful for his future interests. If his condition promises to permit him to meet the temporary exigency, he must be passed regardless of this as of other possible dangers he may meet. This attitude warrants the assertion of Lewis in his report on the work done at Mount Vernon Hospital on disorders of the heart, when he says: "The presence or absence of murmurs (wherever they may be audible) is of no value in estimating the soldier's capacity for work."

I cannot agree, however, that evidence of a damaged valve is of no importance in prognosis. It certainly means friction, and friction means wasted energy, which in the long run must tell upon the driving power of the heart.

It is probable that what we have hitherto called "heart strain" is fundamentally made possible by some unrecognized lesion of some structure in the heart, for all persons under identical conditions do not develop acute dilatation or other disorder of the heart under great physical strain, and, on the other hand, after epidemics of mild infectious

diseases, say of measles or even of catarrhal colds, we have observed in some active boys the symptoms of slight cardiac failure and have found dilatation and murmurs.

From the standpoint of the individual I still consider it to be our duty to acquaint our patients with the facts, emphasizing all that are favorable, but inculcating definite rules by which, without apprehension, they can know when they have overstepped the limits of their own cardiac strength, for it is the intelligent response to the information of failing strength which the heart always gives that makes a long and useful life possible to those with this handicap. In such cases, too, it seems to me a duty to attempt to direct the future career of such, and especially of children and adolescents, for there is little question that, though the heart muscle needs exercise for its development, an occupation demanding heavy and continuous work on the part of a heart that is even a little impaired must cause the earlier appearance of the evidences of beginning heart failure.

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FIFTY CASES OF TUBERCULOSIS, MAINLY OSSEOUS AND GLANDULAR, TREATED WITH TUBERCULIN CONTRASTED WITH FIFTY CASES TREATED WITHOUT TUBERCULIN.*

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Inasmuch as there seems to be at the present time a demand for facts relating to the clinical use of tuberculin in the treatment of all forms of human tuberculosis, it has seemed to us expedient and proper to give, briefly, the salient points regarding our experience in this work. Owing to the fact that the number of cases in which a course of treatment by tuberculin has been carried out is quite limited, we have been obliged to content ourselves with reporting only fifty such cases, most of which were treated in the Home for Crippled Children in Newark. As this institution has been in active operation for twenty-five years, there was no great difficulty in collecting fifty consecutive cases treated without tuberculin, and except in a very few instances, in determining the final outcome in each case. We have thought regarding the cases treated with tuberculin that it would be more satisfactory to report only cases which we have personally observed and treated than to augment our rather limited number of such cases by adding reports from the practice of others. So far as we are aware no other orthopedic hospital except the Home for Crippled Children in Newark has used tuberculin long enough to furnish any considerable number of histories of cases treated by this method.

Its use in this institution began in 1915 and since at least between two and three years must elapse before the treatment of any considerable number of cases with tuberculin can be concluded and the results ascertained, it followed, somewhat to our surprise, that we could barely collect fifty completed cases from our hospital and private practice. However, as time goes on, this difficulty is almost sure to decrease, and inasmuch as hospitals and sanatoria can furnish a great number of histories of cases of tuberculosis treated without tuberculin, the comparison of large numbers of finished cases by the two methods will become possible.

Fortunately, successful tuberculin treatment requires the greatest nicety in keeping the records of each individual case just as it does in the administration of the remedy, so that it is reasonable to expect in a few more years such an abundance of accurate clinical histories that indisputable conclusions can be drawn from them.

Pending this increase of statistical knowledge, the data we have collected will prove of interest and will help in the world-wide fight against tuberculosis. The following tables will show as conclusively as possible, the more important facts which our study has brought to light.

Table I summarizes the results in the treatment of fifty cases in the Home for Crippled Children without tuberculin and Table II shows the results of treatment in an equal number of cases treated with tuberculin in the Home for Crippled Children, in the Mountainside Hospital Clinic and in private practice.

We will give the conclusions which have been drawn from these tables and refer to some special cases by number.

Without tuberculin 16 recovered, or 32 per cent.; 25 died, or 50 per cent.; 9 are still wearing braces and under treatment, or 18 per cent.

With tuberculin 33 recovered, or 66 per cent.; 5 much improved, or 10 per cent.; 6 died, or 12 per cent.; 5 still under treatment, or 10 per cent.; 1 discontinued treatment, or 2 per cent.

Of the cases treated without tuberculin the total period under treatment for the entire number was 235 years and 9 days; the average length of the treatment for each patient was 4 7/10 years.

Of those treated with tuberculin the total time of treatment for all the patients was 54 years, 11 months and 9 days, an average for each patient of 1 year and 1 month.

Of the 16 cured without tuberculin the average period of treatment for each case was 5¼ years.

Of the 33 cures with tuberculin the average period of treatment for each case was 11½ months.

Of the 25 deaths without tuberculin the whole period of treatment was 72 years, 11 months, 9 days, or 3 years, 14 days for each patient.

Of the six deaths of those treated with tuberculin the total period of treatment was 4 years, 9 months, and 29 days, or an average of 9 months, 13 days for each patient.

Of those treated without tuberculin, nine are still under treatment.

*Read before the American Climatological and Clinical Association, June 5, 1918.

TABLE I.—FIFTY CONSECUTIVE CASES OF TUBERCULOSIS TREATED WITHOUT TUBERCULIN IN THE HOME FOR CRIPPLED CHILDREN IN NEWARK, N. J.

No.	Name.	Age.	Sex.	Nativity.	Occupation.	Diagnosis.	Date of Inception.	Period Under Treatment.	Result.
1	M. S.	7	Male	U. S.	Minor	Pott's disease	4 years of age	11 yrs.	Died 1916.
2	L. M.	14	Female	U. S.	Minor	Tub. coxitis, left	Jan. 26, 1905	3 yrs.	Is cured.
3	L. W.	6	Male	U. S.	Minor	Dorsal, Pott's	Feb. 1906	2 yrs. 1 mo.	Died 1908.
4	M. B.	5	Female	U. S.	Minor	Dorso-lumbar, Pott's	1902	6 yrs.	Died April, 1910.
5	P. G.	5	Female	U. S.	Minor	Sacroiliac, Pott's	Feb. 1906	2½ yrs. (except 1 mo.	Died Nov. 9, 1909.
6	L. S.	11	Female	U. S.	Minor	Tub. ankle dbl.	1904	2 yrs.	Cured.
7	T. C.	4	Male	U. S.	Minor	Tub. os calcis, right	March 1906	2 yrs.	Died March 12, 1907.
8	M. F.	6	Female	U. S.	Minor	Tub. coxitis, right	June, 1906	8 yrs.	Cured. (Right leg 1½ in. short.
9	M. H.	10	Female	U. S.	Minor	Tub. ankle	June 7, 1904	2½ yrs.	Cured.
10	H. P.	9	Male	U. S.	Minor	Tub. coxitis	October 1906	6 mos.	Died April 5, 1907.
11	K. O.	6½	Female	U. S.	Minor	Tub. coxitis dbl.	1900	Bet. 5 and 6 yrs.	Cured.
12	O. P.	4	Male	U. S.	Minor	Tub. coxitis, right	Feb. 26, 1907	2½ yrs.	Died May 23, 1909.
13	A. K.	5	Male	U. S.	Minor	Tub. coxitis	1904	8 yrs.	Cured.
14	R. F.	10	Female	U. S.	Minor	Tub. meningitis	April 14, 1907	9 days	Died April 23, 1907.
15	E. K.	5	Male	U. S.	Minor	Pott's disease	5 yrs. of age	11 yrs.	Still wearing jacket.
16	A. T.	7	Male	U. S.	Minor	Tub. tarsus, left	Feb. 1907. Recurrence 1916	2 yrs.	Discharging sinus.
17	T. K.	5½	Male	U. S.	Minor	Tub. coxitis, right	Dec. 16, 1905	1½ yrs.	Died 1907.
18	J. McC.	3½	Male	U. S.	Minor	Tub. knee, right	1907	11 yrs.	Still wearing cast.
19	M. R.	17	Female	U. S.	Minor	Tub. hip	When small child	1 yr.	Died 1907, age 17 years.
20	M. C.	3½	Female	U. S.	Minor	Tub. coxitis	April 1907	11 yrs.	Still has discharging sinuses.
21	J. S.	16 mo.	Male	U. S.	Minor	Tub. coxitis	June 1908	1 mo.	Died July 13, 1908.
22	R. G.	7	Female	U. S.	Minor	Tub. coxitis	June 11, 1908	4 yrs.	Cured.
23	S. M.	7	Male	U. S.	Minor	Pott's disease	June 1904	10 yrs.	Still under treatment in N. Y
24	H. H.	6	Male	U. S.	Minor	Tub. coxitis, left	July 1908	5 yrs., in bad shape.	Still has discharging sinuses.
25	F. S.	17	Male	U. S.	Minor	Tub. coxitis, right	At the age of 16 years	1 yr.	Died 1908, 17 yrs. of age.
26	A. W.	6	Male	U. S.	Minor	Cervical, Pott's	Dec. 31, 1908	2 yrs.	Cured.
27	A. E.	6	Female	U. S.	Minor	Tub. coxitis	Feb. 1909	3 yrs.	Cured.
28	L. P.	10	Female	U. S.	Minor	Cervical tub.	Feb. 1909	3 mos.	Died May, 1909.
29	J. R.	2	Female	U. S.	Minor	Tub. knee, left	1902	10 yrs.	Cured.
30	B. G.	9	Female	U. S.	Minor	Pott's disease	March 1908	3 yrs.	Died March, 1911.
31	W. B.	12½	Male	U. S.	Minor	Tub. hip	May 1909	2½ yrs.	Died.
32	M. C.	14	Female	U. S.	Minor	Tub. hip	May 26, 1907	3½ yrs.	Died.
33	J. P.	6	Female	U. S.	Minor	Pott's disease	June 1909	7 yrs.	Still wearing jacket.
34	P. D.	3	Male	U. S.	Minor	Pott's cervical; tub. ankle	June 1909	9 yrs.	Still wearing jacket and ankle cast.
35	L. B.	3	Female	U. S.	Minor	Upper dorsal, Pott's	July, 1909	3 mos.	Died Oct., 1909.
36	W. M.	18	Male	U. S.	Minor	Tub. knee, right	Aug. 31, 1909	9 yrs.	Cured.
37	K. S.	8	Female	U. S.	Minor	Tub. coxitis, right	Oct. 1909	2 yrs. 7 mos.	Died May, 1911.
38	D. A.	2½	Female	U. S.	Minor	Lumbar, Pott's	April, 1910	4 mos.	Died Aug. 16, 1910.
39	H. M.	15	Male	U. S.	Minor	Pott's disease, knee and wrist	When a small boy	6 yrs.	Died Oct. 29, 1911, at 16 yrs.
40	T. B.	2	Male	U. S.	Minor	Pott's disease; lower dorsal.	Feb. 1909	6 yrs.	Cured.
41	M. P.	3	Male	U. S.	Minor	Hip disease, right	Oct. 21, 1910	6 yrs.	Cured.
42	N. B.	16	Female	U. S.	Minor	Hip disease	When a small child	16 yrs.	Died at 21 yrs., general tub.
43	M. S.	2	Male	U. S.	Minor	Pott's disease, dorsal	1911	7 yrs., in bad shape	Still under treatment.
44	A. S.	..	Female	U. S.	Minor	Tub. coxitis, left		10 yrs.	Cured.
45	F. W.	12	Male	U. S.	Minor	Dbl. coxitis	May 1911	1 yr. 8 mos.	Died Jan. 25, 1913.
46	J. B.	10	Male	U. S.	Minor	Tub. coxitis, right	1911	4 yrs.	Cured.
47	L. D.	9	Female	U. S.	Minor	Sacroiliac	1910	3 yrs.	Cured.
48	J. T.	3	Male	U. S.	Minor	Tub. coxitis, right	1911	4 yrs.	Died.
49	S. M.	3	Male	U. S.	Minor	Pott's disease	Aug. 1, 1911	1 mo.	Died Sept. 2, 1911
50	J. D.	3	Male	U. S.	Minor	Pott's disease	1910	2 yrs.	Died Dec. 1912.

Of those treated with tuberculin, five are still under treatment.

Unfortunately we have no records of the weight of the patients treated without tuberculin, and in only a few of those treated with tuberculin was the weight properly observed. Of these a few seem worthy of notice. We see from Table II that No. 37 gained 10 pounds in a month and two days after tuberculin was begun and has gained 21½ pounds in all.

No. 42 gained 6¼ pounds in three weeks after tuberculin treatment was instituted, although he finally succumbed to advanced tuberculosis and the mixed infection which accompanies it.

No. 43 gained 12½ pounds under treatment. He recovered.

No. 39, a little boy 3½ years old, gained in ten weeks after treatment was begun, 5¾ pounds. He recovered.

No. 45 gained in three months 17¼ pounds, although he died when he had been under treatment six months and one week.

No. 44 gained 5 pounds in five days after treatment was begun.

While in some cases which were not emaciated at the beginning of treatment there was little or no increase of weight, still the six cases quoted seemed to show that tuberculin, even in cases where it finally loses its remedial efficiency, is a powerful tonic, at least, when first administered.

It will be observed that of the fatal cases in Table II, 4 were advanced cases of pulmonary tuberculosis when tuberculin treatment was begun. Of these 3 improved temporarily under this treatment, and 2 of them probably owed several months more of life to tuberculin; although most writers on tuberculin therapy do not advise giving tuberculin, even experimentally, to such patients.

The inferences to be drawn from the figures setting forth the length of treatment and the results of treatment in the two classes are too obvious to require extended comment.

The great interest which inheres in this study will no doubt lead others to follow similar lines of investigation and leads us to promise that as our material and experience increase we shall be glad to pursue this fascinating study as far as we have the time and the ability.

The truth is mighty and will prevail and it is not unreasonable to predict that the misconception and prejudice which have confused the ra-

TABLE II.—FIFTY CONSECUTIVE CASES OF TUBERCULOSIS TREATED WITH TUBERCULIN IN THE HOME FOR CRIPPLED CHILDREN, NEWARK, N. J., THE MOUNTAINSIDE HOSPITAL, MONTCLAIR, N. J., AND IN PRIVATE PRACTICE.

No.	Name.	Age.	Nativity.	Sex.	Occupation.	Diagnosis.	Beginning of Treatment.	End of Treatment.	Remarks and Results.
1	G. M.	10	N. Y.	Female	School	Tub. left knee	Nov. 1915	Aug. 25, 1916	Knee in plaster all summer. X-Ray showed tub. March 21, 1918, perfectly well.
2	W. S. P.	29	N. Y.	Male	Clerk in store	Pulmonary tub.	April 24, 1916	Dec. 8, 1916	March 21, 1918, well after 10 mos. in sanatorium.
3	E. S.	9	N. Y.	Male	..	Tub. coxitis, left	Aug. 1915	.....	Treatment with plaster Dec. 13, 1909. Wore plaster spica 5 yrs. and 8 mos. Aug. 1915, Buck's extension, X-ray. Considerable contraction. Has improved. Walks about still wearing cast.
4	M. C.	4	.....	Female	.....	Tub. ankle	Jan. 14, 1916	.....	Perfectly well March 1918. No reactions.
5	J. H. C.	62	U. S.	Male	Druggist	Tub. of hilus	June 3, 1916	Nov. 20, 1916	Cured.
6	F. C.	9	U. S.	Male	.. ....	Cervical Pott's	Dec. 28, 1915	Sept. 28, 1916	Under treatment since 1½ yrs. old. Reported perfectly well.
7	A. W. B.	9¾	U. S.	Female	.	Pott's disease	Jan. 1915	Feb. 9, 1917	Patient fell in 1911, March. Diagnosis made Oct. 11. Legs paralyzed for 3 yrs. Wore brace and corset. Tuberculin started. Still considerably paralyzed. Spinal operation advised.
8	Mrs. E. K.	.. ..	U. S.	Female	.	Pulmonary tub.; sputum pos.	April 1917		Died after 4 mos. treatment.
9	B. K. (Daughter)	3	U. S.	Female	.	Pott's disease	March 2, 1917	.. ..	Not doing well; may require an operation.
10	H. B.	.....	.....	Male	.....	Pleuritic tub.	Oct. 17, 1916	May 11, 1917	Well; now in New York military service.
11	C. K.	5½	.....	Male	.. ..	Coxitis, l.	Nov. 26, 1915	Jan. 2, 1917	Died of tuberculous meningitis while under tuberculin treatment.
12	D. M.	7⅝	.....	Male	..	Coxitis, l.	Dec. 17, 1915	April 17, 1917	Perfectly well.
13	L. L.	..	U. S.	Male	Reßner	Lumbosacral	Nov. 27, 1916	Aug. 13, 1917	Perfectly well after 15 yrs. of illness. Tuberculin treatment lasted less than 9 mos.
14	J. B.	....	.....	Male	.....	.....	Nov. 28, 1916	Aug. 20, 1917	Discontinued treatment. General condition much improved.
15	K. C.	29	U. S.	Female	Housemaid	Tub. coxitis	Nov. 24, 1915	Feb. 13, 1917	She has suffered from hip disease since 6 yrs. old (23 yrs.). Has had several abscesses. For past 8 yrs. has been under Dr. Twinch's care. Is still wearing spica. Her general condition good. She is able to do housework.
16	I. B.	23	U. S.	Male	Moulder	Coxitis	Nov. 2, 1915	Takes nuclein with tuberculin. Less reaction.	10 yrs. ago first pain in back. Albee graft May 13. Last jacket removed Sept. 15. Under tuberculin treatment 2½ yrs.
17	V. K.	32	.....	Male	Machinist	Pott's disease	Oct. 23, 1915	April 13, 1917	No doubt of efficacy of tuberculin. Feels perfectly well. Jackets 6 or 7 yrs.
18	E. W.	28	U. S.	Male	Draughtsman	Pott's disease	April 8, 1916	Nov. 19, 1917	Died Feb. 18. Had had an Albee operation. Had nearly died in operation.
19	W. P.	15	U. S.	Male	School	Hip disease	Nov. 30, 1915	Dec. 29, 1916	Perfectly well, so far as known. Went through tuberculin treatment with only one reaction. Had had hip disease 7 yrs. Buck's extension, etc.
20	V. R. S.	10	U. S.	Male	School	Hip disease; knee	Oct. 16, 1915	April 14, 1917	When tuberculin was begun patient had been sick 2½ yrs. 2 mos. after treatment was begun, all abscesses healed and patient immensely improved. March 21, 1918, now perfectly well. All appliances and all treatment discontinued.
21	H. B.	14	U. S.	Female	.....	Tub. both knees, one ankle	March 30, 1916	Feb. 15, 1917	6 yrs. of age both knees swollen and painful. Had no treatment until 8 yrs. of age. Two operations to straighten knees by other physicians. Tub. treatment begun March 3, 1916. Nov. 19, 1917, reported well.
22	F. F.	3	U. S.	Female	.	Pott's disease	Oct. 14, 1915	April 16, 1917	Fell from bed at 14 mos. Lump developed on back. Treated intermittently. Tuberculin treatment begun. Is to all appearances well. Small discharge from sinus. Wears jacket still.
23	W. K.	5	U. S.	Male	.	Tub. coxitis	March 9, 1916	Dec. 10, 1917	Treated by private physicians, also at hospital. Tuberculin treatment begun by Dr. Twinch March 9, 1916. Patient well, but wears brace.
24	T. T.	11	U. S.	Male	.	Tub. coxitis, left hip	March 9, 1916	March 12, 1916	Treated in hospital for 6 weeks. Placed in plaster cast. Finished tuberculin treatment Reported well Sept. 6, 1917. No reaction.
25	F. T.	9	U. S.	Female	.....	Tub. knee	Oct. 14, 1915	Nov. 5, 1917	Received treatment at hospital. Abscess on one knee. Tuberculin treatment started Oct. 14, 1915. Now practically well. Still wearing cast.
26	A. R.	9	U. S.	....	.	Tub. coxitis, left hip	Feb. 24, 1916	March 26, 1917	Fell at 5 yrs. and injured one hip. Treated by osteopath. No improvement. Sent to hospital, condition improved. Buck's extension adjusted. Tuberculin treatment started Feb. 24, 1916. Finished March 26, 1917. Patient is now well. Wears no cast.
27	A. M.	6	U. S.	Male	.....	Tub. knee, left	April 27, 1916	May 10, 1917	Wore a cast for 3 mos. in hospital. Went through tuberculin treatment and was reported well March 3, 1918. Wearing cast.
28	M. J.	....	.....	Female	.. ..	Tub. right knee joint	Oct. 14, 1915	July 3, 1916	Admitted to hospital Feb. 23, 1909. Home about 6 mos. before tuberculin treatment was begun. Treatment concluded. Patient perfectly well.
29	P. Y.	....	U. S.	Male	.....	Double tub. hip	July 17, 1916	March 12, 1917	Tuberculin treatment concluded. Patient reported well. Wears no brace. X-ray taken.
30	S. C.	9	N. Y.	Male	..	Tub. right knee and ankle	March 16, 1916	July 30, 1917	Patient suffered with painful knee and ankle since 2½ yrs. old. Treated by private physicians and in hospitals. Foot amputated. Tuberculin treatment started March 16, 1916. Bismuth injections given. Much improved. Treatment ended. Still two discharging abscesses.
31	L. V.	5	U. S.	Female	.....	Pott's disease	Oct. 25, 1915	June 11, 1917	Stopped walking at age of 3 yrs. Also lost speech and hearing. Spinal operation performed in hospital in N. Y., 1914. Tuberculin treatment begun Oct. 25, 1916. Well, so far as known.

TABLE II.—*Continued*

No.	Name.	Age.	Nativity.	Sex.	Occupation.	Diagnosis.	Beginning of Treatment.	End.	Remarks and Results.
32	E. T.	7	U. S.	Female		Cervical Pott's	March 2, 1916	Nov. 27, 1916	Patient lost use of both legs at age of one year. Treated in different hospitals. Under Dr. Twinch's care bed treatment given and tuberculin treatment commenced March 2, 1916.
33	J. P.	3	U. S.	Male		Tub. ankle, glands of neck and in groin.	June 29, 1916	May 28, 1917	Developed tuberculosis of ankle at 9 mos. Two years later glands in neck and groin affected. When admitted to Home, patient had seven sinuses on ankle discharging. Also discharging glands left groin. Tuberculin treatment and bismuth injections started June 29, 1916. Neck glands returned to normal. All sinuses on ankle healed Nov., 1916.
34	M. H.	13	. . .	Female		Pott's disease	April 17, 1916	Jan. 21, 1918	Albee done 5 or 6 yrs. ago. Tuberculin treatment started April, 1916. Patient reported well. Still wearing brace.
35	C. S.	. .	. . . .	Female		. . . .	April 6, 1916	April 16, 1917	Ailing for 6 yrs. Treated by wearing spica Dec. 24, 1913. Treatment mechanical (mainly) until tuberculin was begun. Patient doing well. Wearing no cast now.
36	E. McG.	. . .	. . . .	Male		Tub. ankle	May 1, 1916	Dec. 28, 1917	Child can walk. Has cast on ankle. Has not reported in 5 or 6 weeks. Much improved by tuberculin treatment.
37	W. J. G.	44	U. S.	Male	Teacher	Pul. tub. 1st stage, sputum pos.	June 4, 1917	May, 1918	Height, 6'2¼". Weight June 16, 146⅝ lbs. April 18, 168. Cured. Chest expansion, 4 ins. No physical signs. No bacilli. Sputum examined several times.
38	T. C.	26	Swede	Female	Domestic	Tub. left thich and left sacroiliac joint	April 9, 1917	May, 1918	127 lbs. Cured. Has been actively at work for several months. Had been treated without efficacy, rest, corset, etc., for several months before April, 1917.
39	P. P.	3½	U. S	Male	None	Tub. of post-thoracic gland. No physical signs.	March 9, 1917	May, 1918	Height 3'2" March 9, 1917. 3'4½" May 25, 1917. Weight 30¾ lbs. March 9, 1917. Well. Grew 2¼ ins. and gained 5¾ lbs. in 2 mos. 25 days after tuberculin was begun.
40	T. P.	28	U. S.	Female	Auditor	Latent tub.; tonsillitis, enlarged cervical glands.	March 9, 1917	May, 1918	Height 5'6¼". Weight, 118 lbs. Well.
41	C. V.	47	U. S.	Female	Housewife	Latent tub. No signs	June 27, 1916	Sept. 18, 1917	Weight 118 lbs. April 5, 1917. Weight 122½ lbs. January 5, 1918. Well.
42	D. M.	53	U. S.	Male	Painter	Gen. pul. tub. 2nd stage. Before last illness weighed 178 lbs.; sputum always pos.	Oct. 30, 1916	Jan. 11, 1918	Weight 136¼ lbs. Gained 6¼ lbs. in 3 wks. but lost it. Died. Had been grossly intemperate and smoked 60 cigarettes a day. At first improved under tuberculin. This, however, had only a temporary effect. Condition was much improved for a considerable time by vaccines.
43	I. R.	40	U. S.	Female	Stenographer	No pos. signs, sputum negative; Pott's disease; tuberculosis.	March 11, 1916	Jan. 5, 1917	Weight 125½ lbs. Aug. 22, 1917. Well. History of tuberculosis for 26 yrs. Wore a brace 6 mos. Had three tours in sanatoria, etc.
44	W. A.	15	U. S.	Male	Clerk	Tuberculous peritonitis	Aug. 24, 1916	Nov. 3, 1917	Lost 20 lbs. in 6 wks. Under tuberculin gained 5 lbs. in 3 days. Perfectly well. Weighs now 146½ lbs.
45	H. Y.	27	Austria	Male	Farm laborer	Sputum pos. Wassermann neg. Pul. tub. both lungs	Aug. 15, 1916	Feb. 24, 1917	Patient died. Had abd. fistulae. Operated upon for tuberculous peritonitis in Feb. 1916. Wound did not heal. Under tuberculin weight increased from 103¼ to 120½ lbs. Had iritic adhesions right eye, diagnosed as syphilitic. Antispecific treatment unavailing. Had laryngeal and general miliary tuberculosis as final stage. Had taken vaccines without much effect.
46	R. V.	....	U. S.	Female	Student	Tuberculosis retroperitoneal glands. No positive physical signs.	May 3, 1916	June 2, 1917	Perfectly well.
47	M. C.	17	U. S.	Female	Housework	Pul. tub. following empyema, for which, paracentesis was done.	April 26, 1916	Nov. 16, 1916	Well July, 1918. Very sensitive to tuberculin.
48	J. S.	30	Italy	Male	Artisan	Pott's disease	Feb. 16, 1917	June 24, 1917	Well and weeking every day. Had had an Albee operation.
49	L. A.	8½	U. S.	Male	School	Tuberculous peritonitis	Aug. 9, 1917	Sept. 4, 1917	Entirely well apparently. Was sent South. Plays with spirit. Could not play at all when treatment began. Abdomen soft and of natural size instead of hard and protruberant.
50	R. D.	39	U. S.	Male	Retired	Pul. tubere. —	Dec. 11, 1917	Dec. 26, 1917	This patient had suffered from pulmonary tuberculosis for 10 yrs. Two yrs. in Adirondacks gained 27 lbs. Much better. Several months ago began to lose ground. Desired tuberculin as a *dernier resort*. After a few injections had a reaction and in two or three days afterwards, a fatal hemorrhage.

Our thanks are due to Miss Milair, the superintendent of the Crippled Children's Home, and her assistants, for valuable aid in compiling these tables, and in following up cases to determine the results.

tionale of tuberculin treatment in the minds of many of our professional brethren will be cleared away by a sufficient number of accurate and carefully recorded clinical histories of patients treated by this method.

American Origin of Syphilis.—Montesano refers to statements by Hesnaut that syphilis already existed in Italy in 1492, and by Roca that unpublished documents in Spain make the American origin theory *sub judice*.—*Il Policlinico.*

A WORD ABOUT THE DRUG TREATMENT OF NERVOUS EXHAUSTION

BY BEVERLEY ROBINSON, M.D.,

NEW YORK.

THE question of the best medication of this condition without much regard to its precise cause, is frequently a very difficult problem for the practitioner.

The ordinary tonics of iron, quinine, strychnine,

mulates the following conclusions: (1) Strictly speaking, there is no evidence for an absolute physiological minimum of fat in the diet, provided that the calorie value of the whole diet is sufficient to meet the total energy needs of the body, and to provide a surplus for fat formation in the body. (2) Practically a certain amount of fat is necessary in the diet, the alimentary canal of man having been developed to deal with a diet in which a considerable proportion of the energy is presented in the shape of fat. (3) In the diet of the infant at the breast fat gives over 50 per cent. of the total energy. (4) After weaning and for the next few years of life, up to six years of age, the main source of fat in the diet should be milk and butter. This fat should probably represent about 35 per cent. of the total energy of the diet. (5) From 6 years onwards the fat of the diet should represent from 20 per cent. to 25 per cent. of the total energy, provided that there are no excessive demands on the energy output of the body. This proportion can be increased considerably—for example, up to 35 per cent—without any deleterious effects. The proportion of 20 per cent. may be regarded as a minimum. Any increase upon this would be determined by the supplies available, it being borne in mind that fat is not only the most concentrated but also an expensive form of energy to the body. Animal fat is probably at least three times as expensive a source of energy as carbohydrates derived from vegetable sources. (6) As soon as the demands of the body become excessive—for example, 3,600 calories to 5,000 calories or more—it is unprofitable to attempt to meet the increased demands by means of carbohydrates alone, the limiting factor being probably the size and digestive powers of the alimentary tract. The proportion of fat in the diet in these circumstances should, therefore, be increased up to 30 or 40 per cent. It is a question requiring further consideration whether the energy requirements of a rapidly growing, active lad should be met in the same way by an increased proportion of fat in the diet.

Berliner klinische Wochenschrift.

June 24, 1918.

The Venous Pulse.—A. Weber publishes a number of charts showing the curves of venous pulse obtained by photographic projections simultaneously with the tracings of the heart sounds. As a result of his present findings and those of his former phlebographic studies, Weber maintains the following points of view: (1) The venous pulse is the mark of volumetric variations of the veins of the neck and has nothing to do with changes in the pressure. (2) The presystolic wave, due to the auricular systole, is well known and perfectly described, and no change need be made in the notions which we already know in its respect. (3) The systolic wave is attributed by Weber to perturbation resulting from the proximity of the carotid, an opinion upheld by Mackenzie. This argument, which is very insufficient, will certainly not convince those specialists who maintain the contrary point of view. (4) The systolic aspiration of the blood in the jugular veins is due to two factors, namely, the thoracic vacuum resulting from the expulsion of the cardio-aortic blood mass, and the aspiration caused by the lowering of the auriculo-ventricular septum. In animals with the thorax opened, Weber found that the aspiration was less than before it was opened. (5) The writer looks upon the early cessation of systolic depression as a sign of beginning cardiac insufficiency. (6) The diastolic wave is attributed by Weber to a mechanism which is far from clear. It is strange that the writer does not bring forward the good arguments that he has brought forward in order to explain systolic aspiration. The changes in the diastolic wave and the positive venous pulse (Mackenzie's ventricular type) are subjected to criticism by Weber.

Glycemia in Diabetes Mellitus.—N. Roth is of the opinion that renal permeability to sugar is subject to notable individual variations. The glycemia increased during the first few days of "flour régime," only to diminish afterwards, coming to near the normal. Therefore, this glycemia offers no parallelism with glycosuria.

Münchener medizinische Wochenschrift.

June 18, 1918.

Scorbutus. Quinine Anaphylaxia, and Malaria.—K. Hannemann points out that the scorbutic states met with in malarial regions should, in some cases, be attributed to quinine treatment. The reality of quinine anaphylaxis is made evident by the possibility of a passive anaphylaxis, by very small doses susceptible of giving rise to typical shock. Quinine anaphylaxis has nothing whatsoever to do with medicamentous idiosyncrasy.

Continued Elimination of Bacilli Following Typhoid Affections.—Reibmayr remarks that carriers of the paratyphoid A and B bacilli react in the same way as typhoid carriers. The passage of the bacilli from the gall-bladder into the intestine is usually periodical. On the other hand, rectal elimination is generally continuous and in large quantity. The paratyphoid B organism is rarely eliminated by the kidney. Some subjects carry the organism in the throat. Most of the carriers have had at some time in their history a typhoid fever or some septic affection. The continued elimination of bacilli tends to become permanent for months or years, and about 25 per cent. of the subjects recover spontaneously during the first six months following their recovery. Cholecystitis is to be regarded rather as a result of microbic elimination than the cause. The entire number of carriers should be estimated at from 3 to 5 per cent. of those who have suffered from the disease.

A Simple Procedure for Preventing Swallowing the Tongue in Unconscious Persons.—A. Loewy and G. Meyer, by experiments on the cadaver and radiography have shown that lateral rotation of the head to the right or left appreciably increases the distance of the base of the tongue from the corresponding cervical vertebræ. The phenomenon is due to receding of the hyoid bone. The writers do not bring forward any clinical experience to prove the value of their theory and leave to others the trial of their experimental work in the field of practice.

Wiener medizinische Wochenschrift.

June 15, 1918.

The Neuroses of War and the Public.—A. Schüller remarks that the progress of medicine made during the present war has given splendid results, which have been greatly appreciated by the public in general. He goes on to say, however, that there is one domain against which the laity has assumed a very hostile attitude, namely, that of expert examinations and treatment of the neuroses of war. Schüller attributes this attitude to an insufficient comprehension, resulting from an absolute want of education on this subject of the masses. After a very summary exposé of the procedures of the modern neurological school, he finally ends by putting forward the following desiderata: (1) a more systematic and extended medical construction by lectures and clinical instruction at neurological services; (2) the control of excessive use of tobacco, a corrollary to the measures now in vogue for the control of alcoholism. By these measures, Schüller feels certain that a notable reduction of visceral neuroses (heart, stomach, etc.) may be obtained.

Sensibility to Magnetic Currents.—M. Kahane publishes some results of his researches on the perception of magnetic areas, the term magnetism being employed entirely from the viewpoint of physics. Just as certain organisms are particularly sensitive to the precursory phenomena of atmospheric changes, so certain individuals are more sensitive to magnetic currents. This fact is made evident by various forms of paresthesia, namely, pruritus, heat, etc. The withdrawal of the magnetic pole decreases the perception. This attains its maximum intensity in the field of the north pole of the needle of a compass. The portions of the body the most sensitive to magnetic influence are the fingerpulps, while the joints of the limbs are especially sensitive; the abdomen is more sensitive than the thorax, the head more than the trunk, to magnetic influence. The effects and therapeutic indications resulting from magnetic influence are now being studied.

Correspondenz-Blatt für Schweizer Aerzte.

April 6, 1918.

Presence of a Bacillus of Gas Phlegmon on a Military Capote.—Galli-Valerio has made some researches into the germ content of the Swiss military overcoats which are dyed blue. Among many anaerobic saprophytes he found the staphylococcus pyogenes and two virulent anaerobes, viz., the *B. putrificus* or one resembling it, and one of the *perfringens* group. The author merely took bits of the cloth and sowed them in ordinary bouillon. The anaerobes could be grown in an aerobic medium along with aerobes because the latter used up all the oxygen. Controls sown only with anaerobes failed to develop cultures. One culture which contained the perfringens in abundance was inoculated into a guinea pig which developed a crepitating swelling. The latter extended rapidly and the animal succumbed in 48 hours. The autopsy showed a high degree of gas infiltration in the subcutaneous tissue. The muscles were deep red and infiltrated with fluid. A germ was found in abundance in the exudate and in the muscle which at first was not identified. It clearly had never been identified among the numerous organisms which occur in gas phlegmon. Apparently it was of the same race as the *B. chauveaui, B. welchii, B. perfringens, B. emphysematodes,* etc., etc.—perhaps the form described by von Hibler. Simonds reports having found the latter on the uniforms of the Belgian soldiers. Struck by the frequency with which shreds of cloth were found in gas gangrene wounds, he studied the uniforms and recovered a perfringens in 90 per cent. of the trench fighters. It was always associated with other germs, anaerobic and aerobic, which augmented its virulence ten thousand fold, as shown by inoculations made with pure and mixed cultures. Von Hibler showed that his anaerobe activates the tetanus bacillus.

On the Putrid Phlegmon of the War.—Nigst refers to the gas phlegmon. The latter seems to have been known to Pirogoff who recognized it as new to his day and strove to isolate it from other forms of wound infection—an edematous tumor which became gangrenous. It is under emphysema that we should look for old descriptions and for lesions in which air cannot come from the lungs or other cavities of the body. Old authors describe gas tumors of the breast, and in association with compound fractures. In such cases the gas could originate only from rapid decomposition of tissue as a result of gangrene. In 1881 Rosenbach described a bacillus in two fatal cases of progressive gangrenous emphysema. In 1882 gas phlegmons developed in typhoid patients after the injection of tincture of musk and there was recognized in the organisms found in the lesion Koch's "bacillus of malignant edema." Chauveau believed that the septic vibrion of Pasteur was the cause of these lesions. In 1886 gas gangrene in man was identified with the Rauschbrand of sheep, the germ being distinct from the bacillus of malignant edema. A small literature on gas abscess sprung up but very different conditions were comprised, as puerperal sepsis with gas phlegmon, gas tumor of the breast, etc. A new bacillus, Fraenkel's, was described, which was neither the germ of malignant edema nor of Rauschbrand. The subject now became more and more complicated as new lesions and flora were described. The b. coli was classed among the organisms which might cause gas gangrene. It seemed reasonable to believe that some one organism might play the leading role, its virulence being modified by symbiosis. The bacillus of Fraenkel or Welch was by some made the prime mover. It was not denied that the bacillus of malignant edema was able to cause these lesions in certain cases but only in mixed culture. To complicate matters, aerobic germs were found to be able to cause gas lesions. Again, gas abscesses or emphysematous infection of wounds was seen at times to pursue a benign course. It was noted that certain gas formers attacked the tissues which were rich in glycogen—muscle and liver. Generally speaking, long before the breaking out of the war there was an immense accumulation of facts concerning these gas phlegmons and gangrenous emphysema, which were in a most chaotic state. The author promises that in another article in the near future he will analyze the march of knowledge since 1914.

Correspondenz-Blatt für Schweizer Aertze

April 27, 1917.

Sick Insurance, Accident Insurance and Surgery.—Professor de Quervain writes on these subjects in view of the fact that with the present year insurance will unfold its full activity. Certain laws are now in full force, thirty-seven years having elapsed since these benefits were tentatively introduced. The author naturally considers the reaction of health and accident insurance on surgery. Health insurance has a leveling influence on the latter. The element of personal interest is abolished. A case of small surgical interest may demand an undue amount of time and pains, and thus the time and vitality of the medical man may seem wasted to him and his colleagues. Lodge practice methods are doubtless demoralizing. The practitioner does not wish to degenerate into a bureaucrat with activities chiefly clerical. He transcribes many symptoms, but not with the aim of making a diagnosis, for that will not be required beyond certain limits. He may record headache, but without any connotation of nephritis or brain tumor. A sore throat in a man who smokes and drinks goes down as chronic pharyngeal catarrh. Intercostal neuralgia imposes no obligation to look for vertebral disease. Cancer of the stomach has been masked under catarrh of the stomach or neurasthenia; cancer of the rectum by catarrh of the colon. The lodge practice custom of calling urinary disturbances catarrh of the bladder has prevented the early diagnosis of many a case of renal tuberculosis. Rheumatism, neuritis—especially sciatica—are pitfalls of the same character. The majority of painful symptoms in the lower extremities are due to traumatism. In accident insurance the government is now responsible to the worker—there is no longer a three-cornered relationship between employer, employee and insurance company. In other words, the State is the insurance company. The injured man receives 80 per cent. of his lost wages and 70 per cent. in maximum cases, of his annual earning capacity in place of the full amounts allowed under the old regime. In accident practice one must be a diagnostician, and not only of material but psychical alteration. One must in fact be a skilled neurologist to pass on the sequelæ of fracture of the skull; one must be able to make a full neurological and psychological examination in order to arrive at a correct diagnosis of the mischief done. Conditions thus differ radically from those of health insurance, where the symptom is that which causes the invalidism. In these accidents the physician has the aid of all kinds of apparatus of precision within certain limits. Measurements of all kinds and photography are used in routine. The accident surgeon must know the effects of damage to each vertebra. Rare types of fracture and dislocation will be encountered. It will be necessary to know the manifoldness of traumatisms of the elbow joint and wrist. Distortions, diastases, fracture-dislocations, subluxations, must be borne in mind. There are also traumatic forms of arthritis. The accident practitioner must also be versed in hernias. It has already been stated that a traumatic factor is at the basis of most of the affections of the lower extremities. In the knee-joint injuries to the meniscus and detachment of the cartilaginous surfaces are responsible for much disability. Petty injuries play the same role in connection with the ankle joint and metatarsus. Fracture of the calcaneus is often overlooked. The medical man has the option of treating a case with the means at his disposal or sending it to the hospital, and it is often a delicate matter to decide. The surgery of an insured man is not the same as surgery in general, for psychological differences enter into the subject. An uninsured man has every reason to get well, but an insured one may prefer the life of a pensioner to a laborer. In ordinary practice the surgeon and patient are in agreement on essentials, and this rapprochement may cause the accident surgeon to see things through the patient's eyes.

Revue médicale de la Suisse romande

April, 1918.

Traumatic Rupture of the Aortic Valves.—Reinbold states that this lesion may follow blunt violence to the

chest, a buffer accident, a long fall on the latter, and even a violent muscular effort. In other words, any of the common forms of violence may produce this accident. In 1902 de Quervain wrote up this subject and decided that the left heart was practically the one involved. In 1910 Ranelletti was able to collect 79 cases of valve rupture, and found that the aortic valves were involved in 49 and the mitral in 27. There were but 3 cases in which the right heart was involved. In mitral lesions the valves proper do not suffer as a rule, but in the aortic valves the latter must suffer *per se* as there are no pillars or chordæ tendineæ to absorb the violence. One or more valves may be torn, and the frequent association of endocardial vegetations is difficult to interpret. The author reports a personal case as follows: A man of 43 while descending a flight of stone steps slipped with both feet and tried hard to save himself. As he grasped the rail with both hands he felt a severe pain within his chest. After a little he was able to walk home, with a sense of weight in the left side. He could hear a loud murmur, and on entering his house his children heard it. The victim spent several days in bed, and was comfortable, although with sense of fatigue. After 3 weeks he resumed active life in a small way. Examined by the author 6 weeks after injury, he was thin and very pale. The cardiac impulse was low, percussion area increased to the left. There was a peculiar systolic impulse and a pronounced fremitus at the second sound, each quite distinct. An intense musical diastolic murmur was heard referable to the aortic region. This murmur was audible 60 cm. from the patient. The sphygmogram showed aortic insufficiency. Patient was otherwise quite sound. The enlargement of the heart as seen on the screen was not marked. A search was begun into the patient's antecedents with the view of discovering a predisposing cause, but the health seemed to have been perfect. He had never had rheumatism. His occupation—masseur—did not suggest any particular ailment. He was given to mountain climbing and skiing in season, and went about on a bicycle to his clients. He had been pronounced sound on several occasions, once not long before his accident. He used no tobacco and was abstemious with alcohol. Blood pressure 140, Wassermann negative, arteries soft. The force necessary to rupture a normal aortic valve has been computed as involving a certain range of blood pressure, perhaps as high as 480 mm. mercury. To rupture a chorda tendinea should require double this pressure. However, the violence was not necessarily transmitted along the bloodstream. It may have been due in part to sudden increase of intrathoracic pressure. According to Marey, if this were equal to 120-140 mm. of mercury, the degree of compression of the soft parts plus a given increase of blood pressure might be strong enough to cause the rupture. This mechanism is suggested in radioscopic work, in which sudden forced inspiration has been seen to broaden the shadow of the heart and aortic arch, as if the organs had dilated, in response to compression of the thoracic aorta. This phenomenon is seen only in undeveloped subjects, and it is conceivable that in a subject 43 years old the loss of elasticity could cause rupture in place of dilatation at the aortic orifice. As the patient carried insurance the injury had to be expertised and the proper treatment instituted.

Svenska Läkaresällskapets Handlingar.

March 30, 1918.

Fatal Injuries of the Abdominal Viscera in the Newborn.—Hedrén discusses injuries of the liver, spleen, pancreas, kidneys, intestines, and adrenals in connection with both personal finds and those in literature. The anatomy, pathogeny, and forensic aspects are alike considered. The author has seen in a personal case a parenchymatous rupture of the liver as a birth traumatism, and after spontaneous delivery, despite the current belief to the contrary. The cause of death in injuries of the pancreas and the rationale of rupture of the intestine are discussed at length. The author has seen eight cases of injury of the adrenals of the newborn, three of which followed spontaneous delivery. The fact is fully established that these visceral injuries may result purely from natural causes, although naturally more prone to occur in artificial deliveries.

Intracranial Hemorrhage of the Newborn as a Result of Birth Traumatisms.—The same author passes to a consideration of this subject, which is of great forensic importance. In 700 autopsies on newborn, unmacerated fetuses, this type of injury was found in 65, in 50 of whom labor was spontaneous. The forensic importance resulted from the fact that these births were chiefly secret. As a rule there are no other lesions either on the fetus or mother. In several the labors were rapid and easy. In 42 cases the hemorrhage was meningeal, in 5 cerebral, and in 3 both combined. Of the meningeal hemorrhages the lesion was above the tentorium in 32. Of the 50 spontaneous deliveries the child was fully developed in 23. But 3 children were actually stillborn, and the duration of the survivals was up to ten days. In most of the spontaneous cases phenomena of suffocation were present. The mechanism comprises the following factors: intracranial compression and overriding of the cranial bones and intrauterine disturbances affecting respiration and circulation, especially intrauterine asphyxia. The author does not see in congenital syphilis a notable factor in these cases, and but three cases are mentioned as surely syphilitic. Eclampsia of the mother was a factor in several cases. There are 10 recorded cases in Sweden since 1914 in which these hemorrhages were expertised in court. Of great significance is the relationship between trauma and asphyxia. Naturally the two can occur quite independently in the same subject. In case of great mechanical injury the asphyxia could be secondary to the latter. But these hemorrhages also occur in easy, rapid labors, although there is an indisposition to take the mother's unaided word in such cases. The viability of a child with one of these hemorrhages is a moot point. It is of course possible to produce a hemorrhage of violence in a sound live-born child.

Where is the Gravity Line of Man in the Upright Postures?—Hesser has established the situation of the plumbline by means of the law of equilibrium of a one-arm lever. A board is made to serve this purpose, balanced on two conical steel points. Beneath one end of the board is placed a decimal balance, in such manner that it comes in contact with a steel wedge fastened on the under side of the board. The experiment person stands on the board between the wedge and the points and the weight is read off on the scale. The distance between wedge and point and the subject's weight now being known by means of a vertical plane parallel with the steel points, the exact position is determined of the gravity line of the subject. This stands *in front* of the line of junction between the central points of the talocrural articulation. The distance between this line and the gravity line varies with changes of attitude in the body. The limits are 10 mm. and 45 mm., the individual variation being 1.5 to 2.0 cm. The gravity line runs from 1 to 1.5 cm. in front of the axis of the knee, and is very close to the axis of the hip.

Hospital Trains.—According to the Editor of *La Presse Médicale*, April 22, the German military congress met at Brussels last February and one of its features was the demonstration of a rolling hospital—a hospital train of 250 beds, vestibuled and with side entrances, provided with heat, electric light, water closets, operative car, sections for dressings, sterilization and radiography.

Criminality in Germany.—Criminality augments without cessation. To quote Socialist Mehring before the Reichstag, lying, theft, and swindling are not offset by military glories. The Bishop of Metz in his Lenten pastoral speaks of immorality, theft, and unbridled license. In Berlin in the fall of 1916 there was an average of 300 daily complaints of theft. The insecurity on the public thoroughfares is great. There are 3,000 criminals whose terms at hard labor have expired who are at large, banned alike from the public and private employ. In the Düsseldorf district in the first half of 1917 5,000 adolescents were convicted of crime, and various buildings have had to be converted into workhouses and places of detention for these persons.—*La Presse Médicale.*

Book Reviews.

THE TECHNIQUE OF PSYCHOANALYSIS. By SMITH ELY JELLIFFE, M.D. Nervous and Mental Disease Monograph Series, No. 26. Price, $1.50 net. New York and Washington: Nervous and Mental Disease Publishing Company, 1918.

THIS book answers the question so often asked by beginners in and opponents of psychoanalysis: "Where can we find an exposition of the technique of psychoanalysis?" Jelliffe has made a sincere attempt to present the principles of this practice, omitting entirely obscure theorizing and involved psychological discussion. His discussion of what patients not to analyze would obviate much criticism of the method generally made. All through the book he has stressed the individual case, giving a wealth of illustrations from his own and that of other analysts, but always emphasizing the fact that generalities are dangerous. No matter how much or how little of this book the general practitioner or the neurologist accepts, he cannot help but find much useful advice which will aid him in his dealing with neurotics.

MEDICAL SERVICE AT THE FRONT. By Lieut.-Col. JOHN MCCOMBE, C.A.M.C., and Capt. A. F. MENZIES, M.C., C.A.M.C. Illustrated. Price, $1.25. Philadelphia and New York: Lea & Febiger, 1918.

THIS little pocket volume with flexible covers which contains in the neighborhood of 30,000 words is the product of two Canadian surgeons, although the conditions described obtain everywhere on the British front. The ten chapters are devoted respectively to the front line division, the regimental medical officer, field ambulance on peace and war footings, selection of field ambulance positions, assistant director of medical services, the corps (three divisions), medical arrangemets for cavalry and casualty clearing station. Such a volume would appear to be almost a necessity for the United States medical body, although there is not the slightest intimation to that effect, unless in the selection of an American medical publishing house.

RECLAIMING THE MAIMED. A Handbook of Physical Therapy. By R. TAIT MCKENZIE, Major R.A.M.C., Professor of Physical Therapy, University of Pennsylvania. Price, $2. New York: The Macmillan Co., 1918.

THIS book comprises ten chapters devoted to the following subjects: The types of men who can be helped, medical electricity (two chapters), radiation therapy, hydrotherapy, massage, re-education, gymnastics and athletics, occupation therapy and cosmetics. The materials for the book were obtained from extensive experience among British wounded in various convalescent and orthopedic hospitals, including a number of Canadian institutions. There are 115 illustrations. The volume appears one year later than the monograph by Fox on the same subject and is much more condensed and of pocket size. Another book, by McDill, on the same subject, is an account of German practice.

MAN AND WOMAN. A Study of Human Secondary Sexual Characters. By HAVELOCK ELLIS. Fifth Edition, Revised and Enlarged. Illustrated. London: The Walter Scott Publishing Co., Ltd.; New York: Charles Scribner's Sons, 1917.

A COMPARISON of the fifth edition of this well known work with its immediate predecessor shows that it has undergone a thorough revision. Many passages have been omitted and much new material has been added to almost every chapter; but, fortunately, the book has only been enlarged by about eighty pages. In its general plan the work remains as before. The author considers the secondary and tertiary sexual characteristics and investigates the question how far these characteristic differences are artificial, how far they are the result of tradition and environment, and how far they are really rooted in the male and female organisms. Those who have followed the trend of modern work on the endocrine glands will not be surprised to learn that, according to the most advanced views, a woman is a woman because of her internal secretions; and a man, too, is a man on account of his internal secretions. The ancient idea that a woman is a woman because of her uterus, and the later view that it is because of her ovaries, are both considered inadequate. Sexuality, the author reminds us, is a far more fundamental and ineradicable characteristic of man and woman than many have hitherto consented to believe. The work is a mine of information on the various secondary sexual differences, and the author presents the subject from the viewpoints of both psychology and authropology. A glance through the index of authors will show the wide field that has been gleaned in the preparation of the volume. The author has done well to bring up to date what has long been (for the general reader, at least) the best book on the subject. The present work is also the most generally useful of the author's numerous publications.

SYPHILIS AND THE PUBLIC HEALTH. By EDWARD B. VEDDER, A.M., M.D., Lieutenant-Colonel Medical Corps, United States Army. Published by Permission of the Surgeon-General United States Army. Price, $2.25. Philadelphia and New York: Lea & Febiger, 1918.

THIS book is of especial value because of its statistics. From cover to cover it abounds in facts, and to those who are forced by circumstances to seek out facts and incidentally wish to avoid dogma, speculation and hearsay, the volume will prove a rare boon. To say more would be superfluous, as far as the merit of the author goes. The facts cover the prevalence of syphilis in geographical areas; racial, age, sex, and other incidence; methods of transmission (incorporating all the facts accumulated by Bulalez and his successors on non-veneral syphilis); statistics of prostitution; results of prophylaxis in armies and civil life; legislation bearing on syphilis; the facts of serodiagnosis and spirochete research, etc., etc.

LECITHIN AND ALLIED SUBSTANCES. THE LIPINS. By HUGH MACLEAN, M.D., D.Sc., Lecturer on Chemical Pathology, St. Thomas' Hospital, London. Price, $2.25. London: Longmans, Green & Co., 1918.

THE complex fatty bodies containing phosphorus, nitrogen, and a carbohydrate group evidently play a very important part in the metabolism of the body owing to their universal distribution in the tissues. Much of the original work on these substances was done by Thudichum over twenty years ago, and not a great deal has been added since his day; but now that the carbohydrates, the fats, and the proteins have been chemically studied as thoroughly as our present technique permits, much interest has devolved upon these complex and obscure substances, known variously as lipins and lipoids. Among these are the phosphatides—lecithin, kephalin, cuorin, and sphingomyelin—and the cerebrosides—phrenosin and kerasin. This monograph treats of these substances and related bodies and the methods of isolation and purification. Their separation is still surrounded by great difficulties, and the exact part which they play in the organism still escapes experimental analysis. Nevertheless, practically all that is known about them has been accumulated under one cover by the author, and a very complete bibliography permits of easy survey of the literature. The book will, therefore, prove very valuable to the biological chemist, and the chapter on "the lipins from a biological standpoint" should interest the physician, however little versed he may be in technical chemistry, even if his present knowledge of the subject is confined to the fact that lecithins act as antigens in the Wassermann reaction.

TYCOS GRAVITY AND TEMPERATURE TABLES FOR MINERAL OILS From Determinations of the Bureau of Standards and Other Tables for General Testing and Refinery Practice. Compiled and Edited by E. N. HURLBURT. Price, $1.00. Rochester, N. Y.: Taylor Instrument Companies, 1918.

THE first tables give the densities and temperatures each in terms of the other; these are followed by the densities, pounds per gallon and gallons per pound. Other tables give Fahrenheit-Centigrade equivalents, gauge pressure and temperatures of saturated steam, relative humidity tables, connection or flash points for barometric pressures, boiling points by altitudes, and much other like information.

Society Reports.

AMERICAN CLIMATOLOGICAL AND CLINICAL ASSOCIATION.

Thirty-fifth Annual Meeting, Held at Boston, Mass., June 5 and 6, 1918.

THE PRESIDENT, DR. J. H. ELLIOTT, A.M.C., TORONTO, CANADA, IN THE CHAIR.

The Major Controls of the Climates of the United States.—Professor ROBERT DECOURCY WARD of Harvard University presented this communication. He stated that weather types changed from day to day and from season to season, under varying controls, and that climate was the resultant of many variables. One climate differed from another because of a different combination of controls. It was a relatively simple matter to enumerate the factors which combined to produce any given climate, but it was difficult, if not impossible, to determine the relative importance of these different controls, so intimately were they connected and so complex were their effects. The major controls of climate were the sun and latitude. The effects of these were modified by the distribution of land and water, mountain barriers, altitude, prevailing winds, ocean currents, and storms. According to the dominant control of these factors we might have continental, marine, or mountain climate. The essayist called attention to the outstanding facts regarding each of these major controls in the United States. The difference in latitude between the northern and the southern portions of the United States determined the important fact that the mean annual and seasonal, and the monthly isotherms, as a whole, showed prevailingly lower temperatures in the north than in the south. The climate of the United States was very different from what it would be were there a great transverse east and west mountain barrier. The influence of the Gulf of Mexico was much greater than it would be if such a mountain barrier existed. It would cut off the districts of the north from the warm southerly winds and from the rainfalls that now had free access from the Gulf. In discussing the effects of altitude, it was observed that altitude tempered the heat of the low lands. The local typography was also of prime importance in bringing about many modifications in climatic conditions. Among the latter the well-known mountain and valley winds were often of considerable hygienic importance in their control of the diurnal periods of humidity, cloudiness, and rainfall. In discussing the effects of ocean currents, it was shown that too much emphasis was usually laid on ocean currents as controls of climate. It should be remembered that an ocean current could have no influence on the climate of an adjacent land unless the wind was blowing on shore, and, further, that ocean waters in themselves, without the help of any ocean currents were conservative bodies and therefore tended to temper the cold or heat of any land over which their influence might be carried. A glance at the isothermal charts of the world at once showed the effects of these currents in deflecting the isotherms. In the temperate zones the weather was largely controlled by a succession of low and high pressure areas (cyclones and anticyclones), more or less irregular in their occurrence, uncertain in their duration, and differing considerably in their characteristics. Hence, weather changes were correspondingly irregular, uncertain, and diverse. Cyclones and anti-cyclones were the essential controls of climate in the latitudes of the prevailing westerly winds. It is in the detailed study of local climates that the interaction of these various controls was worked out and the part that each one played was considered.

DR. CARROLL E. EDSON of Denver said it was a matter of great satisfaction to one of the old members of this society to hear that the first paper of the program dealt with the fundamental subject which was so interesting to them. There was need of a study of our climate and more especially of our health resorts. A study of the latter would be both interesting and amusing. The influence of climate on health had not been sufficiently studied and the society was indebted to Dr. Ward for starting the study on a scientific basis.

DR. GUY HINSDALE of Hot Springs, Va., expressed his appreciation of Dr. Ward's paper on climatology and said he thought this was a subject to which more attention should be given. They should not forget that the subject of climatology had been the backbone of the work done by this society in the past. Any paper on climatology in reference to our health resorts would have a very practical application. We want to know what we are talking about when we speak of the effect of localities on health and disease. Professor Ward made one simple statement that was often forgotten, and that was that the isotherms were not at all parallel in the United States; we quite forgot the effect that altitude had upon temperature. Visitors who came from the north to the mountains further south were surprised to find it as cold in the mountains of Virginia as it was in Boston. The influence of storms, cyclones, and tornadoes on the climate was very interesting. Dr. Ward had published a very interesting article on the effect of tornadoes in the United States, in which he showed that they had a great influence in the spring and early summer, that they might occur as far north as Canada, and that the climate of New York and Massachusetts was affected by them.

DR. V. Y. BOWDITCH of Boston called attention to the great difference in climate sometimes seen within a very small radius, and cited as an example the difference in the atmospheric conditions between the coast of Maine and that of Massachusetts and Rhode Island. All were familiar with the bracing air of the Maine coast; there they had what might be called a "dry" fog, and not the drenching, wet, warm fog that they experienced on the coast of Massachusetts and Rhode Island. These were conditions that should be taken into consideration in sending a patient away for his health.

DR. W. F. R. PHILLIPS of Charleston, S. C., said he was glad to meet some who were still interested in climatology. He felt that climate exerted a great influence on health, though they did not hear as much on this subject at present as they did some years ago. He believed the way to get at the truth in regard to climatology was not so much by reading papers as by making experimental observations. Some years ago he had endeavored to impress on them the need of climatological laboratories. If they were to make progress they wanted facts and not a mere discussion of meteorological data. His purpose in speaking was to urge investigation as to the effect of climate on the human organism.

CAPT. J. H. ELLIOTT of Toronto called attention to a little book of Dr. Ward's on climatology, and emphasized the necessity of men working in health resorts being familiar with climatology. There was no question that a great deal of their knowledge of climatology and of the relation of climate to disease was empirical. By a observation of climatic conditions in connection with clinical observations in various centers we might arrive at some definite conclusion as to the effect of climatic conditions on disease processes in the body. He hoped they would have more papers in years to come on the relation of climate to health and disease.

PROFESSOR WARD, in closing, said the last point brought up was interesting. The opportunity which came in the draft camps for such observation might be grasped. This would offer the opportunity of making observations on a large body of men, though he did not know whether it would be practical as the men might not be stationed long enough at one place to give results of any value.

Experimental Vegetative Endocarditis.—Dr. CLEAVELAND FLOYD of Boston read this paper, in which he reported having isolated a nonhemolytic streptococcus in twenty cases of chorea. After describing the morphological characteristics of this organism, he stated that cultures injected into five rabbits produced typical endocarditis. Cultures from the hearts of these rabbits gave a pure growth of the streptococcus. Examination of control cases of acute articular rheumatism did not show this particular variety of streptococcus except in a few instances. It was present with such uniformity in cases of chorea that he felt that it bore some etiological relation to that disease. He had taken this organism from the throats of children having chorea and had injected them into rabbits, and had then taken the serum and used it as a therapeutic measure

in several cases of chorea with apparently beneficial results.

Dr. R. H. Babcock of Chicago recalled that he was one of the first to call attention to the relationship between tonsillar infection and rheumatism and endocarditis. In relation to the tonsils and tonsillectomy, he had observed that if the operator left a shred of tonsillar tissue the effect was very harmful. Rosenow's work had shown the influence of the streptococcus in other infections than those of the throat, and had recovered a streptococcus from the appendix. There was the probability that the injection of the streptococcus resulted in producing focal infection in different parts of the body, and if a child had a tonsillar infection he might have an endocarditis and he might have stomach trouble which was dependent upon an infection of the appendix. Dr. Babcock cited a striking instance of rheumatism and endocarditis following the leaving of a shred of tonsil at operation.

Captain Elliott stated that work of the kind presented by Dr. Floyd would lead to specific therapy in chorea. He referred to a paper read by Dr. George Smith and Dr. Alan Brown, describing a method by which injections of autoserum were made into the spinal canal in cases of chorea and the results were most encouraging.

Dr. Floyd, in closing, said that as one worked in the laboratory he saw how this organism at one time produced one type of disease and at another time it produced an entirely different type. From the work carried on in the hospital here the giving of serum had but little effect, except in one instance in which it produced a marked reaction. Dr. Morse thought it had very little if any effect.

Patent Foramen Ovale and Its Relation to Certain Cardiac Murmurs.—Dr. W. F. R. Phillips of Charleston, S. C., read this paper. (See page 402.)

Dr. R. H. Babcock of Chicago said he was interested in the murmurs that might be due to a patent foramen ovale in an adult, but he was more interested in regard to the route for the possible passage of emboli. It was conceivable that many patent ovale would not give evidence of their presence—for instance, those the size of a pinhead—and, furthermore, the passage was said to be oblique, which would lessen the force of the blood stream. If an open foramen ovale was going to produce a murmur it must be large enough to permit the stream of blood to set up a vibration. Again, the possibility of recognizing an open foramen ovale was very small, inasmuch as few cases came to autopsy and very few cases have been reported, so that there was little knowledge by which they could distinguish whether a murmur was due to a patent foramen ovale or to something else. Functional murmurs were very infrequent and he did not see how they were going to determine whether these patent foramen ovale had any clinical significance or not. Furthermore, there were no histories attached to these cases to throw any light on the way in which this kind of murmurs might be distinguished.

Dr. John H. Pryor of Buffalo said that the common functional murmur was systolic, and we knew little or nothing about systolic murmurs. It was assumed to be a valvular disease, but almost always, by careful study, there was found to be evidence of other heart disease which caused the systolic murmur. If we had a murmur produced by a patent foramen ovale would it be a systolic or a later diastolic murmur?

Dr. Babcock expressed his doubts as to whether a presystolic murmur could be detected, since one would have to have a pretty strong blood stream to give a presystolic murmur of this kind that could be recognized.

Dr. Cleaveland Floyd of Boston said one might find these murmurs present at one time and not at another time. If they were organic they would be constantly present, and possibly the patent foramen ovale might be a passageway for the blood at certain times, under certain conditions of stress, while at other times it would not permit much blood to pass through. For the detection of some of these questionable murmurs a man in Boston had devised an instrument which was helpful, and it would be well to develop work along this line and perhaps they might be able to detect slighter murmurs than they could at the present time.

Dr. Phillips, in closing the discussion, said that his paper was presented more to prove the point that the foramen ovale remained open to a greater or lesser extent in a large number of individuals, which was contrary to the general belief that it closed soon after birth. One physician studying with him a few years ago found a very large patent foramen ovale in doing an autopsy and expressed surprise at the finding. The speaker told him the condition was common. This decided him to examine a series of cadavers and collect statistics on this point. He thought the reason the condition was recognized more often in autopsy work at the present time was due to the method of preserving tissues that permitted of more careful and detailed study. The speaker explained the physics of the heart muscle under contraction and showed how the patent foramen ovale would be pulled open. He said he was not clinician enough to state how such murmurs as were caused by a patent foramen ovale could be distinguished, but he believed there was such a thing as a functional murmur without a physical basis behind it.

The Significance of Early Heart Lesions.—Dr. John R. Heffron of Syracuse presented this communication. (See page 404.)

Dr. Joseph H. Pratt of Boston said that while working under Dr. Mackenzie in London ten years ago he had learned the use of the polygraph and later had used this instrument in a Heidelberg clinic. Since his return to this country he had continued to use the polygraph and had tracings of about five hundred cases of cardiac disease or of cases suspected of cardiac disease. He understood Dr. Heffron to say that he regarded extrasystoles as a sign of myocardial degenerative disease. He had probably misunderstood, because he left convinced that one frequently found extrasystole or a premature contraction where there was no disease but simply an increased irritability. Dr. Mackenzie thought that extrasystoles were not a sign of cardiac disease taken by themselves. He knew from his own personal observations on patients followed for many years that it was possible to have an extrasystole without any other sign of heart disease. As to the prognostic value of pulsus alternans, Paul White of this city had made observations on a large number of cases of pulsus alternans, and the cases he had been able to follow had not lived more than one year after a permanent pulsus alternans developed. They had been taught that mitral insufficiency was difficult to diagnose. One might find a murmur at the apex and an accentuated second sound and no other evidence of disease and no enlargement of the heart, and possibly the murmur might be heard only in the recumbent position. He had a patient with these signs in whom a diagnosis of mitral insufficiency had been made. He felt that there was no mitral insufficiency present. If a patient showing these signs also had a history of rheumatism one might then suspect mitral insufficiency. The orthodiascope was an instrument which was very useful as a help in distinguishing neurosis from actual cardiac lesions. In neurotic patients it would be found that the vital capacity was normal, while all true cases of cardiac disease had a diminished vital capacity.

Dr. Babcock described a case which he thought might possibly have been one of patent foramen ovale, occurring in a young man who showed Gerhardt's signs, but nothing else, and he believed the condition was more frequent than we supposed. A systolic murmur in the second or third interspace without enlargement of either ventricle suggested the possibility of a patent duct. Dr. Babcock said he wished again to emphasize what he had said before, that ventricular extrasystole did not mean heart inadequacy by any means, particularly if it occurred at irregular times. Very frequently extrasystoles were due to a toxic condition or to the use of tea, coffee, alcohol, etc. Frequently it was found that when these extrasystoles were not organic they disappeared under exercise, and in such cases extrasystoles should not be held to mean degeneration.

Dr. Cleaveland Floyd said there was danger to the heart from other things than rheumatism, chorea, and epidemic diseases. He related a case in which a definite mitral regurgitation followed an infectious cold. He thought that we would have to recognize that many more minor ailments than we had hitherto supposed had an etiological relation to heart disease.

Dr. Elliott stated that a large Canadian life insurance company for which he was an examiner did not hesitate to accept those who had extrasystoles and nothing else. This they had been doing for some years and had had no occasion to regret it.

Rhythmical Breathing.—Dr. Irwin H. Hance of Lakewood presented this communication, in which he called attention to the great value of deep breathing. He stated that the adult or child should be taught the voluntary control of the diaphragm and the internal muscles of respiration, that the volumes or currents of air might be directed through the nares, over its floor, or into the attic, and that at will the air could expand the lower or the upper portions of the thorax. While the end of deep breathing was full expansion of the chest, it was undoubtedly true that unless the proper relation in the timing of the respiratory act was also taught and mastered much energy was wasted and a lack of coordination of the breathing with the muscular motion observed; hence, fatigue resulted not alone of the muscles, but of the nerves as expressed by rapid heart action and breathing, the result being derangement of the functioning power of other organs. Rhythm was also important. If one walked slowly no discord in rhythm was apparent, but let one run and then, unless trained to move rapidly, irregular rhythm gave way to shortness of breath and inability to continue such rapid motion. The shortness of breath was nature's way of restoring proper rhythm and prevented resulting injury to the lungs and heart. In other words, breathing should be timed to respond rhythmically to the demands made upon it; this could only be learned by practice and training. The common way was to train the various groups of muscles by setting-up exercises and let the breathing take care of itself. Were the instruction begun with rhythmical breathing all setting-up exercises would not only increase more rapidly muscular power but also the general efficiency of the whole man, brain, nerves, and all the internal organs. To breathe rhythmically one must learn absolute control of the diaphragm and the internal muscles of respiration. By avoiding all upper chest breathing one would appreciate, after a few days' practice, what the motion of the diaphragm when called upon to act voluntarily implied. Three minutes devoted to these earlier efforts four or five times daily sufficed; later more time was required. Too prolonged effort produced fatigue, diminished concentration, and tended to discouragement. Pumping of the diaphragm was practised in abdominal breathing and done by the quick, forcible contraction of these muscles during inspiration. Rhythm in diaphragmatic breathing differed from that of abdominal breathing. After describing the method of securing this breathing, the essayist stated that with the full understanding and mastery of diaphragmatic breathing one should be able, after complete full expansion of the lungs, to perform short abdominal breathing while keeping the chest fully expanded. Rhythmical thoracic breathing could be easily understood and carried out since it was the natural effort of everyone when asked to take a full, deep breath invariably to use this type of breathing. The value of this method of breathing was shown by the ability of the pupil to exercise longer and with less fatigue, and by the effect upon the heart, which often showed a slower pulse rate than when rhythmical breathing was not practised. Many years ago the writer said he heard the statement that in climbing a hill or going up stairs dyspnea could be avoided by breathing in on advancing the right foot and breathing out when the left foot was advanced. He had tried it and found that it worked not only with himself, but especially with delicate patients; this was simply rapid rhythm of breathing. For a longer rhythm one should breathe in when advancing the right foot for the third step. Besides the beneficial effect of rhythmical breathing upon the musculature and the cardiovascular system all patients had noted that their mental powers of concentration were increased. The effect upon the neurasthenic had been to increase their powers of self-control, and several had stated that in using a certain type of relaxing breath sleep could be induced in a short period of time. This was true in patients who had previously relied upon veronal. The effect on asthmatic patients had likewise been striking. For instance, in two cases of asthma, in which each patient used daily six to eight hypodermics of adrenalin, one ceased to need this relief in a few weeks and one in several months. Other patients had been able to ward off the spasmodic attacks of asthma by the muscular use of the diaphragm. The writer concluded that as physicians they could do much for the betterment of health and also of efficiency of individuals by directing their attention to the great need of physical training of the respiratory muscles at all ages.

Dr. Elliott asked Dr. Hance if he had any experience in the treatment of severe cases of asthma in older people, say between forty-five and fifty-five years of age, by this method.

Dr. Hance said he had had one man sixty years of age who inside of five or six weeks' time, by faithfully following out instructions, ceased to have asthmatic attacks at night. This man was not only distinctly asthmatic, but also had some heart disease. The results he had seen in asthma were a surprise to him. In connection with a paper read before the American Medical Association, *x*-ray pictures were shown which seemed to demonstrate that the diaphragm was practically immovable, and he had sought to investigate that point for himself. Asthma had been called a nervous disease, but in truth they knew very little about it. Some said that it was due to a spasm of the bronchi or the bronchioli, and possibly a spasm of the diaphragm might be the most prominent factor in the production of asthma, the condition of the lungs being secondary. That was what he was inclined to think, but he did not know how to prove it. After giving a demonstration of the breathing exercises, Dr. Hance said there were from fourteen to twenty types of breathing which this method of instruction made use of. One of these was the socalled spinal breathing, by which is was possible when lying down to so breath as to drive the spine against the hard surface upon which one was lying. In thoracic breathing there was a greater expenditure of energy and a greater degree of fatigue than if the rhythmical breathing were used.

Dr. John B. Hawes of Boston called attention to the fact that in rowing in races where the stroke was thirty per minute one invariably used the diaphragmatic form of breathing. The only time one could breathe was between stroke, one per stroke, so the breathing was also rhythmical in this form of exercise.

Dr. Babcock of Chicago said that for a long time he had instructed his cardiac patients in reference to diaphragmatic breathing. In diaphragmatic breathing the pushing action of the diaphragm on the blood vessels sent the blood to the upper right heart. He cited one instance of a boy with mitral insufficiency and an enormously congested liver whom he had instructed in diaphragmatic breathing, and had him carry it out several times a day, with the result that the liver diminished in size simply because by aspirating the blood from the abdominal vessels the congestion of the liver was relieved. Dr. Babcock expressed himself as rather skeptical in reference to the value of the breathing in some asthmatic cases, but said he would try it.

Dr. Phillips of Charleston said he thought Dr. Babcock had struck the physiological explanation as to the influence of deep breathing on the heart, only he should say that it was not so much by aspiration as by compulsion of the blood that the effect was produced. If one considered the condition of the mesenteric veins and that they could contain practically all the blood of the body, one could easily understand what an effect on the circulation diaphragmatic breathing might have. The only way to bring the blood up was by the action of the muscles of the abdominal wall and diaphragm, and the diaphragm was the only useful muscle in compressing the blood out of the abdominal vessels and putting into circulation blood that was stagnating in the viscera.

Antityphoid Inoculation in the Canadian Army.—Dr. George D. Porter, Capt. C. A. M. C., of Toronto, Canada, presented this communication. After calling attention to the important part played by typhoid fever in modern warfare, he said that only nine deaths from this disease had occurred in the army camps of the United States since September 21, 1917. The sick and death rate from this disease was so small as to be considered negligible both in the United States and in Canada. This wonderful improvement must in large part be attributed to compulsory inoculation against typhoid

fever, while improved sanitation and pure water supply materially assisted in the result. Inoculation against typhoid fever was compulsory in the Canadian Army. It was pointed out that any slight interruption in military training necessary from time to time was more than compensated for by the protection afforded by inoculation against typhoid. The Research Defense Society of England issued a leaflet on the protection against typhoid fever afforded by inoculation, dated January, 1915, in which it reported that among the Expeditionary Force in France and Belgium about 95 per cent. had been inoculated against typhoid fever, the annual average being about 90 per cent. The annual admission ratio was more than nine times greater among unprotected men than among the protected, and the death rate was thirty-one times greater among the nonprotected. An official British report stated that from August, 1914, to November 10, 1915, 1,365 cases of typhoid were reported among the British troops in France and Belgium, 1,150 having been verified by laboratory diagnosis. In 570 cases among the inoculated there were 35 deaths, while in 571 cases among those unprotected by inoculation there were 115 deaths. These figures showed that the mortality was two-thirds less among those who were inoculated. A report of Dr. Jules Courtmont showed that in 1,347 cases of typhoid fever 891 had not been inoculated; the mortality among these was 155, or 17.4 per cent., while of 256 cases inoculated there were only 8 deaths, making 3.1 per cent. The mortality among those inoculated only once was greater than among those inoculated twice, and the mortality among those inoculated twice was greater than among those inoculated three times. The technique used at the laboratory in Military District No. 2, Toronto, was to paint a small area below the clavicle with tincture of iodine and, after boiling the needles, syringes, and plungers, to inject 1 c.c. of the antityphoid vaccine, which equaled a dose of 500,000,000 dead bacteria (250,000,000 typhoid and 250,000,000 paratyphoid). A 5 c.c. or 10 c.c. record syringe was used and a freshly boiled needle for each inoculation. With an assistant painting on the iodine, they inoculated men, properly paraded, at the rate of three or four hundred an hour, and as the men liked to have this little ordeal over quickly they appreciated speed when the inoculations were properly done. The second dose of the same strength was given from four to ten days later, and the third dose, of double the strength, about a week later, making in all 2,000,000,000 dead bacteria. It was important to have the bottles containing the vaccine well shaken before using, and also to have the rubber stoppers painted with iodine before inserting the needles through them for withdrawing the fluid. Their vaccine was prepared at the Ontario Provincial Laboratory. The local reaction subsided within a few hours. The constitutional reaction comes on about six hours after the inoculation, consisting of malaise, headache, and slight rise in temperature, and in some cases a tendency to faintness. When the symptoms were severe enough the men were admitted to the hospital under the head of inoculation fever. They had inoculated in District No. 2, between January 1, 1915, and January 1, 1917, 58,382 men three times each, making in all 175,146 inoculations. They had had no deaths from these inoculations, and there had been admitted to the hospital for this cause only 117 cases, less than one-quarter of 1 per cent. of the men inoculated, or about one admission to every 1,200 inoculations. This record should remove any fears regarding any immediate danger from inoculation for those who were in good health. Since that time the laboratory unit had given 16,546 additional inoculations with even better results.

Dr. JOHN WINTERS BRANNAN of New York said that up to six months ago they had inoculated all the nurses at Bellevue Hospital against typhoid fever. Dr. Norris did the work and had done perhaps seven or eight hundred inoculations. He found that the women stood the inoculation better than the men. There were more men who begged to be excused from taking the second dose than there were women. They had had one instance in which a nurse, some eight months after being inoculated, came down with typhoid fever and had quite a severe attack. Why there was this one exception he did not know. They had at the present time two nurses with typhoid fever, both of whom stated that they had been inoculated before coming into their service, and now they were requiring all probationers and all graduates from other hospitals to bring certificates of inoculation or else to receive the inoculation. When he first appreciated the value of the paratyphoid vaccines he had had a triple vaccine made and started in giving 500,000,000 typhoid and 250,000,000 of each of the paratyphoids, thus giving a double dose, but not of the same organism. There were some young women inoculated in this way who, when they went into the army service, were required to be reinoculated. He at first thought this was because they did not know that he used the triple vaccines, but possibly it was because of the question with reference to the duration of immunity. Dr. Brannan referred to the experience of this country with the troops on the Mexican border, which had demonstrated the advisability of using the triple vaccine. The opinion in the army was that the immunity conferred by inoculation against typhoid fever was of two or three years' duration.

Dr. E. O. OTIS of Boston asked Dr. Porter how long he thought immunity lasted after inoculation against typhoid.

Dr. CARROLL EDSON of Denver said he had a group of engineers and field men who were laying out an irrigation scheme in Colorado, about thirty in number, vaccinated against typhoid fever because the water in the locality where they were working was open to more than suspicion and there was a great deal of typhoid fever in the vicinity. The water of the ranches was also open to suspicion, but none of the inoculated men came down with typhoid fever. It was reported that in one army cantonment there had been just one case of typhoid fever. This man was given his first injection and had an exceedingly violent reaction, more so than any man in the group. This man's history was gone into very carefully and it was found that exactly two weeks prior to receiving the injection he had left home and had drunk water in a community where there was more than an ordinary possibility of typhoid infection. His illness developed into a true case of typhoid fever, which ran a mild course after a severe onset. He probably would have come down with typhoid fever if he had not been vaccinated.

Dr. PORTER of Toronto, in reply to Dr. Otis' question, said the length of time of protection was for about one year after inoculation, and in the Canadian Army the men were reinoculated every year. In Canada they were now urging those living or working on farms to be inoculated against typhoid fever, because there were many sporadic cases on the farms. In one district they tested the wells last winter and found every well infected, and showed the advantage of inoculation in the rural districts. Dr. Porter said he felt that the practice of inoculation would spread among the civilian population and especially in the rural districts. He had never had a nurse faint from the inoculation. He thought the men in the army were often frightened by hearing the officers talk about the inoculations and that they were then more likely to faint. Regarding the giving of an inoculation to a man with latent tuberculosis, personally he would not give an inoculation to a person with latent tuberculosis. He did not think it was a proper procedure in a tuberculous subject, but in the army they took the men as they came and perhaps some tuberculous men were inoculated.

Five Years' Experience with Artificial Pneumothorax.—Captain C. D. PARFITT, A. M. C., Gravenhurst, Canada, presented this communication, which consisted in an analysis of seventy cases of tuberculosis treated with artificial pneumothorax. A satisfactory compression was obtained in one-half of these, while in the other one-half no pneumothorax could be induced, or it was so small that the procedure was abandoned. The abandoned cases were used as controls with which those in which satisfactory compression was obtained were compared. The results showed the advantages of pneumothorax in properly selected cases. The writer discussed a number of the complications and mishaps that might occur during this procedure.

Dr. CHARLES L. MINOR of Asheville, N. C., said that in the brief time allotted to the discussion of this paper he could not touch on the many interesting points of this question; he would therefore consider only two points. First, they had reached such a point with refer-

ence to their knowledge of pneumothorax in the treatment of tuberculosis that no man who was without this knowledge should attempt to treat tuberculosis. Every physician owed it to his patient to be familiar with this procedure. Pneumothorax in early cases of tuberculosis was not justifiable. It should be reserved for the somewhat advanced cases that refused to respond to the usual methods of treatment. In employing artificial pneumothorax some men allowed a considerable period of time, perhaps two months, to elapse between treatments, and when they came to give a treatment they would find adhesions, and possibly the treatment could not be continued. The treatment should be given more frequently, about every two weeks. The second point to be emphasized was that one should give the anesthetic time to take effect before attempting to introduce the gas. One introduced the cocaine and adrenalin into the pleura, into the intervening space, and then into the skin, and he was apt to go right on giving the injection of gas without waiting for the anesthetic to take effect. If this were done the pain would cause the patient to bear down, and as a result the lung would be pushed against the pleura, making the injection difficult. It was almost a truism now that small amounts of gas given at first were distinctly wiser than large amounts.

Dr. COLLINS H. JOHNSTON of Grand Rapids, Mich., called attention to the value of the *x*-ray both in the diagnosis of tuberculosis and as an aid to the proper conduct of the treatment. He related one instance in which both sides were involved in the tuberculous process. He collapsed one lung and then after two years collapsed the other lung. It was absurd to hope to do that successfully very often. Another case of the fulminating type was collapsed and after six months went about in fairly good condition but with his chest full of fluid. He took pneumonia and died, and at autopsy the diseased lung was found to be a mass of grissle and almost cartilaginous. As to the possibility of opening up a collapsed lung, some patients were kept collapsed for seven, eight, or even ten years. He had one patient under treatment who started his treatment in a foreign country nine years before. These cases showed how absurd it was to hold out a prospect of curing such cases in a year or two.

Dr. EDSON said he was very glad that Dr. Minor said what he did about the advantage of short intervals between treatments. He had had some experience with the procedure. In one instance, in an emergency case, in which the patient was suffering from a severe and uncontrollable hemorrhage, he employed artificial pneumothorax and the patient improved. Later he heard that Christian Science got the credit.

Dr. MINOR said he could not believe that as a general proposition it was a good thing to keep a lung collapsed indefinitely. He thought that in one or two years, varying according to the pathological condition present, it was right to attempt re-expansion of the collapsed lung. He did not think they had arrived at the point where they could say "once collapsed always collapsed."

Dr. LAWRASON BROWN of Saranac Lake, N. Y., said that Dr. Parfitt's 30 per cent. of effusions following artificial pneumothorax was better than they had done at Saranac. The question as to the length of time that a lung should be kept collapsed was very interesting. They had made an *x*-ray study of a series of cases that had been collapsed for a number of months and they found fresh tubercles, which meant that those cases should be kept collapsed for a considerable length of time. The procedure of producing artificial pneumothorax was not as easy as it sometimes appeared to be. He had had one case die of hemothorax after the operation, another case developed gangrene of the lung, and still another patient insisted on being given more gas at the time than would ordinarily have been given because it added to her comfort, and as a result the lung ruptured. It was sometimes wise to emphasize some of the unpleasant things they had all seen.

Dr. PARFITT, in closing, said that in reference to the time the lung should be kept collapsed, he thought one should be guided in this by the intensity of the process. In a case with a much contracted lung long-continued pneumothorax was desirable. Pneumothorax might also be of value in helping a patient over a critical period when he might otherwise have had an autoinfection which was prevented by contraction of the cavity. He believed thoroughly in small, frequently repeated refills, and that they should be made by aspiration rather than by pressure. The number of refills must also be decided by the way in which the lung expanded. He had perhaps not had sufficient experience to have a well founded opinion, but his procedure was not to deny pneumothorax to any one in whom it was indicated. He felt that one had to discount findings in the better lung occasionally and rely upon his judgment. Personally Dr. Parfitt said he regretted very much the apathy of the profession at large toward this useful procedure. It was not until 1914 that the procedure became popular in the province. It was estimated that with 5 or 10 per cent. of advanced cases of tuberculosis this procedure might be desirable. In their province they had some 8,000 advanced cases of tuberculosis, and many of these should have the benefit of artificial pneumothorax.

A Study of Fifty Cases of Tuberculosis, Mostly of the Glands and Joints, Treated with Tuberculin, Compared with an Equal Number Treated Without It.—Dr. RICHARD COLE NEWTON of Montclair, N. J., and Dr. SIDNEY A. TWINCH of Newark, N. J., presented this paper, by invitation. (See page 407.)

Granular Tuberculous Conjunctivitis Treated by Instillations of Tuberculin.—Dr. R. C. PATERSON of Saranac Lake, N. Y., read this paper, in which he reported a case in order to call attention to a method of treating a subacute tuberculous condition of the conjunctiva which so far as the writer knew had not been previously employed except by Ellis and Gay, whose article came to his attention after treatment had been inaugurated. The case also demonstrated the beneficial effects of controlling focal reactions produced by tuberculin on tuberculous tissues. This patient was a young man, 23 years of age, who gave very definite symptoms of pulmonary tuberculosis and involvement of the larynx. In May, 1917, the patient first noticed that the left eye was inflamed and pain was felt in the eye and forehead. When the writer first saw the patient early in August, 1917, the inner part of the left bulbar conjunctiva and the part below the cornea were covered with pale, sluggish, trachoma-like granulations, which were also present on the conjunctival surfaces of both eyelids, especially the lower. There was some injection of the conjunctival vessels; no ulceration was present. Cultures from the conjunctival sac revealed staphylococci, and a large Gram positive bacillus. The condition failed to respond to the ordinary eye washes and astringents, and with the approval of Dr. E. R. Baldwin, who agreed that the condition was probably tuberculous, two drops of a 0.00001 dilution of old tuberculin were instilled directly into the left conjunctival sac. No reaction followed this and five days later two drops more of the old tuberculin were again instilled. After four doses of the old tuberculin were thus administered at four-day intervals, two drops of a 1 per cent. solution of old tuberculin were instilled into the left conjunctival sac. This was followed by a sharp local reaction. The reaction passed off by the end of forty-eight hours; the conjunctiva then appeared clearer and the granulations were smaller than before the treatment. Ten days later a similar dose of tuberculin was instilled and almost immediately a dilatation of the conjunctival vessels could be seen and a sharp reaction followed as in the former instance. This treatment was continued for six doses at about ten-day intervals, making in all eight treatments with reactions, after which the conjunctiva showed little evidence of disease. All symptoms had disappeared at the time of writing. The lung and throat condition were quiescent during this treatment and were not affected by these reactions. The writer discussed the various forms of tuberculosis of the conjunctiva, the nature of the tuberculin reaction, and how tuberculin aided in the cure of tuberculosis. He reiterated the statement that tuberculin had no deleterious effect on normal animals; that the presence of anatomic tubercles altered the body in some way so that all the tissues acquired a hypersensitiveness to tuberculin, which disappeared when the tuberculous focus was completely healed or removed from the body; that tuberculin acted specifically on tuber-

culous foci themselves, causing an acute inflammation in and around them. These focal reactions might be seen in experimental animals, killed during a general tuberculin reaction, and also were observed clinically in cases of tuberculosis in which the disease was capable of direct observation, as in laryngeal and skin tuberculosis. The hyperemia accompanying this focal reaction permitted of a dissemination of substances whose nature was not yet definitely known into the systemic circulation which produced what was known as the general tuberculin reaction. The focal reaction thus produced by tuberculin might be a source of danger if the reaction was so great as to lead to a dissemination of bacilli to previously healthy tissues. On the other hand, if these reactions were slight and controllable the result of the inflammation was walling off of the diseased focus by by fibrosis, which was what we knew as healing. The immediate object of the tuberculin treatment should therefore be the production of slight and controllable reactions around the focus of the disease. While this sounded simple it was not so easy in pulmonary cases, for one was dealing with a multiplicity of small foci in varying stages of development, which would be influenced differently by different doses of tuberculin. The case reported showed the beneficial results of such focal reactions and a clearing up of the granulations was noticeable after each reaction. In this case it would have been unwise to give tuberculin subcutaneously on account of the extent of the lesion in the lung, but fortunately the location of the disease in the conjunctiva permitted of direct application and direct observation of the results. Whether a non-specific irritant, which would have produced an inflammatory reaction, would have brought about similar beneficial results could not be stated or denied, as it was not tried, though there were grounds for the belief that a non-specific inflammation-producing remedy might have been equally efficacious.

Dr. ELLIOTT said that Dr. Patterson's paper on the local application of tuberculin in eye conditions recalled a number of cases that came to St. Michael's Hospital in which the eye men, after treating them for a keratitis or follicular conjunctivitis, found that they responded to bacillary emulsion or old tuberculin. He also cited cases of tuberculous peritonitis, tuberculous pyosalpynx, tuberculosis of the sternum, and chronic sinuses cases that had been cleared up by the use of tuberculin. There was another condition in which it had proved very useful and that was in bilateral tuberculosis of the kidneys.

Dr. PATTERSON, in closing, said he felt that the beneficial effects of the tuberculin were due to the effects of the local inflammatory reaction and that if one did not get this inflammatory reaction he would not get the good result that he should have from the use of the tuberculin. He hesitated to use the tuberculin in this case because of the advanced condition of the lungs. In this instance the inflammatory reaction was followed almost immedately by a clearing up of the trouble.

Dr. NEWTON stated that he began the administration of tuberculin by giving one millionth of a c.c. and then if there was a reaction it was so mild that no harm was done. He used the utmost care in all pulmonary cases. In the bone and gland cases and in the eye cases it was very easy work. One point touched upon was in reference to the too timid use of tuberculin. Used too timidly it provoked a hypersensitiveness to later doses. Tuberculin was a wonderful remedy but it had many sharp points and had to be used with a great deal of good judgment. Dr. Newton cited the case of one man who was cured of tuberculosis after two years' treatment with tuberculin. This man had four acquaintances who developed the disease at about the same time and did not have the tuberculin treatment, and all were dead. One point that must be insisted upon was that a patient after having had the tuberculin treatment must continue it until the full course of treatment was completed.

Comparative Results Obtained in the Treatment of Pulmonary Tuberculosis.—Dr. HUGH M. KINGHORN of Saranac Lake, N. Y., read this paper, in which he discussed the comparative results in the treatment of pulmonary tuberculosis: (1) By graduated labor as employed at the Brompton Hospital Sanatorium at Frimley, England; (2) by bed rest treatment; (3) rest and exercise as employed by most sanatoria. He first referred to the method of treatment of pulmonary tuberculosis by graduated labor which was systematically carried out at Frimley, England, by Dr. Marcus Paterson. He claimed that the cases treated by graduated labor at Frimley were carefully selected, only those patients being chosen who were free from fever or other constitutional symptoms, who possessed considerable vitality, and had begun to show signs of improvement. So far as possible patients with signs of limited disease were preferred. Paterson paid more attention to the phyical condition of his patients than he did to the foci or disease, and he placed great importance on the auto-inoculation which was obtained from exercise and work. These two facts the essayist said were absolutely opposed to his interpretation of the modern method of treating pulmonary tuberculosis. In his judgment the physical examination of the lungs was the only sure way that one could get a knowledge as to how the foci of the disease were acting, and it was his object to treat the focus of the disease and also the general physical condition. The writer's aim was also to avoid auto-inoculation in every way possible. Auto-inoculations were the result of congestion of the foci of the lungs, and it was just these congestions that were extremely dangerous and which we should try to avoid. Bed rest treatment had been carried out very successfully by Dr. Joseph H. Pratt of Boston. His results were obtained in the homes of the sick poor in a supposedly unfavorable climate. Supervision was maintained by the class method and there was no selection of cases. In 36 per cent. of his cases the disease was far advanced when the rest treatment was begun. Under his method of treatment, 80 per cent. of those admitted in the first stage of the disease were well and working one or two years after their discharge, as were 62 per cent. of the second stage, and 20 per cent. of the third. In the period of 10 years ending July, 1915, Pratt treated 191 patients. The condition of those patients, one to ten years after their discharge, showed very clearly that strengthening a man's muscle and improving his general condition by graduated labor was not the best way to heal the tuberculous foci in the lungs. His chart and tables showed clearly that prolonged rest leads to permanent recovery in the large proportion of cases treated. At the end of one year after discharge there were 61 per cent. of the Brompton cases and 95 per cent. of the Pratt cases well and working. At the end of the seventh year there were 23 per cent. of the Brompton cases and 70 per cent. of the Pratt cases well and working. These figures demonstrated the great value of rest treatment over labor. Pratt's figures also showed that patients who underwent prolonged and intensive rest treatment did not tend to relapse. It was the constant experience of most physicians who treated pulmonary tuberculosis at health resorts that the home treatment of the disease was frequently extremely bad. Pratt's results showed, however, that he obtained results at home by his bed rest treatment which were superior to those obtained in the same climate at the Rutland Sanatorium in Massachusetts and at the Massachusetts State Sanatorium. His results were also equal to those obtained at the Trudeau Sanatorium at Saranac Lake, and at the Laurentian Sanitarium at Ste. Agathe des Monts, P. Q., Canada. The Rutland Sanatorium, though limited to favorable cases, had less than 25 per cent. of its patients well and working eight to ten years after their discharge, while 59 per cent. of Pratt's cases were well and working after this length of time. Among a large series of cases from Boston and the vicinity who were treated at the Massachusetts State Sanatoria, Miss Farmer found that 24 per cent. were well four to seven years after their discharge, while there were 63 per cent. of the Pratt patients well four to seven years after their discharge. A comparison of the results obtained by graduated labor with those by the modern rest and exercise treatment as employed at most sanatoria gave convincing proof that rest treatment was much superior to graduated labor treatment. The institution selected for making this comparison was the Trudeau Sanitorium at Saranac Lake and Ste. Agathe des Monts, P. Q., Quebec, Canada. In these institutions rest treatment was used

very thoroughly when indicated, but not so intensively as employed by Pratt. A further comparison of the intensive bed rest treatment employed by Pratt with the usual rest and exercise treatment, Pratt had a total of 191 patients, 56 per cent. of whom were well one to ten years after discharge. The Adirondack Cottage Sanitarium had a total of 1,929 patients and of these 63 per cent. were well one to ten years after discharge. The Laurentian Sanitarium had a total of 558 patients and of these 56 per cent. were well one to nine years after discharge. It would thus be seen that the results obtained by the intensive bed rest treatment as employed by Pratt were the same as those obtained by the ordinary treatment of rest and exercise as employed at the Adirondack Cottage Sanatarium and at the Laurentian Sanitarium. A critical examination of Pratt's bed rest treatment and the usual rest treatment showed that the two methods were practically the same. Pratt employed bed rest treatment in all his cases and the other employed it only in those cases in which it was indicated. The difference therefore was only one of degree. The results were the same.

Dr. JOHN B. HAWES of Boston said he was perfectly familar with Dr. Pratt's work and that Dr. Pratt made certain statements and comparisons with which he did not agree. He stated that his cases were not selected; they were selected in the finest sense of the word. Dr. Pratt took no patient who would not do as he was told to do and that was selection of the finest type. It was not fair to the State Sanatorium to quote Miss Farmer's figures for those patients were mostly men without intelligence and one could not expect to get the results with them that would be obtained with more intelligent patients. At Rutland they had 350 patients and only four men to care for them, one of whom devoted his time to administrative work. That left one man to care for over one hundred patients and it would be unfair to compare the results under such conditions to those obtained in Dr. Pratt's work.

Dr. V. Y. BOWDITCH of Boston said he greatly admired Dr. Pratt's work but it was unfair to make these comparisons, for three men could not do the work properly at Rutland.

Dr. PRATT said he had published two years ago in a paper read before the American Medical Association a list of cases referred to him and gave the number of applicants that refused to follow treatment, and the number was very small indeed. Most of his cases came from the Massachusetts General Hospital and in recent years he had not refused to take any case that would follow treatment; the number refused was less than ten. Furthermore, all the cases were included, even those that were dismissed from the class. Dr. Hawes had stated that the speaker was opposed to sanatorium treatment. He was not opposed to it, for it was easier to secure supervision in a sanatorium than in a home. The essentials in the treatment of tuberculosis were two things, first, supervision by a man well skilled in the treatment of tuberculosis and, second, the rest treatment. Rest facilities should be provided in all tuberculosis sanatoria. If the patients could not be put to bed they should be given comfortable Adirondack chairs.

Dr. WILLIAM LEROY DUNN of Asheville, N. C., said that for twenty years he had been inclining more and more to rest cure for tuberculosis. He had started by putting only the patients with fever to bed but as the years went on he had come to put practically every patient at rest in the beginning. From the results obtained he felt he was justified in doing this. The more the rest side was emphasized the better the results had been. Most of them had made a mistake in taking temperature as an indication for putting the patient at rest. When the patient was put to bed he realized that he had a serious piece of work on hand and then every step was an increase in his liberty and this made his course of treatment easier for him. Fighting tuberculosis was after all as much of a soul fight as a physical fight and if the patient met it in the right spirit one could do much more for him. He could not emphasize too strongly the importance of rest in the treatment of tuberculosis.

Dr. NEWTON expressed the opinion that in such a general discussion of tuberculosis the question of climate should not be altogether disregarded.

Dr. LAWRASON BROWN emphasized the importance of following up the tuberculosis patient and adjusting his home environment. He said that every patient should have six weeks in bed at first, the advanced cases a much longer time; this was important because it was the time at which the patient was likely to make bad mistakes, because he had not yet learned how to care for himself. He would like to see the society take two cottages, taking not too advanced cases, and not those that were doubtful, and then give those in one cottage the six weeks rest and treat the others without it, and he felt that they would soon be convinced of the value of the rest treatment. The cases that had the six weeks rest were able afterwards to increase their exercise more rapidly than those who did not have this advantage.

Dr. PHILLIPS also emphasized the value of the rest treatment for tuberculosis.

Dr. HANCE called attention to the fact that patients who stopped talking improved more rapidly than those who used their voices.

Dr. ELLIOTT further emphasized the advantages of rest and said he would put patients to bed, not six weeks, but three or six months, or a year, until they had an abacillary sputum.

Dr. KINGHORN, in closing, referred to a series of x-ray pictures to which his attention had been called which showed the changes that occurred in the lungs after rest in bed. The *x*-ray pictures showed that there was a remarkable clearing up of the lungs after absolute rest in bed. It was a great mistake to tell the tuberculosis patient to exercise until he began to feel tired; they did not tell a well man to exercise until he was played out. It had been the observation of many men who were students of tuberculosis that over fatigue might cause a relapse. He felt very strongly that the rest treatment was superior to graduated labor.

The Voluntary Medical Service Corps.—Dr. WILLIAM DUFFIELD ROBINSON of Philadelphia made a brief address in which he described the way in which this branch of service had been formed and urged all those not eligible for the Medical Reserve Corps to join it. He explained that there was a great deal of work in the Government service that could be performed by men who were ineligible to the Medical Reserve Corps, either because they were over 55 years of age, were physically disabled, or were teaching. He pointed out that much was now being done by men in the Medical Reserve Corps that could be done by older men, thus releasing the members of the Medical Reserve Corps for active duty. It had been estimated that one physician was equal to 310 men in the ranks, but it was now thought that this estimate was not sufficiently high, and that one physician was equivalent to 500 men in the ranks; if that were true of the medical officers as a whole, the men in this society with their experience and special training were worth much more than that. Possibly it would be no exaggeration to say that the value to the Army of one such man was worth 1000 men in the ranks. Dr. Robinson made an appeal to the members of the society to volunteer for this branch of the service.

Notes on X-Ray and Radium.—Dr. WILLIAM DUFFIELD ROBINSON of Philadelphia presented this communication, in which he called attention to some of the differences between the physical properties and the physiological action of radiaton of the roentgen tube and the element radium. The anode, cathode, and *x*-rays produced when a high voltage electric current was passed through a glass vacuum tube were analogous to but not identical with the alpha, beta, and gamma rays of radium. The anode and cathode rays did not pass through the glass walls of the tube and the alpha rays from the radium were cut off by a thin sheet of paper. This being true we only dealt with the gamma rays of radium, and low and high rays from a roentgen tube. Roentgen and gamma rays were very similar and produced similar reactions on living tissue. The beta rays from radium were very active but did not have great penetrating power. The highest gamma rays would penetrate lead and metal of the greatest thickness. Radiations both from radium and roentgen tubes had a selective and inflammatory action on living tissue. If given in sufficent quantity either would destroy the tissue. With radium, however, a much greater degree of reaction could be produced without

injuring healthy tissue than could be produced by roentgen rays. For this reason radium could be used therapeutically to produce greater local reaction than could be secured by the roentgen rays and it was also superior in the treatment of cancer of the uterus and rectum, and in epithelioma of the lip and mouth, or in mucous lesions. The healthy tissues through which the rays might have to pass to reach diseased tissue must not have dosage in such quantity or duration pass through it as to destroy it as well as the disease growth itself. The limit to which radium could destroy cancer cells when placed in contact with mass was a little over one inch in depth. By placing the radium or roentgen tube eight inches from the surface and treating for seven facets of entry, a tumor four inches below the surface would receive about the same radiation as any one of the seven facets of skin surface through which the rays had passed. Experience had taught that often it was necessary to use even twenty or more portals of entry to do effective work at deep points. Malignant cells were from two to five times as susceptible to the action of the rays as the normal tissue cells. This worked out all right with the roentgen rays but no one was in possession of sufficient radium to place it eight inches from the surface and treat the diseased areas a reasonable time. For this reason when a tumor was as much as one and one-half inches from the surface the *x*-ray was the preferable selection to make to secure the radiation. When radium was used the depth of its effect in the tumor must be kept well in mind. Care should be taken that the destruction of the part affected and very adjacent must not be associated with the deeper parts being only stimulated. This at once suggested the propriety of the deeper reaching *x*-rays being applied to the adjacent parts and near by glands so as to destroy any beginning mestastasis. Radium was the destructive force to be chosen for surface and local effects, and roentgen for larger and more remote areas. A ray was selected for each kind of cell; normal and pathologic cells reacted differently to radiation. A dosage entirely safe for muscle cells would destroy lypmphoid cells. The endothelium of small blood vessels was very susceptible and more so to radium than to *x*-ray. This indicated that radium was the source of radiation to be used in treating naevi and the like. Sarcoma and lymphatic glands required much less radiation than carcinoma. In malignancy radium should always be supplemented by roentgen rays, preferably from a Coolidge tube. What was most needed was to have users of radium and *x*-ray get together and standardize. The writer cited four cases in one of which, a carcinoma of the mouth, neither radium nor the *x*-ray were of avail; in the second, an osteosarcoma of the jaw, a cure was apparently effected; the third and fourth cases were inoperable carcinoma of the rectum treated successfully with radium. In both of these burns resulted from inaccurate placing and retention of the radium. Competency on the part of the attendant would have prevented these. The usual orderly or nurse had had little instruction in the effects of radium or the *x*-ray. This was an unfortunate deficiency which should be corrected before they have charge of the use of these agencies.

President's Address.—Late Results of Gunshot Wounds of the Chest.—Captain J. H. Elliott made this presentation, which he said he thought would be more interesting than the stereotyped presidential address. He described a number of gunshot wounds of the chest, showing the end results that were obtained and illustrating his talk with lantern slides. He said he could not give a better idea of what he wished to convey as to the end results in gunshot wounds of the chest than to quote an excerpt from the history of a typical case. This man was wounded on May 18, 1917, by a shrapnel fragment which entered at the internal angle of the left scapula, traversed the chest and was found at the level of the third costal cartilage. He was admitted to the hospital in collapse and had considerable hemorrhage. His case was viewed as hopeless. He had a high temperature, rapid pulse, and some delirium. There was some discharge of fluid and sticky blood from the opening. A drainage tube was introduced and the suction apparatus employed. The patient vomited and his pulse went to 106° F. A culture of the fluid discharged showed the *bacillus perfringens*, the gas bacillus, and other organisms. The patient was given digitalis and strychnine and a few days later the suction was removed and a smaller tube put in. Three weeks later he had a hugh edema of the left arm and a part of the back. The sinus was kept open and a large amount of pus was evacuated. The *x*-ray showed collapse of the right lung. When seen in Toronto, eleven months later, the only thing he complained of was pain in his right side on exertion. This case was illustrative of the desperate condition of these men after some of these injuries of the chest. The prognosis must, however, be fairly good for many men who had had chest injuries were returned to the firing line on the other side but in Canada they did not return a man to the front line after a chest injury. The surgical treatment of thoracic injuries was interesting but the speaker said he would not dwell much on that except to say that the surgeons now had no more hesitation about going into the pleural cavity than into the abdominal cavity and they did not hesitate to go boldly into the lung for a foreign body, or to amputate a piece of lung. The *x*-ray pictures shown were all taken from four or five months to a year or more after the wounds were received and the men were all back at work. It was remarkable how many cases there were of empyema that had had tubes for from three to six weeks, and yet under the fluoroscope there was no interference with the movements of the diaphragm and no sinuses. Some of those with retained foreign bodies suffered a little pain and shortness of breath at times on exertion. One rather peculiar thing was shown by the *x*-rays and that was that in many of these cases the mediastinum was pushed toward the healthy side instead of toward the injured side as one would expect. Collapse of the opposite lung might occur, and in some ten or fifteen cases the collapse was found on the opposite side and not on the injured side. One of the outstanding features was the absence of fractures of the ribs. This was explained on the theory that in cases in which ribs were fractured the injuries had been so extensive and the hemorrhage so severe that all these cases died on the field. Among the complications met with in these cases were the following, collapse, unilateral or bilateral; Hemothorax, unilateral or bilateral; infarcts, pneumonia, empyema, emphysema, subphrenic abscess, and injury to the bronchi.

Dr. John Winters Brannan said that Dr. Heiser who had just returned from the other side told him that the Italians had a hospital devoted to the care of chest wounds and that they had a method of aspirating the chest which was giving wonderful results. He stated that their mortality from chest wounds was practically nil.

Dr. James Alexander Miller said that it was of interest to note that chest injuries as well as the stress and strain of military life did not light up tuberculosis as often as was supposed. Our ideas as to the effects of military life would have to be modified by the actual experiences of the war.

Cardiac Conditions That Disqualify for Army Service.—Dr. Collins H. Johnston of Grand Rapids, Mich., presented this communication, in which he stated that many men with impaired hearts were being passed by examining boards and experience in France and England showed that many such men broke down under the stress and strain of active service. A man with a dastolic murmur should be rejected. In the absence of physical signs of heart impairment, it was the practice of many to ignore symptoms. This might not always be advisable, and yet, on the other hand, it was not wise to make a diagnosis on symptoms alone. A functional murmur at the apex that disappeared on exertion might be disregarded. Those in whom valvular disease was suspected should be examined in both the standing and the recumbent position. It was advisable to exclude a man with a loud, rough, systolic murmur at the apex, transmitted to the axilla and accompanied by a thrill and accentuated second pulmonary sound, especially if there was a history of rheumatism and enlargement of the heart. A murmur at the base where there was no enlargement was not considered sufficient ground for rejection. There was some difficulty at times in recognizing a slight degree of hypertrophy, and in the last analysis the real test of military efficiency was the capacity of the myocardium to undergo exercise. A good test of the muscular capacity of the heart was to have the appli-

cant hop one hundred times. If after this the heart returned to normal within two minutes the musculature was efficient; if it took four or five minutes for the heart to return to normal there was probably some impairment. The writer discussed a form of vasomotor instability into which the mental factor entered to a great extent and quoted Mackenzie as saying that 90 per cent. of the men of this type were suffering from physical and mental exhaustion. Those who showed no physical signs except rapid pulse and high respiratory rate would be kept under observation. Of course auricular fibrillation was usually associated with rheumatism and was disqualifying.

Colonel GEORGE E. BUSHNELL said that the Surgeon General's office was finding out that the average medical man did not know much about the examination of the heart. Some had the idea that a murmur meant valvular disease and that a man having a murmur was to be rejected. The Surgeon General's office was doing all it could to raise the general professional efficiency. They were sending a certain number of men to the Rockefeller institute for special training in cardiovascular diagnosis and there was a cardiovascular specialist in every large camp and, as far as possible, one in every small camp. A man interested in cardiovascular work in the Army at the present time was offered an opportunity for learning about cardiovascular diseases such as he would not get again in this generation. Some had the idea that when the examinations were made by experts more men would be rejected than when the average man made the examinations, but just the opposite had proved to be the truth. Many more cardiac specialists were needed in the Army as well as specialists is other lines.

The Soldier and Tuberculosis.—Dr. E. O. OTIS of Boston presented this communication. (See page 47.)

What Shall Be Done with the Tuberculous Soldiers?—Dr. JAY PERKINS of Providence, R. I., read this paper. He said that in considering this problem one might ask "What constitutes a tuberculous soldier?" Was he one who presented some physical signs associated with an old healed tuberculous lesion which might be demonstrable by an *x*-ray examination, or was he a man who had tuberculosis as a disease and not merely as a past, or doubtful present, or feared future, infection? If real disease were present, was it acute or chronic, open or closed, previously known or unknown, had it been treated and was it already in a fairly stable arrested stage, or was it far advanced and apparently hopeless? The essayist warned against the making of a diagnosis based on the findings in a single *x*-ray plate. The diagnosis having been confirmed the individual case must be considered. If the case was an arrested one, no longer dangerous to others, and the man was in good physical condition, advice was all he needed. If he was a former sanatorium patient, or one who had been educated as to tuberculosis in whom the disease was inactive, he could continue to care for himself. If there was active disease, acute or chronic, needing attention, the advice given him depended upon his condition, physical and financial, and whether the condition was discovered in the draft or in the service and in line of duty. The cases with fibroid changes, but without signs or symptoms of activity, were usually at some occupation in which they were doing fairly well and should be left alone. The active cases should be removed to a hospital. In those who went to a sanatorium and were not cured, one must take into consideration the conditions to which they returned. It was of no advantage to send a man to an institution if he had to return to unfavorable surroundings, for in such an extent he was a menace to others and had little chance for human happiness himself. The sending of such men to a sanatorium was but prolonging their misery for a few months. The writer emphasized the importance of making the hospital for advanced cases a home. He said that it was customary to recommend sanatorium patients to out door employment after they had completed their course of treatment. Often these employments necessitated heavy physical labor and too much exposure. Light indoor work was better for them. In California they had been putting these patients to work at pottery and similar handicrafts. If the tuberculosis was acquired in the line of duty the man should have some oversight. He should be referred to his home tuberculosis society or a Red Cross worker by preference. Delay in the discharge of such cases should be remedied. If the man had acquired his tuberculosis in the line of duty he should have his choice of a discharge or a Government sanatorium. Most men took the discharge. Of the men in whom a diagnosis of tuberculosis was made in the French army, only about 20 per cent. were found later actually to have the disease and the same held true in our army. There should be provision for part time work for those who had recovered from tuberculosis.

Colonel GEORGE E. BUSHNELL, in referring to Dr. Otis' statement that rules were a handicap to the expert, said that the majority of those making examinations had found the rules most useful and had found it necessary to standardize the rules still further. The rules they were using had been formulated by the best internists, and further suggestions were always welcome. In considering the question of the rejection of those suspected of having tuberculosis, the rules advised the rejection of those having lesions of "considerable extent." This was rather indefinite and some one had suggested that they specify that lesions extending to the third rib should be rejected. He felt that the intensity of the lesion was of quite as much importance as the extent of the lesion and that a very definite change at one point was of more importance and a diffuse fibrosis. He felt that a man who was harboring many tubercle bascilli had a narrower margin of safety than the man who had a fibrous lesion, even though the lesion were of some extent. There was also no doubt that many cases were wrongfully rejected and in this respect the local boards had been more liberal than he would have been. It was the borderline cases that were puzzling. Many men with slight lesions were strong athletic men and it was difficult to predict how they would stand the strain of military life. Often these apparently strong athletic men were the first to succumb because they did not take care of themselves and it was a difficult thing to gage the resistance of a man. If they disqualified all old healed tuberculosis cases as unsuitable they would have no army. The question of taking care of men who developed tuberculosis in France had been considered, and it was thought best to bring them back to this country for treatment. He felt that the climate of the Rocky Mountains was more favorable for them than that of Europe.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Wednesday, May 22, 1918.

THE PRESIDENT, DR. FRANK C. HAMMOND, IN THE CHAIR.

Tuberculosis from the Standpoint of the Genitourinary Surgeon.—Dr. B. A. THOMAS regarded tuberculosis of the genitourinary tract as invariably secondary to systemic tuberculosis. In speaking of "primary" tuberculosis of the kidney he referred to the part of the genitourinary tract primarily involved. Urogenital tuberculosis was said to be characterized by the fact that it masqueraded under misleading and often misinterpreted symptoms, a fact which was doubtless responsible for the astounding revelation that 90 per cent. of all patients presented symptoms of over a year's duration before consulting the surgeon, and that only 10 per cent. consulted the surgeon during the first six months of their symptomatology. That these patients were deprived of surgical treatment (alone curative) was due either to the fact that they were temporized with by treatment for protracted cystitis, without urological investigation, or that many physicians did not realize that nephrectomy was the treatment indicated. Urogenital tuberculosis the author divided into two types: (1) the urological; (2) the genital. In at least 80 per cent., constituting one-third of all surgical lesions of the kidney, this organ was primarily involved. In 12 per cent. the epididymis was the primary cause and in the remaining 8 per cent. was divided among the prostate, seminal vesicles, and uterine adnexa. Although the prostate was primarily involved in approximately only 6 per cent. of cases, it was said to be the seat of tuberculosis in at least 75 per cent of patients with urogenital tuberculosis, due to the fact that it was the foyer, exchange, or cross-

roads, as it were, between the urinary and the genital tracts. The bladder as a primary seat of tuberculosis was regarded as of such rare occurrence that its incidence was negligible. Tuberculosis of the kidney it was said usually occurred in the second and third decades of life; about 10 per cent. of cases, in Dr. Thomas' experience, occurred prior to the 20th year and 30 per cent. after the 40th year of life. Vesical irritability was said to be the predominant and earliest sign of renal tuberculosis in 90 per cent. of patients, indicating the necessity of early, complete urological examination if these patients were to receive the treatment to which they were entitled, at a time when cure was possible. Two questions of first importance raised were: (1) Is the cystitis tuberculous; (2) If so, is the tuberculosis of renal or genital origin? The importance of chromoureteroscopy (cystoscopy plus indigocarmine as a functional kidney test), *x*-ray examination, and pyelography in the differentiation of an ordinary pyogenic renal infection, tumor, and calculus was emphasized. Routine ureteral catheterization of a normal ureter in the presence of tuberculous cystitis, as a matter of diagnostic necessity was to be unreservedly deplored because chromoureteroscopy was all-sufficient for the best management of such cases, and was devoid of erroneous results incident to dependence upon ureteral catheterization, and particularly the possibility of the infection being conveyed to the healthy kidney. Nephrectomy with an immediate mortality of less than 5 per cent. and with a promise of 80 per cent. of cures for a period of at least three years, as contrasted with 80 per cent. of deaths inside of two and a quarter years by medical and palliative procedures was strongly recommended in qualified cases as the treatment par excellence for tuberculosis of the kidney. In genital tuberculosis of either the testicle, prostate, or seminal vesicles, treatment was said to rest between operative intervention and palliative treatment along antituberculosis lines, including tuberculin, with a definite inclination toward conservatism.

Tuberculosis of the Peritoneum.—Dr. F. HURST MAIER stated that the Mayos in 6,000 laparotomies had found some form of tuberculosis of the peritoneum in 4 per cent. of the cases and that its occurrence was in the ratio of four cases in women to one in men. The greater frequency in women they attributed entirely to infection of the Fallopian tubes. In children there was no marked sex proclivity. Tuberculous peritonitis was said to be almost always secondary to focal infection in the lungs or intestines, Fallopian tubes, or appendix. Kelly had found that the onset usually occurred during the puerperium. Three varieties, the names of which were descriptive of the pathology were: (1) Serous (ascitic), 75 per cent.; (2) Adhesive or fibroplastic, 20 per cent.; (3) Caseous or ulcerative, 5 per cent. These so-called types, however, were really expressions of different stages of development. The Mayos believed that ascites was more common in women with tuberculous tubes; while in both male and female the fibroplastic forms were relatively more common when the appendix or an ulcerated intestinal lesion had been the source of peritoneal involvement. In the early stages diagnosis was said to be practically impossible, the slight symptoms being attributed to passing functional disturbances of stomach, bowels, or reproductive organs. Only upon the manifestations of abdominal symptoms was the question of tuberculosis of the peritoneum raised. From an ovarian cyst, encysted tuberculosis of the peritoneum might be differentiated by noticing the absence of dullness in the middle line, the absence of a definite cyst wall, the more irregular outline, the more rapid growth, raised temperature. The encysted varieties had been mistaken for many abdominal conditions. The prognosis was best in the ascitic form of the disease and the most unfavorable in the caseous type. A grave prognosis was indicated in cases with particularly high temperature denoting mixed infection. In removal of diseased tubes and appendix in the operative treatment of tuberculous peritonitis care should be taken not to disturb adhesions. The Mayos had found that there were fewer relapses in those cases in which the tubes were removed, and that patients suffering from recurrent ascites after as many as four laparotomies, were cured by the removal of the primary focus; also that unless the uterus were much affected, its removal gave no better result than simple salpingectomy.

Tuberculosis from the Standpoint of the Orthopedic Surgeon.—Dr. G. G. DAVIS regarded tuberculosis as interesting to the orthopedist because of its producing cripples. The handling and treatment of cripples, he said, should be carried out only by one who had been trained and prepared to take care of that class of patients. Tuberculosis of the bones and joints was said to be a peculiar disease to the extent that it did not kill the patient quickly but disabled him. The person becoming a cripple was liable to become a charge on the community. The author asserted that communities did not care for their cripples rightly, and would not, until, as in other questions, compulsion was felt. The efficiency of the community was affected by the number of its cripples. This was seen in industrial life and while the state had taken cognizance of cripples in the industries it had not done so regarding tuberculous cripples. If tuberculosis were a preventable disease, those who could, but did not prevent it were said to be responsible. Tuberculosis of the lungs might be sudden and overwhelming but the bulk of the cases in bone and joint tuberculosis were slow, insidious and progressive. As a rule they gave ample warning that treatment might be instituted. In every community in which there were cripples from tuberculosis, as a rule, somebody was to blame for not having had them cured in time. Regarding the social treatment of tuberculous cripples it might be said that the community and the parents very often viewed them from an entirely erroneous standpoint. A cripple might be absolutely disabled; the majority were not, and were capable of doing a large amount of work. The microscope placed upon humanity would make it difficult to say who was not a cripple. Of two children in the same family, one might be a tuberculous cripple; the other have a disability of some other character; and possibly be not as bright mentally as the tuberculous cripple. Why, therefore, should the latter be pampered and given a false view of life, and the other with more obstacles punished for not studying his lessons. It was discouraging to an orthopedic surgeon endeavoring to instil ambition into a cripple educated to be self-supporting, to find such a child pampered by the parents as soon as he reached home. Such an attitude of the family toward the cripple was entirely wrong. A tuberculous cripple, like all others, should be taught self-reliance and its duties to the other members of the family and to the community. The orthopedic treatment of tuberculous cripples was of necessity carried on in institutions. For example, a child with Pott's disease should for a certain period of the treatment be confined to bed. If treatment were well carried out the case was almost certain to pursue a favorable course. Therefore, when a physician in general practice found a child with tuberculous spine, he should have it placed under hospital treatment. It was a regrettable fact, however, that the needed hospital facilities were difficult to obtain. Dr. Davis believed that the present war would make possible the proper care of chronic tuberculous patients, and draw attention to other than the acute conditions. What might be termed the strictly orthopedic handling of the tuberculous patients consisted in the local treatment and their use of apparatus. Emphasis should be placed upon the importance of preventing irritation of the local spot of the disease. To get such a patient well, however, he must be treated constitutionally. He must be given fresh air and sunlight. With the solving of the hygienic question cure of the condition was possible. This was not sufficiently appreciated.

Abuse of Milk in Young Children.—Comby would prohibit the use of more than a pint of milk daily after the completion of the first year of life while during the latter the amount should not exceed a quart daily. To subsist wholly on milk after weaning is to go without sufficient iron. The infants thus fed are anemic, fat, sluggish, constipated—in fact, really subject to a deficiency disease. The latter promptly improve upon fruit juice, purees, eggs, etc. The former alone—grape or orange juice—is sufficient for the purpose.—*La Presse Médicale.*

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Original Articles.

BLOOD CHOLESTEROL.

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NEW YORK.

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Conradi, in 1775, first found cholesterol in gallstones (so says Leathes in his monograph, "The Fats"). Gradually, evidence accumulated to show the presence of cholesterol in the bile, blood, brain, nerve-tissue, spleen, kidney, liver, intestine, contents of dermoid cysts, feces, meconium, sebum, epidermis, milk, and hair; and pathologically, in addition to biliary calculi, in the urine in diabetes and icterus, in the fluids of ascites and hydrocele, in tuberculous and cancerous deposits, in cataracts, atheromatous degenerations, and sometimes, in masses of considerable size, in certain cerebral tumors. But beyond recognizing the wide distribution of cholesterol in products of abnormal physiology, no record is found of especial effort directed by earlier investigators to ascertain the significance of the appearance of this important substance in pathological phenomena; and it is of striking interest that the issue which in modern times focuses attention upon cholesterol is the contention held by some observers that hypercholesterolemia is the fundamental etiological factor in the pathogenesis of cholelithiasis. Thus, after a century and a half following its discovery in gallstones, it develops that, apparently, a perverted metabolism of cholesterol is responsible for the calculus which in pathological processes it composes.

There need be no superfluous energy expended in reminding the experienced clinician of the difficulty, often the impossibility, of distinguishing between symptoms incident to gallstones, to gastric, or to duodenal ulcer. Even with the aid of every laboratory expedient, including roentgenology, many cases present where the differential diagnosis cannot with certainty be made. It is at once evident how valuable would be a definite sign, such as hypercholesterolemia, were it positively, or at least clinically reasonably pathognomonic of biliary calculosis. Henes urges that hypercholesterolemia, when arteriosclerosis, chronic nephritis, and certain other causes are ruled out, means the presence of gallstones. Other workers decline fully to subscribe to this thesis.

The desire to explore with the intention of elucidating a reason for these divergent views was the immediate stimulus to this study; and at the beginning it was clear that much confusion attended the chemical determination of the amount of cholesterol in the blood. Then it was necessary to know how the cholesterol is distributed in the blood and what factors affect its quantity, in order correctly to interpret its full significance in cases of gallstones.

A logical presentation of the subject should therefore include: (1) The technology of the determination; (2) the distribution of cholesterol in the blood; (3) the factors influencing its variation; and (4) the significance of cholesterol in cholelithiasis.

1. For a long time, the gravimetric digitonin method of Windaus was used to determine quantitatively the amount of cholesterol in a given tissue. With the advent of colorimetry, colorimetric methods were introduced by Weston, Schmidt, Autenrieth and Funk, Henes, Csonka, Gettler and Baker, Myers and Gorham, Fraser and Gardner, and Bloor. Of these methods, those of Weston and of Schmidt availed themselves of the Salkowski reaction struck by cholesterol; while the others enumerated utilized the Liebermann-Burchard reaction.

Since digitonin can combine only with free cholesterol, and cholesterol occurs in the tissues both in a free and in a combined state, preliminary saponification was a necessary measure when this method of determination of cholesterol was used. Both the free and the combined cholesterol strike either the Salkowski or Liebermann-Burchard reaction, and, therefore, in the colorimetric estimation it is not essential to saponify beforehand. Despite this truth, practically all of the colorimetric methods advanced include the unnecessarily additional step.

With blood, proper drying is a first essential. Gardner and Fraser, in 1910, suggested the admixture of a measured quantity of plaster of Paris. Myers and Gorham, in 1914, adopted a similar procedure. There is much to commend this method, but more particularly the fact that plaster of Paris contains calcium in such form that it combines with many biliary derivatives, thereby precluding the possibility of these extraneous Liebermann-Burchard reacting substances contaminating the final extract. It is not impossible that "oxycholesterol," described by Lifschutz, and similarly related substances known to contaminate the final extract when plaster of Paris is not used for drying, form the source of error indicated by Mueller.

So immediately and completely soluble is cholesterol in chloroform, that it seems impossible to desire to select any other solvent for its extraction. The mixture of alcohol and ether, offered by Bloor, is convenient, but appears to include substances which render the readings from 15 to 30 per cent. higher than the true values.

Cholesterol, at 150° C., can be distilled at ordi-

nary pressure without decomposing. The boiling point of chloroform is between 60° and 62° C. It is plainly obvious that boiling chloroform is ideally suited advantageously to extract cholesterol. Utilizing the method of reflux condensing, whereby a small volume of solvent is repeatedly extracting, as in the Soxhlet extraction of fatty portions of foodstuffs, a most desirable and efficient technique results.

Modern investigators have abandoned the Salkowski color reaction in favor of the Liebermann-Burchard test, the green color which it produces being better adapted to colorimetric estimation. An important advance has been introduced by Myers and Gorham in the choice of a permanent standard used for comparison of the unknown solution. Usually a chloroformic solution of cholesterol is employed. This readily decomposes, as Myers pointed out. The substitute offered is an aqueous solution of beta-naphthol green. Solutions of this dye appear to be permanent, and are quite easily prepared.

All the essentials just mentioned have been combined into a new method for the determination of cholesterol, as follows:

*Method of Pacini.**—One cubic centimeter of serum, plasma, whole blood, or corpuscle suspension is placed in a small porcelain crucible and mixed intimately with about 20 grams of plaster of Paris. This is permitted to dry at room temperature, or, for greater expediency, within an oven heated to not over 100° Centigrade. The dried mixture is placed in a small paper thimble, or folded into filter paper, and inserted in the carrier of a Thorn extraction apparatus. See Fig. 1.

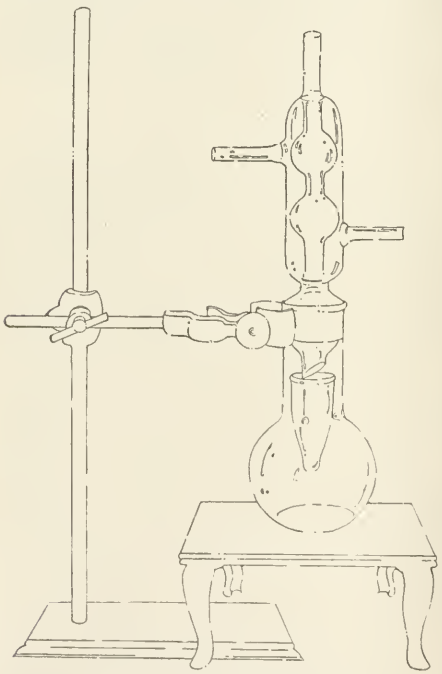

Fig. 1.—The Thorn extraction apparatus.

About 20 cubic centimeters of chloroform are placed in the extraction flask and the entire apparatus set over an electric hot plate. When the extraction has continued for one-half hour, it is complete, and is thereupon discontinued. The chloroform is permitted to cool and made to a volume of 20 cubic centimeters.

To 5 cubic centimeters of the chloroform extract are added 2 cubic centimeters of acetic anhydride and 1/10 cubic centimeter of chemically pure, concentrated sulphuric acid.

After thorough mixing by shaking, the whole is set aside in a dark place and the reaction allowed to continue for fifteen minutes. At the end of this time the color has reached a maximum and is compared against a standard, using either a Duboscq or Hellige colorimeter.

The beta-naphthol green standard is prepared by diluting 2 cubic centimeters of a 1/10 per cent. aqueous solution of the dye to 17 cubic centimeters, using distilled water.

From the Hellige reading, the cholesterol may be computed by use of the following formula:

103 minus Hellige reading, x 0.00847 = milligrams of cholesterol in 5 cubic centimeters of solution, or it may be computed from the use of the following table, copied from Myers and Gorham:

Table I.

Reading.	Mgms. in 5 c.c.	Reading.	Mgms. in 5 c.c.	Reading.	Mgms. in 5 c.c.
15	0.74	35	0.57	55	0.40
16	0.73	36	0.56	56	0.40
17	0.72	37	0.55	57	0.39
18	0.71	38	0.55	58	0.38
19	0.70	39	0.54	59	0.37
20	0.69	40	0.53	60	0.36
21	0.69	41	0.52	61	0.35
22	0.68	42	0.51	62	0.35
23	0.67	43	0.50	63	0.34
24	0.66	44	0.50	64	0.33
25	0.65	45	0.49	65	0.32
26	0.65	46	0.48	66	0.31
27	0.64	47	0.47	67	0.30
28	0.63	48	0.46	68	0.30
29	0.62	49	0.45	69	0.29
30	0.61	50	0.45	70	0.28
31	0.60	51	0.44	71	0.27
32	0.59	52	0.43	72	0.26
33	0.58	53	0.42	73	0.25
34	0.58	54	0.41	74	0.24

Of course, the value obtained either by formula or table, multiplied by four (because 20 cubic centimeters of solution was the final dilution) and again by one hundred gives the cholesterol in terms of milligrams per 100 cubic centimeters of blood (or whatever fluid was used, serum, plasma, etc.).

Attesting to the high degree of accuracy obtained when using this method, are the following data:

It will be noted that the average error is about one and one-quarter per cent. Obviously, the method is exact excepting for a negligible experimental error. To compare this method against other methods in constant use, six specimens of the same blood were analyzed simultaneously by the

*This method, based on continuous extraction with chloroform, was first demonstrated by the writer before the Brooklyn Medical Society in 1914; then before the Brooklyn Society of Internal Medicine in 1915, and in 1916 before the Bellevue Alumni Association, where it was discussed by Dr. Robert Wilson, Dr. A. B. Pacini, Drs. Epstein, Roberts, Willy Meyer, and Henes.

TABLE II.

Blood.	Cholesterol Found.	Average.	Cholesterol Added.	Theoretical Total.	Difference in Mgms.	Error, per Cent.
1. a	0.32		0.00			
b	0.32	0.32	0.00	0.32		
c	0.82		0.50			
d	0.80	0.81	0.50	0.82	−0.01	−1.22
2. a	0.48		0.00			
b	0.50	0.49	0.00	0.49		
c	0.98		0.50			
d	1.02	1.00	0.50	0.99	+0.01	+1.22
3. a	0.36		0.00			
b	0.36	0.36	0.00	0.36		
c	0.88		0.50			
d	0.86	0.87	0.50	0.86	+0.01	+1.22
4. a	0.42		0.00			
b	0.44	0.43	0.00	0.43		
c	0.90		0.50			
d	0.94	0.92	0.50	0.93	−0.01	−1.22
5. a	0.38		0.00			
b	0.34	0.36	0.00	0.36		
c	0.88		0.50			
d	0.88	0.88	0.50	0.86	+0.02	+2.44
6. a	0.36		0.00			
b	0.38	0.37	0.00	0.37		
c	0.84		0.50			
d	0.88	0.86	0.50	0.87	−0.01	−1.22

Explanatory.—Each blood specimen, six in all, was divided into four portions, a, b, c, and d, each portion being 1 cubic centimeter. They were mixed, separately, with plaster of Paris and dried. To portions c and d of each lot was added 5 cubic centimeters of cholesterol solution, equivalent to 0.50 mgms. of cholesterol. Determinations were then made on each portion.

methods of Bloor, Myers and Gorham, Henes, and the one outlined here. Only the following summary of average percentage error incident to each method is presented, the bulk of figures entering into the results being omitted to economize space:

TABLE III—AVERAGE PERCENTAGE ERROR, SIX TRIALS, BY THE METHODS OF BLOOR, MYERS AND GORHAM, HENES, AND PACINI.

Specimen.	Bloor.	Myers and Gorham.	Henes.	Pacini.
1	+22.3	−10.0	−6.3	−1.2
2	+31.4	−18.5	−2.0	−1.2
3	+28.8	−22.5	+8.4	−0.5
4	+16.4	−14.8	−6.8	+1.2
5	+24.6	−31.6	−5.3	−1.2
6	+38.5	−11.1	−9.1	−1.2

This table is convincing of the greater accuracy of this method over the others. Owing to its relative exactness, it was chosen as the standard method for the work which follows.

2. With the advent of modern blood chemistry into medicine, many oxalated whole-blood specimens reach the clinical laboratory, where it is customary to use the whole blood for the determination of the several nitrogen fractions. In whole blood, there are 150 milligrams of cholesterol in 100 cubic centimeters of blood. Under normal conditions, this figure varies within exceedingly narrow limits, probably not less than 140 nor more than 160 milligrams. Higher figures are found when the serum alone is used, the average then being between 150 and 170, or close to 160 milligrams.

Using oxalated whole blood, or whole blood prevented from clotting through the use of hirudin, the following determinations were made upon 1, the whole blood; 2, the plasma; and 3, the washed and diluted cells.

Apparently there is generally a smaller content of cholesterol in the corpuscles than in the plasma in the proportion of 55 to 45, that is, about 55 per cent. of the cholesterol of the whole blood is contained in the plasma, the remaining 45 per cent. in the blood cells. To determine the cholesterol in the cells the whole blood is centrifuged in a graduated Purdy tube to free the plasma, which is then poured off. The cells are then made up to double their volume with isotonic saline, shaken and recentrifugalized. The saline is poured off and the cells again made up to twice their volume with fresh saline. Two cubic centimeters of cell suspension are used instead of 1 cubic centimeter of whole blood or plasma.

TABLE IV—CHOLESTEROL DISTRIBUTION BETWEEN PLASMA AND CELLS, NORMALS

Case.	Sex.	Whole Blood.	Plasma.	Washed Erythrocytes.
1	M	165	175	155
2	M	150	165	140
3	M	150	160	140
4	M	160	170	145
5	F	140	150	130
6	M	150	150	150
7	M	155	165	145
8	M	150	160	140
9	M	160	170	150
10	F	150	160	140
11	F	140	160	130
12	M	150	165	135
13	F	160	160	160
14	F	160	175	150
15	F	140	150	130
16	F	135	150	130
17	M	140	155	130
18	M	160	175	150
19	M	150	160	140
20	M	160	175	150
21	F	155	170	150
22	F	160	175	155
23	F	140	160	130
24	F	150	160	140
25	F	150	160	140

The series of normal cases presented would show that the normal distribution of cholesterol between plasma and cells is, on the average: for whole blood, 150 milligrams; for plasma, 160 milligrams; and for cells, 140 milligrams.

Recently a method has been introduced by Bloor to determine the relative proportion of free and combined cholesterol in the fractions of the blood.

Essentially, this method consists in determining the total cholesterol, then precipitating the free cholesterol with digitonin and determining the residual or combined cholesterol. By subtracting the value for the latter from the former figure, there is obtained the amount of free cholesterol. Of course, any defect in the method for determining the total cholesterol would apply to the above procedure for determining the separate fractions; and since Bloor's method is acknowledgedly erroneous in the results it yields, and the only available figures for the relative amounts of free and combined cholesterol in the blood are based upon results obtained by Bloor's method, it is plain that no accurate data are yet advanced in this particular.

There are theoretical reasons for believing that a study of the amount of free and combined cholesterol would be of practical significance to the clinician; but it seems advisable, in view of the uncertainty of the method for determining the separate portions, and because of the scant information on the topic of total cholesterol metabolism in disease, to confine attention, at least immediately, to the question of total cholesterol.

3. That the cholesterol content of the blood during the period of pregnancy presents certain varia-

tions is an opinion expressed by previous investigators. Chauffard, Laroche, and Grigaut found a hypercholesterolemia to begin about the fourth month, and progressively to increase until full term.

No other physiological processes are known which occasion hypercholesterolemia. Indeed, it is questionable whether normal pregnancy at all induces a hypercholesterolemia. In three cases of five submitted, it will be noticed that the cholesterol content of the blood does not increase during term.

TABLE V—EFFECT OF PREGNANCY ON CONTENT OF BLOOD-CHOLESTEROL

Case.	Month.									Remark
	1	2	3	4	5	6	7	8	9	
1	140	138	150	140	140	148	156	160	160	Albuminuria
2	150	140	150	150	150	145	150	150	150	Normal term
3	135	135	145	150	160	180	210	180	190	Albuminuria
4	160	165	140	155	175	175	160	165	160	Normal term
5	140	145	150	140	145	140	140	150	145	Normal term

It is significantly interesting to observe that in the cases where a hypercholesterolemia obtained there developed a nephritis during pregnancy; and that in the remaining cases, which progressed uneventfully to normal deliveries, the cholesterol content remained practically constant throughout. It may well be that hypercholesterolemia occurs in pregnancy only when complications, particularly renal, which presage hepatic changes incident to eclampsia, arise; so that hypercholesterolemia accompanying pregnancy cannot be considered a normal course, but rather a pathological sign.

Henes points out that pyrexia is a dominant pathological entity affecting the cholesterol content of the blood in that it suppresses a hypercholesterolemia, and may even occasion a hypocholesterolemia. This contention is upheld by the following laboratory evidence:

In this case, one of tertian malaria, cholesterol determinations were conducted on the whole blood, plasma and erythrocytes at intervals when it was predicted that the temperature would be highest and lowest. Striking proof of the lowering of the cholesterol content of the blood during pyrexial peaks, with return to normal values during the intervals of apyrexia, is furnished.

Certainly, chronic nephritis of such extent as to occasion nitrogen retention in the blood, particularly creatinine retention, would be expected to preclude the excretion by the impaired kidney of such a viscous colloid as cholesterol. There is, therefore, every reason to find cholesterol retention in cases of interstitial nephropathy; and reports of laboratory investigators corroborate these premises. In a series of eight cases of nephropathies incident to prostatic obstruction and showing a nitrogen retention, the following results were obtained:

TABLE VI—UREA NITROGEN, CREATININE NITROGEN AND CHOLESTEROL RETENTION IN RENAL COMPRESSION INCIDENT TO PROSTATIC OBSTRUCTION.

Case	Urea N.	Creatinine N.	Cholesterol.
1	72	2.9	190
2	36	2.6	195
3	58	1.9	170.
4	65	3.2	240
5	49	2.8	210
6	61	3.4	260

Hypercholesterolemia is said by many to occur in cases of obesity. How vague such a statement is can be inferred from the unusual complexity of classification of clinical phenomena which attends the problem of obesity. No mention is made whether the cases showing hypercholesterolemia were complicated with renal or with cardiac anomalies such as are found in some cases of obesity. No remark appears as to the type of diet customarily used in the cases wherein hypercholesterolemia appeared. So many important details are omitted as to force the conclusion that simply to state that a hypercholesterolemia occurs in obesity is without clinical or scientific meaning.

There are presented the findings in ten cases of obesity which showed no complication and which would be classified by Von Noorden as "simple obesity in otherwise healthy subjects, medium degree, body weight about 45 to 75 pounds above the average for the particular size, sex, and age of the subject."

Cases of this kind are the most frequent to present themselves for treatment, and lend themselves readily to reduction treatment.

Manifestly, in this type of obese subject, a hypercholesterolemia is not present.

Arteriosclerosis and diabetes are said to be accompanied by a hypercholesterolemia. In the course

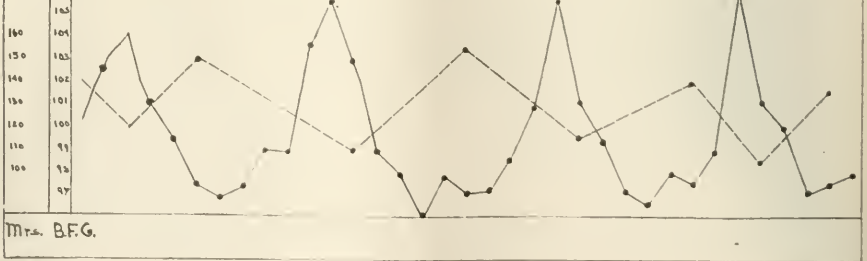

FIG. 2.—Temperature and cholesterol curves in a case of Tertian malaria; broken line, cholesterol; continuous line, temperature

of this study, eighteen cases of glycemia and glycosuria were examined and gave values for cholesterol ranging between 180 and 240 milligrams per hundred cubic centimeters of blood. But three cases of arteriosclerosis were investigated. The first showed 185, the second 190, and the third 175 milligrams of cholesterol per hundred cubic centimeters.

TABLE VII.—CHOLESTEROL CONTENT OF WHOLE BLOOD IN CASES OF OBESITY AS DESCRIBED ABOVE.

Case.	Cholesterol.
1	160
2	145
3	150
4	160
5	175
6	155
7	160
8	190
9	165
10	160

To summarize these findings it will be noted that temperature exerts a marked influence upon the cholesterol content of the blood, just as Henes contends. Pregnancy, unless complicated with intercurrent disease, does not show a hypercholesterolemia. Diabetes and arteriosclerosis give values higher than normal.

We arrive now at a discussion and study of the changes and significance of cholesterol in the blood of cases of cholelithiasis.

4. McNee demonstrated an excess of cholesterol in the bile during gestation, and Aschoff accepted this finding in support of his theory of a "cholesterol diathesis" to account for the frequency of gallstones in women who have borne children.

Together with J. T. Pilcher, the writer, in 1914, undertook a number of cholesterol determinations in the serum of some thirty cases of gallstones operatively confirmed at the Pilcher Clinic. In each instance a figure was obtained much higher than the normal; and while we at that time felt that the explanation of the etiological pathogenesis of biliary calculosis was perhaps contained in the hypercholesterolemia present in these cases, two fundamentally important factors upon which our inference was based needed more careful scrutiny.

First, the method used then for the determination of cholesterol was similar to the one described above excepting for one vital difference, the manner of drying the specimen. In our earlier work the serum was allowed to run onto a gauze pledget and there permitted to dry spontaneously.

Then the determination was conducted upon the serum, not upon the whole blood.

Let it be recalled that Henes, who strongly advocates the diagnostic value of hypercholesterolemia in gallstones, used serum for his determinations; and that Myers and Gorham, who do not fully subscribe to the stand taken by Henes, used whole blood in their study.

With these details in mind, it will be of interest to review some of the earlier findings (Table VIII):

Jaundice, as evidenced by the amount of pigmentation of the sclera, was recorded in terms of one, two, three, and four plus. No obvious coloring was denoted negative. Faint discoloration of the sclera, one plus; distinct discoloration of the sclera, two plus; marked scleral pigmentation with faint discoloration of the integument, three plus; and, plainly apparent jaundice involving both sclera and skin, four plus.

TABLE VIII.

Serum content of cholesterol in cases of gallstones, diagnosis confirmed at operation. Method for the determination of cholesterol as outlined above save for the preliminary drying of the specimen which, in this series, was accomplished without the use of plaster of Paris.

Case.	Serum Cholesterol.	Jaundice	Bile in Urine.	Bile in Blood.
1	210	++	++	+
2	240	+	+	+
3	190	−	+	−
4	420	++++	++	++
5	240	+	+	−
6	235	+	+	+
7	260	+	+	−
8	285	++	+	+
9	260	+	+	+
10	190	+	+	+
11	385	++	+	+
12	360	++	+	+
13	290	+	+	+
14	265	−	−	−
15	285	−		−
16	250	+	+	+
17	200	−	−	−
18	220	+	+	+
19	235	+	+	+
20	210	−	+	+
21	285		+	+
22	295	−	−	+
23	310	−	+	+
24	280	+	+	+
25	265	−	+	+
26	325	++	+	+
27	225	−	+	+
28	235	−	+	+
29	240	−	−	+
30	235	+	+	+

Urinary bile was tested for qualitatively in casually voided specimens, using Smith's iodine reagent. Similarly, the bile in the serum was determined by Smith's iodine test, unless the serum was so discolored as to require no further confirmation of its presence.

There is revealed in this table a peculiar tendency to greater "cholesterol-content" in those cases wherein icterus was most marked. Rather than "cholesterol-content," it were more exact to say that cases of gallstones complicated by jaundice show a higher quantity in the blood of Liebermann-Burchard reacting substances extracted by chloroform.

That cases of cholelithiasis with gall-bladder obstruction ample to occasion visible jaundice show a high cholesterol content are findings corroborative of Henes'. But it remains to be explained whether or not the excess cholesterol is due to the abnormal presence of bile in the blood.

Since calcium derivatives are particularly active in combining with many biliary derivatives, the method for the determination of blood cholesterol was modified by using plaster of Paris as a drying agent, thereby obtaining not only more rapid desiccation of the specimen, but also a means of eliminating contaminating biliary substances.

At this time a series of twelve clinically certain cases of gallstones were examined using oxalated whole blood instead of serum for the determination of the cholesterol, with these results.

Only two cases, numbers three and six, showed a hypercholesterolemia. When plaster of Paris was used for drying, the value is lower than otherwise. Manifestly, the plaster of Paris removes some product which gives a higher value than the true cholesterol reading. Equally noteworthy is the fact that all the cases of gallstones do not show a hyper-

cholesterolemia when whole blood is used for the determination.

TABLE IX.

Case.	Whole Blood Cholesterol.		Smith's Test on Plasma.	Smith's Test on Urine.
	With Gypsum.	Without.		
1	175	125	−	−
2	140	150	−	−
3	210	200	+	+
4	180	130	−	−
5	195	210	−	−
6	200	250	+	−
7	155	160	−	−
8	165	175	−	−
9	180	195	−	−
10	170	180	−	−
11	195	210	−	−
12	180	195	−	−

In a separate study it was indicated that in pernicious anemia a certain characteristic partition of the cholesterol between the plasma and the cells takes place. It was shown that, (1) the whole blood content of cholesterol was diminished, (2) the plasma content of cholesterol was diminished, and (3) the cell content of cholesterol remained normal, or was even slightly increased over normal. More important than the hypocholesterolemia which is found in pernicious anemia is the altered distribution of cholesterol between the plasma and the cells.

Since Henes used serum, and the values advanced in table 9 are for whole blood; since these findings are opposite, it appeared that the reason for the discrepancy might be found in a disturbed partition of cholesterol between plasma and cells in such manner that when the plasma is utilized for the estimation of cholesterol, a higher value is obtained than when the cells or whole blood are used. That is, a change like that found in pernicious anemia in that the distribution is altered, but unlike pernicious anemia in that the cells decrease in content and the plasma increases. Were this hypothesis correct it would explain the contrary findings of Henes, who uses serum, and others, using whole blood, as to whether a hypercholesterolemia obtains in cases of gallstones.

Supporting the correctness of the hypothesis are the following actual findings (Table X):

Two generalizations are apparent from this table of findings, first, not all cases of cholelithiasis show a whole blood hypercholesterolemia; then, all cases of gallstones, at least in this series, show a relative increase of cholesterol in the plasma against a relative decrease of cholesterol in the cells.

Clinically, not all of the above cases showed symptoms of jaundice, but all applied to the clinic for relief of abdominal distress, and operation revealed the presence of gallstones, all clinical discomfort leaving the patient immediately upon recovery from the surgical procedure.

It seems unquestionable that a gall-bladder charged with gallstones might at times prevent the free elimination of bile by that viscus, and that not infrequently slight absorption of bile could result; an absorption too insignificant to produce general icterus giving objective signs, yet sufficient to cause slight hemolysis of some red cells.

That bile is a powerful hemolysin is well recognized. Slight resorption of bile would be ample to destroy sufficient red cells to occasion an increase of cholesterol in the plasma, though, of course, the total quantity of cholesterol in the whole blood remains the same.

TABLE X.

Cholesterol partition between cells and plasma in proved cases of gallstones.

Case	Cholesterol in		
	Whole Blood.	Plasma.	Cells.
1	175	210	130
2	160	200	120
3	190	225	140
4	185	210	145
5	190	200	155
6	200	225	140
7	185	195	155
8	195	210	155
9	165	200	100
10	190	215	155
11	200	215	150
12	210	200	155
13	185	190	175
14	190	215	140
15	180	200	145
16	195	230	135
17	160	215	100
18	140	160	110
19	180	195	150
20	175	215	100
21	180	210	135
22	190	210	145
23	215	265	155
24	195	215	140
25	180	215	140
26	165	200	175
27	190	210	140
28	185	230	135
29	170	195	150
30	160	180	175
31	130	165	85
32	190	215	130
33	180	210	140
34	210	260	135
35	195	210	155
36	175	195	135
37	190	215	140
38	165	180	135

Viewed from the experimental evidence submitted, the hypothesis is ventured that cases of gallstones giving clinical symptoms which bring the patient to a physician for remedy, hold an increase of bile in the blood which may be so scant as to preclude observation. To this phenomenon is given the name "occult jaundice."

Occult jaundice may be responsible for the following established findings: (1) Little or no increase of cholesterol in the whole blood; (2) a disturbed cholesterol partition between the whole blood and cells occasioning an increase in the plasma and a decrease in the cell contents.

The value of cholesterol partition in the diagnosis of cholelithiasis is obvious. Certainly, it is of greater significance than hypercholesterolemia estimated alone upon the whole blood.

145 GATES AVENUE, BROOKLYN.

Pseudoreinfection in Syphilis.—According to Hell, true reinfection is rare and hard to prove, and there are several conditions which closely simulate it. One is of course chancre redux or reinduration, in 50 per cent. of which the regional lymphnodes swell and an exanthem may appear. Chancre redux seems to be often the only remaining focus for spirochetes in the organism. The chancre-like mucous papule is like the chancre redux in all save location. A superinfection must be distinguished from a reinfection but up to the present time, the author says, no case of the former has been completely demonstrated. — *Correspondenz-Blatt für Schweizer Aerzte.*

NEURONS: THEIR RELATION TO THERAPEUTICS, MEDICAL AND MECHANICAL.

By DOUGLAS GRAHAM, M.D.,

BOSTON, MASS.

"That part of our nature which lies half-way between the body and the spirit and partakes of the nature of both: the nervous system."—Rev. George W. Field, Bangor, Maine.

THE minute anatomy of the nervous system has been so carefully studied of late years, and the theory of its functions has changed so rapidly, that but few of us older fellows have been able to alter the views that were so positively taught twenty-five years ago. And, indeed, among modern students of the nervous system, its nomenclature, structure and functions are not by any means uniform, indicating either difference of opinion or carelessness of study. For our present purpose it will be sufficient to recall a few of the recent and most generally accepted investigations in this field.

The neuron consists of the nerve cell and its branches; the latter are one or two axis-cylinders called neuraxons, and from these proceed side branches called collaterals, which end in tufts of fibrils called terminal arborizations. These terminals communicate with the shorter and more numerous processes of the cell, the dendrites or dendrons, so called from their treelike appearance. The axis-cylinders and their collaterals form the nerve fibers, and their function seems to be to convey impulses from their cells through their terminal arborizations to the dendrites of other cells which receive the impressions. For a long time physiologists firmly believed and taught that the processes of nerve cells acted by *continuity*, but more recent researches indicate that they act by *contiguity*, and not by continuity at all. But it is difficult to conceive how this can be unless the nerve cells and their processes are surrounded by a fluid medium. The neuroglia cells form an insulating material between the nerve cells, and must either be active or passive when the neurons are in contact or not in contact. According to the most authoritative histologists, the neuroglia cells are passive, but a very distinguished one, a Spaniard, Ramon y Cajal, is of the opinion that the neuroglia cells are the active agents, and that when they are relaxed their processes penetrate between the dendrites and terminal aborizations of the nerve cells and hinder the transmission of nerve currents. When the processes of the neuroglia cells are retracted, then the nerve-cell projections are allowed to come in contact. The neuroglia-cell processes have numerous short arborescent collaterals, and Cajal thinks he has observed two phases of them: one, that of contraction when the cell body augments while the processes shorten and the branches disappear; the other that of relaxation when the processes of the neuroglia cells are elongated. Hence it might appear that the movement on the part of neurons is a passive one, depending upon the interposition of the insulating material. It is more than likely that the activity of the neuron has been mistaken for the passivity of the neuroglia.

Be that as it may, it seems to be now pretty unanimously conceded that nerve cells and their processes (neurons) are distinct and separate from each other, and therefore the theory that they somehow act upon each other by contiguity and not by continuity, would seem to have some foundation. In health, when free from fatigue, these nerve-cell projections are supposed to come into contact with each other and form various combinations of feeling, thought, and action, and the machinery of life goes on when the cogwheels connect, so to speak. Having reached the limits of fatigue, their terminal arborizations and dendrites no longer come into contact by interlocking, overlapping, or however it may be, but recede from each other, and we have in the brain sleep, in the muscles relaxation, until rest brings them back to a normal condition, removes their waste products, and supplies them with nourishment, when they are again ready to respond by contact to appropriate stimuli. When we have disturbance, functional or organic, then the proper combinations of cells no longer connect for the performance of healthy voluntary or involuntary functions.

Hypnotism has been invoked to throw light upon this interesting subject.[1] The state of lethargy and relaxation induced thereby would be explained by the retraction of the neurons in the brain, so that their terminals do not connect or articulate with the dendrites of the neuhons in the spinal cord. Catalepsy would then be due to too close contact of the same, manifesting itself by an increase of muscular tone; somnambulism by the combination of certain neurons while others are retracted in sleep, and the sudden disappearance of hysterical paralysis by a removal of contact of the various nerve-cell combinations at fault.

The behavior of nerve cells and their processes, theoretically at least, would seem to be somewhat similar to that of the white blood corpuscles in their peculiar ameboid properties. Under the microscope, leucocytes anesthetized by the absence of oxygen and the presence of carbonic acid, would seem to have their pseudopods retracted. This is thought to form a basis for the histological theory of sleep, the prolongations of the nerve cells being retracted during sleep and expanding when awake; in dreams some being partially or wholly connected, while others that go to make up the conscious ego are still contracted in slumber. When we are profoundly absorbed in abstract thought we do not hear the ordinary sounds around us, for certain of our cerebral cells seem to have the faculty of breaking their communications, of somehow closing the door to obtrusive sensations.

Wiedersheim[2] observed in the *Leptodera hyalina* (a species of worm belonging to the nematods) that the nerve cells were not immovable, but presented changes of form—ameboidlike movements. He studied the living neurons in the brain of this little animal, which has so transparent a skin and body that the cells of its brain can be observed while in full activity. These cells seemed to be endowed with a wonderful degree of mobility, changing their forms, protruding their ramifications, and drawing them in, as the ameba protrudes [illegible] of being nearly [illegible] he was a small boy. pseudopods. The peripagony of it. This leads him to olfactory cells are pret[illegible]nat Simon de Montfort, during with motion, ar[illegible]ne Albigenses, put some of them to the prolongat[illegible]g the soles of their feet with a feather. may have become so tightly interlocked By fancy could not let go. Perhaps something of the kind occurs in tetanus.

clusive evidence in favor of this captivating theory that nerve cells and their projections act by contiguity and not by continuity, is that of Prof. C. F. Hodge of Clark University, Worcester, Mass. His experiments and observations, entitled "A Microscopical Study of Changes Due to Functional Activity in Nerve Cells," are given in detail in the *Journal of Morphology* for November, 1892. It is one of *the* articles of the nineteenth century, and as the journal in which it is published is accessible to but few readers, the methods and results are here produced at a length that is more worthy of them than the brief manner in which they have hitherto been referred to. The spinal-root ganglia were chosen for observation. The plan was to stimulate a nerve going to one or more of these ganglia on one side of the animal, leaving the corresponding ganglia on the other side, at rest, for comparison. The right side was always chosen for stimulation. The stimulated nerve was never divided, so that the contraction of the muscle could indicate the healthy condition of the nerve. At the end of the desired length of time the stimulated ganglion, with its mate on the other side, were excised, treated alike, and put on the same slide of the microscope. The following results are from fifteen experiments on frogs and eleven on cats. As the most instructive series is in Table IX it will be first presented. The experiments were on six cats, in which the right brachial plexus of each was stimulated by an electric current for five hours, fifteen seconds each minute. At the end of five hours the shrinkage of the nuclei was found to be 48.8 per cent. It required fully twenty-four hours of rest for the cells and nuclei to resume their natural size and appearance. The fatigue caused the interstitial substance of the cell to disappear, as shown by vacuoles and lighter granulation, while the nucleus collapsed bodily.

Table I.—This showed that stimulation of two and one-half hours, intervals of rest and stimulation being two minutes each, produced a shrinkage of the nuclei of 24 per cent.

Table III.—Stimulation of three and one-half hours, five stimuli every second, one minute of stimulation alternating with one minute of rest, to sciatic ganglia of right side, caused a shrinkage of 36 per cent.

Table V.—Stimulation of seven hours' duration, at intervals of one minute, in a cat, caused an average shrinkage of 28.6 per cent.

To show how very carefully these observations were conducted, one hundred cells with their nuclei were measured, and their mean diameter ascertained. As a result of fatigue from electrical stimulation there was seen marked decrease in the size of the nucleus, with change from a smooth and rounded outline to a jagged and irregular outline; loss of open reticular appearance, with darker stain. The cell protoplasm showed slight shrinkage in size, vacuolation, and lessened power to stain. The cell capsule was decreased in size.

The processes of recovery were the reverse of the elimination. The protoplasm seemed to recover not infrequently slight[illegible] six and one-half hours little sult; an absorption too insig[illegible] seen. The nuclei, on eral icterus giving objective sig[illegible] not being entirely cause slight hemolysis of some red [illegible]ours.

That bile is a powerful hemolysin is w[illegible] sparrows nized. Slight resorption of bile would be am[illegible] destroy sufficient red cells to occasion an incre[illegible]

and swallows were also most carefully studied in the same article by Professor Hodge. The nerve cells of rested birds in the morning were compared with nerve cells of birds of the same size in the evening, after they had been flying about all day. The examinations of the specimens showed a great amount of change after a day's exercise. It exceeded that obtained by artificial stimulation. The greatest amount of shrinkage of nuclei, 69.7 per cent, was found in the occipital cortex of a female sparrow that had been working hard all day building her nest. (What could be more interesting?) The spinal ganglion cells of the same bird showed the next highest per centage of shrinkage, 64.5, as an index of the amount of fatigue. The recuperation from a night's rest must be very great, and in all probability made up this waste of nerve-cell tissue.

One of his experiments is so full of interest that I give it here in his own words: "On the morning of February 17 it began to rain, and continued nearly the whole day—a steady, warm, foggy spring rain. In the dense cover of the pine trees, over my window, the sparrows spent the day scolding and chattering at a great rate. None was observed flying about. At first I decided to abandon the experiment, thinking I should find little evidence of fatigue on such a day. On second thought, however, I decided to make a rainy-day experiment of it, and see what might result. I little expected the sharp and somewhat amusing result expressed in the table. Not an observable sign of fatigue was to be seen in the spinal ganglia, while traces of fatigue were slight in the cells of Purkinje (second layer of cells in the cerebellum). Perfectly clear, however, were the marks of fatigue in the nuclei of the cerebral cortex, as though while confined by the rain the little birds had kept up a deal of thinking."

In order to show how clearly and naturally this original investigator thinks and studies, I will here bring forward some of his own remarks about swallows: "Perhaps the most active bird that we have is the swallow. Quick, vigorous, powerful, careful in all its actions, it must require an enormous amount of nervous energy to coordinate its countless movements for a long summer day. There is nothing lazy or stupid about the swallow. When their work is done they play games and fly races, and with all the energy required for flying they still have enough left to do no end of talking, for their cheerful *zwitschern* is continually in my ears while I write. At one hundred miles an hour for ten hours—and I have observed them as early as five o'clock in the morning, and as late as eight in the evening—a swallow might cover a distance of one thousand miles in a single day. If a bullet of the same weight were to traverse the same distance at the same speed, an enormous explosion of energy would be required, and the living arrow can require no less."

"At five o'clock in the morning a large male swallow was shot, and within five minutes his brain and spinal ganglia were in their proper hardening fluids. A few minutes before eight in the evening another male swallow was taken down, and by eight his brain and spinal ganglia were treated like those of his brother in the morning. Signs of fatigue were everywhere present in the parts examined, but the brain gave the most agreeable sur-

prise. The cerebellum showed the highest per cent. of loss, nearly 10 per cent. more than the cerebral cortex. To the cerebellum is ascribed the work of coordination, and where could be sought an instance of more delicate manipulation than must be required to drive the wing of a swallow as it flits and whirls and balances and wheels and darts the whole day long?"

The brains of honey bees were also compared, and it was found that those that had been at work all day showed a shrinkage in their cells of from 19 to 75 per cent., as compared with the brains of similar bees in the morning. Great is the recuperation from fatigue of honey bees. The food they gather must be very nourishing and sustaining. More recent experiments by Professor Hodge, in which the brains of young animals suddenly killed showed the dendrites and contact granules uniformly expanded in rested neurons, while in fatigued ones the dendrites were contracted and varicose.

That celebrated poison, woorara, which the South American Indians use to poison their arrows with, when injected into the human system has long been known to cause paralysis of the terminal branches and peripheral plates of the motor nerves (peripheral neurons, we must now say), so that the nerve force no longer connects in such a way as to produce muscular contraction. This poison, according to the experiments of Hammond and Weir Mitchell, seems to act directly upon the heart, probably through the ganglia in its tissue, as well as upon the voluntary muscles. It also destroys the reflex functions of the spinal cord. Strychnine, on the other hand, is equally well known to increase the excitability of the nerve cells in the spinal cord, manifesting itself in muscular spasm when taken in poisonous doses. In the case of woorara it might be said that the protoplasmic processes of the nerve cells can no longer come in contact with the projections of other nerve cells; in the case of strychnine, that they are in too close contact, and cannot let go. It is not improbable that the action of all medicines, and the different effects of the same medicine when taken in small or large doses, may be partly explained in this way by their producing an ultimate chemico-mechanical effect on the nerve cells in different parts of the body. It is also supposable that the action of different poisons on the nervous system, whether the poisons are generated in the body itself or are introduced from the outside, may in great part be explained in this way. Thus, before long, we may have a new system of therapeutics based on a new system of neuropathology.

We have all felt the lassitude of extreme fatigue, which might now be explained by saying that it is due in great measure to shriveling of the nerve cells, preventing contact of their projections, and most of us, when young, have probably suffered from cramp in our calves after a hard day's tramp, which, according to this theory, would be due to the nerve-cell processes, the terminal arborizations and the dendrites having got too closely interlocked from the irritation of waste products, showing itself in muscular spasm. That we may have from retained waste products of excessive exertion both relaxation and cramps is not without its analogy in poison introduced into the system from without. Lead, for instance, causes paralysis and relaxation of the extensors of the hands, while in the abdomen it often induces spasms, cramps, and colic. From experiments in animals, Earnest Harneck[3] concluded that lead colic is due to intense excitation of the intestinal ganglia by the lead, producing arrest of peristalsis from spasm of the muscular coat. Shall we say that the neurons that preside over the nerves that move the extensors have their protoplasmic processes immovably retracted so that they can no longer vibrate and articulate, while those that control the intestines and abdominal walls are in too close connection, spasmodically interlocked, or ankylosed?* However this may be, strychnine is one of the remedies relied upon for the paralysis of lead after its elimination by other remedies, and perhaps it acts by bringing the neurons into better condition for normal contact. A new explanation may thus be afforded for the action of excitomotor remedies, such as strychnine, ergot, digitalis, etc., and also, though just the opposite, for depressomotors, such as the bromides, chloral, gelsemium, conium, etc. The action of other remedial agents, internal and external, might be explained more or less in the same way.

Tea and coffee are said to stimulate the ameboid movements of protoplasm. At times they certainly aid in stimulating thought and in forming new combinations of ideas, perhaps by bringing about different relationships of the cortical neurons. Tobacco, on the other hand, by its sedative and relaxing properties, seems to suit some students better in the collection of their thoughts, which, according to this theory, would be by causing relaxation of cortical neurons that had been too much preoccupied in loving embrace or close contact, and thus allowing others to form new combinations.

The effects of tonics, stimulants, and sedatives, whether of a chemical or mechanical, electrical, thermal or dynamical nature, upon central and peripheral neurons, are probably similar, simultaneous, and parallel to what they are upon voluntary and involuntary muscular fibers. Hence the state of the muscles is very likely a good barometer of what is going on at the other ends of the nerves that supply them in brain or spinal cord. Every muscle reader is a mind reader, and he who has the *tactus eruditus* well developed, be he a physician or a masseur, has an immense advantage in the diagnosis and treatment of neuromuscular troubles. Every horse is a mind reader by the tension of the reins. In two cases of hemiplegia recently under my observation there was much spasm (contracture) of the flexors of the hand and arm. The patients were both receiving the faradic current, which is well known to stimulate muscular contraction, and were taking strychnine internally. As soon as the faradism was stopped the spasm became less; and later, when the strychnine was left off, there was still greater improvement; the contracture almost entirely disappeared, allowing the opposing paralyzed

*Sir T. Lauder Brunton tells us that one of the most painful experiences of his life was that of being nearly tickled to death by a nurse when he was a small boy. He can never forget the agony of it. This leads him to believe the statement that Simon de Montfort, during the persecution of the Albigenses, put some of them to death by tickling the soles of their feet with a feather. The neurons may have become so tightly interlocked that they could not let go. Perhaps something of the same kind occurs in tetanus.

extensors to come into play as much as they could. In these cases the effects of the strychnine and faradism might have been, and probably were, simultaneous upon central and peripheral neurons, terminal arborizations, and muscular fibers.

The effect of stimulation upon protoplasm is, when sufficiently strong, to cause an immediate cessation of movements and withdrawal of protruded processes into the main substance.*

Upon cessation of the stimulation, if it has not been too strong, the movements will begin again; but if so severe as to injure the living substance, they stop forever. Mechanical stimuli and abrupt changes of temperature act in like manner. It is quite conceivable that nerve cells and their projections behave in the same way.

Recent experimental studies tend to strengthen the theory that neurons act by contiguity and not by continuity. Lutzenberger studied the changes in the nervous systems of guinea-pigs, after slight injury to the head and spinal column, and found that the general disorders of nutrition showed themselves most prominently in the increase of the number of ganglion cells that presented all styles of retrogression.[4]

Parascondola has also made an extensive study of the effects of shock upon guinea-pigs. He stretched them out flat and gave them a sharp blow upon the abdomen with a flat ruler. The animals reacted in various ways. Most of them, after a period of quiet, seemed to recover, but in from thirty-six to forty-eight hours they died with symptoms of exhaustion or shock. The cerebrum, cerebellum, medulla, and spinal cord were removed for microscopic examination. The alterations found were deformities of the cell bodies to the extent of actual atrophy, nodelike swellings on the dendrites, and fragmentation of the same. There was also found degeneration of the posterior roots, proceeding even to degeneration of the posterior columns. Changes in the cellular protoplasm were also seen—rarefaction proceeding to vacuolation in the nucleus, and vesicular swelling of the nuclear protoplasm.[5]

These were very serious alterations, and all tend to throw light upon the nature of fatigue, shock, neurasthenia, and hysteria arising from injury. But percussion, though harmful in large doses, is often beneficial in small ones, stimulating languid nerves and muscles, and sometimes relieving painful ones by overinciting them and wearing out their irritability, and presumably at the same time favorably influencing the vibrations and connections of nerve terminals and dendritic processes.

It seems rather curious that those who have furnished the clearest objective evidence that nerve cells and their projections act upon each other by contiguity and not by continuity, are not the ones that have advanced this theory at all. Thus Professor Hodge, in the *Journal of Morphology* for 1892, the MEDICAL RECORD, March 26, 1898, and in previous publications, says nothing of this theory, and yet he has furnished the clearest objective evidence of it. Credit is given to two Frenchmen, one M. Lepine, for having first advanced this theory in the *Revue de Médecine* in 1894; and the other, M. Mathias Duval, for agreeing with him in the *Comptes Rendus de la Société de Biologie*, 1895. These gentlemen must have had exceedingly brilliant imaginations, for they scarcely ever refer to the labor of others, and not at all to those of Professor Hodge, that would have furnished them with objective evidence confirmatory of their theory. This seems to be always a rapid way of becoming famous. Their hypothesis seems to have been evolved from a single case of hysteria of a peculiar kind that suddenly passed from complete deafness to acute hearing, and which they explained by saying "that the anesthesias, sensitive and sensorial, and the motor paralysis in the hysterical, are due to imperfect contact between the ramifications of the nerve cells"; and the disappearance of these morbid states is owing "to an erethism of the prolongations of the nerve cells, by which they are brought into normal contact, attention sufficing to reestablish the contacts."

When distinguished gentlemen like these are allowed to hold this theory on such insufficient evidence and with so little regard to the testimony of others, it behooves us to ask if this theory or something like it has not been promulgated before, for it has given these men great renown, and neurologists are disposed to believe in it. William H. Munroe of Boston was a very intelligent layman who had studied anatomy and physiology to a moderate extent. He died in 1887, at the age of eighty years. For the last thirty years of his life he was firmly and enthusiastically of the opinion that somehow or other in disease the nerves did not connect properly, and "to remedy this evil" (as he used to say) and to make them connect he relied on manipulation by hand, a mode of treatment in which he became very skilful, and which, viewed from recent light, he not altogether inappropriately called the "nervous-adjustment cure." He had a large clientele of intelligent people, most of whom were fascinated with his theory, while physicians smiled incredulously at the theory and the seeming irregularity of the practice. An association with him for three years before and while I studied medicine, from 1867 to 1870, convinced me of the efficacy of this treatment in the disturbances of nerves, muscles, and joints, mostly of a chronic nature. From observations of massage in this country and abroad, extending over thirty years, I may, perhaps, be allowed to say that he certainly had the best method of this art that I have yet met with. Wherever there was undue tension of the tissues, there the nerves were supposed to fail in properly connecting, and the thorough, agreeable, and efficacious manipulation of the offending region often proved beneficial; and even when it failed to do good it left behind it a pleasant impression, far different from that after the scraping, greasing, and slapping that too often passes for massage. Indeed, the word massage is becoming subject to so much abuse that perhaps such an expression as manipulation or manual treatment had better be adopted in place of it, for more depends on the skill

*Several years ago I was knocked down by a "scorcher" on a bicycle, taken home in an ambulance, and had my scalp sewed up. Not only was I unconscious for three hours after the accident—amnesia—but also had complete forgetfulness of events for fifteen minutes before it—retroactive amnesia. Next day I was out as if nothing had happened, and thirty-six hours after the accident I was back at my office as well as usual. But I do not care to be the object of experiment of any more disconnection of neurons.

and experience of the manipulator and his understanding of the disorders than in the use of any "highfalutin" words to cover ordinary rubbing.

An excellent example of the disconnection of neurons and their subsequent re-connection is given by Dr. G. F. Boehme, Jr., in the MEDICAL RECORD of Aug. 3, 1918, p. 183: A lady of an hysterical temperament who had two sons in the army went to an amusement park and was startled by the explosion of fireworks. She gave a brief cry and became deaf. Examination revealed no aural defect. She had a definite corneal and pharyngeal anesthesia. After being quiet for a few days she gradually recovered her hearing. She might have been cured by another explosion, or perhaps made worse, who can tell?

From the days of Hippocrates history affords parallel examples of theories formed in advance of their proof. For our present purpose we will cite but one, that of Asclepiades (128-56 B. C.), a Greek physician, who founded a school and practised at Rome, and was very popular with the Romans on account of his simple and agreeable remedies. He thought that physicians ought to cure their patients safely, quickly, and pleasantly, and with this object in view he relied mainly on diet, bathing, exercise, and friction. He considered that the body had innumerable sensitive canals running through it, in which moved the nutritive juices and plastic atoms. So long as this movement went on without disturbance health continued. But disturbance caused sickness, and the normal movement of these juices would be disturbed by abnormal increase of their atoms, by their irregular distribution, by too great blending together, and by too swift movement of the same, and also by dilatation and constriction of their canals. Proceeding on these principles, or theories, rather, Asclepiades renounced almost entirely the use of medicines and attempted to restore free movement of the nutritive fluids and plastic atoms by means of rubbing. The soporific effects of gentle stroking he also recognized. With friction he combined active and passive motion, and no doubt he was an adept at massage in his day. He thus foreshadowed the discoveries made long after of the functions of the vasomotor nerves and of the muscular coat of the blood-vessels in regulating the caliber of these vessels; and to a large extent, also, he predicted the pathology of inflammation in the congregating of white blood-corpuscles.

Seen from the light of recent studies of the neuron, the experiments of Professor Golz of Strassburg possesses new interest.[6] After opening the abdomens of animals and applying percussion by light and frequent blows over the stomach and intestines, the peritoneum at first became paler from constriction of the vessels, but continuance of the percussion caused dilatation. When the percussion was first applied over the abdominal walls, and these opened afterward, it was seen that the vessels of the abdominal cavity, especially the veins, were dilated and distended with blood. The heart's action was considerably retarded, owing to the reflex influence of the percussion upon the inhibitory action of the vagus, and also to the sudden withdrawal of blood into the vessels of the abdomen. Continued still longer, the pulsations of the heart became less, and finally ceased, as did also respiration.

Here we see the primary effects of percussion (a form of massage) causing constriction of blood-vessels from stimulation of their vasomotor nerves and muscular coat. Longer continued, this same percussion produces an opposite effect, dilatation of vessels from over-inciting them and wearing out their irritability, and with still more of it pulse and respiration cease. Corresponding to the first influence of percussion, we would now suppose that the projections of the neurons had been brought into closer juxtaposition; to the second, that they had got somewhat tired out and relaxed; to the third, that they had lost their capability forever to connect, and the animal dies. It would be exceedingly interesting to examine the neurons connected with the solar plexus of prizefighters when they knock the wind out of each other by a blow upon the epigastrium.

If this theory of the mechanical action of nerve-cells and their processes holds, then remedial mechanical measures, such as massage, kneading, stroking, percussion, passive and resistive movements, all of which act upon peripheral and central neurons, will receive an additional explanation to what we already know of their effects upon skin and muscles, blood-vessels, lymphatics, and nerves. We would then say of a nervous person with too much tension, who cannot let himself go to rest, that under the influence of appropriate manipulation he is soothed and quieted to sleep; that his peripheral and central neurons have been coaxed to relax; while on the other hand, if such a patient should receive too vigorous manipulations, the peripheral irritation caused thereby would induce both voluntary and involuntary resistance, increase the tension, and bring the processes of the neurons into still closer contact. Or take languid individuals with flabby tissues and give them pretty vigorous manipulation. Their muscles tone up and become firmer; then we will have to presume that their neurons have come into closer and more natural contact. It was old Hippocrates who said in his aphorisms that "Hard rubbing binds; soft rubbing loosens; much rubbing causes parts to waste; moderate rubbing makes them grow."

By means of training and repeated efforts paths of resistance in brain, spinal cord, and nerves are made easier; thought, will, and action become less difficult, and the terminal arborizations of the neuraxons and their collaterals connect more readily with the dendrites of the nerve-cells, constituting what is usually called education, which should be so adjusted

> "That outer man and inner soul
> Maintain their balance true,
> Till every string on being's lyre
> Gives forth its music due."

On the whole, this theory that nerve-cells and their processes act upon each other by contiguity and not by continuity would seem to be consistent with the behavior of other tissues, and even with the propagation, prolongation, and cessation of life itself.

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VALUE OF THE WASSERMANN REACTION.*

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In the twelve years which have elapsed since the method of complement fixation was applied by Wassermann to the diagnosis of syphilis, an enormous amount of clinical and serological data has been collected and published bearing upon the question of the specificity of the test. It was early recognized that the reaction was not, strictly speaking, a specific one, in that in carrying out the test it was not necessary to use as antigen either the syphilitic virus or any essential derivative of it. Nevertheless, reports from numerous observers soon brought general acceptance of the view that a positive reaction was obtained in a high percentage of cases of clinical syphilis, and that among non-luetic cases a negative reaction was the rule.

While more recent reports have in general served to confirm or even broaden the earlier claims as to the value of the test, increasing emphasis has been placed by serologists on the delicacy of the reaction and the possibility of variations in results from relatively slight modifications in technique. It has been recognized, too, that certain conditions, such as acute infections associated with high fever, may give rise to positive reactions in non-luetic cases.

Very conservative, or even sceptical, views regarding the practical value of the test have not been lacking. Here and there reports have appeared in which it has been maintained that not only is the reaction negative in a large percentage of cases of syphilis, but also that positive reactions are so often reported in cases in which there is no clinical evidence of syphilis, that the test may be very misleading, if considered alone. An article embodying essentially this view, by Symmers and his co-workers at Bellevue Hospital, appeared recently in the *Jour. Amer. Med. Assn.*, 1918, LXX, 279. Since we shall have occasion later to refer to the results obtained by these authors, it may be well to quote their conclusions:

"1. Depending on the antigen employed, the Wassermann reaction in the living patient, as carried out at Bellevue Hospital, gives a negative result in from 31 to 56 per cent. of cases in which the characteristic anatomic signs are demonstrable at necropsy.

"2. The Wassermann reaction in the living patient is positive in at least 30 per cent. of cases in which it is not possible to demonstrate any of the anatomic lesions of syphilis at necropsy."

The Wassermann test is being widely used, and, as Symmers and his assistants point out, much reliance is being placed on it by Boards of Health, hospitals, practitioners, and the public. The question of the reliability of the test is therefore one of very great importance. If the results obtained at Bellevue Hospital, which show so large an error in both directions—that is, in the high percentage of negative reaction in syphilis and in the demonstration of many positive reactions in non-syphilitic cases—have a general application, then the wide use of the Wassermann test is not only of doubtful benefit, but even a source of much harm, unless this wide margin of error be clearly recognized.

The importance of this question led us to make a comparative study of the serological and autopsy findings at the Presbyterian Hospital, similar to that made by Symmers and his coworkers at Bellevue Hospital.

The Wassermann test has been used in the Presbyterian Hospital some six or seven years, but it is only in the past three years that a uniform technique has been consistently followed, and of which the details can be presented. During the preceding years the serological work was done by several laboratory workers; and since we have no record of the details of the technique followed, except as to the antigen employed, we have thought it advisable to present and discuss only the data compiled in this last three-year period.

The autopsies during this period were performed by or under the immediate direction of Professor W. G. MacCallum, Dr. A. M. Pappenheimer, and Dr. R. A. Lambert of the College of Physicians and Surgeons. Complete autopsy protocols were recorded in every case, including gross and miscroscopic description of all organs—with the exception of the central nervous system in a certain percentage of the cases. In every instance, microscopic sections were preserved, and have been studied again in the preparation of this report. It has been possible, also, to reexamine many of the gross specimens, which had been preserved in the museum for teaching purposes. In this review of the pathological material, however, a change in diagnosis was made in only three instances. Two cases showing microscopically definite syphilitic aortitis had been overlooked and the syphilitic nature of a scarred liver had, in one instance, not been recognized. It should be clearly stated that only those cases which showed definite syphilitic lesions were placed in the group of positive anatomical syphilis. Those showing suspicious, but not clear cut luetic lesions—a relatively small number of cases—were placed in the doubtful group.

Since differences in results obtained with the Wassermann tests are undoubtedly due in large part to differences in technique, we shall give in some detail the method in use at the Presbyterian Hospital.

Two antigens are used in all tests: a crude alcoholic extract of guinea pig heart and a cholesterinized extract of guinea pig heart. The ice-box fixation method for four hours is employed with the alcoholic antigen; water bath fixation at 37 deg. C. for ½ hour with the cholesterinized antigen. Serum is inactivated ½ hour at 55 deg. C. The sheep system is used. Complement for each guinea pig is titrated separately, against 1½ units of amboceptor, and is so diluted that a dose of 1½ units is used in the alcoholic tests, a dose of two units in the cholesterin tests. Each specimen of complement is also tested with varying amounts of the cholesterin antigen, the amount to be used in the tests, twice, three times, and four times that amount. Any specimen that fails to hemolize completely in the presence of the cholesterin antigen

*A correlation of the seriological and post-mortem findings at the Presbyterian Hospital, New York.

is not used in the cholesterin tests, but it may be used with the alcoholic antigen, if its hemolizing power is good, according to the complement titration. An amboceptor titration is made with each mixture of complement; that for the alcoholic tests and that for the cholesterin, and for sensitizing the cells, the amboceptor is so diluted that one dose contains 2½ units. Tests are read as soon as hemolysis is complete in the antigen and serum controls, in which there is double the amount of antigen and serum used in the tests. By a ++++ reaction is meant complete inhibition of hemolysis in 0.2 c.c. of serum. Degrees of incomplete inhibition are indicated roughly by +++, ++ and +. Only a ++++ reaction is considered positive.

Table I.

Autopsy Findings.	No. Cases.	Wassermann	Wassermann	Wassermann	
		++++ Both antigens	0 Both antigens	+, ++, or +++ with either antigen	
Positive	23	18	3	2 (trtd.)	= 85.7 per cent positive (excluding 2 treated cases giving doubtful reactions).
Negative.....	188	0	175	13	
Doubtful...	3	2	0	1	
Total....	214	20	178	16	

The results of the comparison of the serological and autopsy findings can be best presented in the form of tables. On the basis of the post-mortem findings, the cases are divided into three groups: (1) syphilitic or "positive" cases, (2) non-syphilitic or "negative" cases, and (3) doubtful cases. Table I shows at a glance the results of the Wassermann test in these three groups.

It is seen that of 23 cases showing definite syphilitic lesions, 18 gave ++++ Wassermanns (both antigens), 2 (treated cases) gave doubtful reactions with one or both antigens, and 3 gave negative reactions. That is, in 18 out of 21, or 85.7 per cent. of cases of proven, *untreated* syphilis, a ++++ Wassermann was obtained during life. It will be recognized that this percentage of positive Wassermanns is relatively high, when consideration is taken of the fact that most of the cases were examples of late syphilis, as indicated in Table IV. There were three cases in which the autopsy findings were not conclusive, and which are classed as doubtful syphilis. One was an example of a coarsely nodular cirrhosis of the liver associated with a chronic interstitial orchitis and chronic meningitis of possible leutic nature. The second was a case of nodular cirrhosis of the liver with an inflammatory reaction which suggested lues. In the third case, death was due to lobar pneumonia, but chronic interstitial orchitis was found, which suggested a possible old, leutic infection. The last two cases gave a ++++ Wassermann reaction, the first a doubtful reaction.

The most striking fact, in our opinion, brought out in the table, is, that of 188 *cases showing no evidence whatever of syphilis at autopsy, not one had given a ++++ Wassermann during life.*

In Table II the data are so arranged as to bring out the significance of the Wassermann in the light of post mortem findings. In other words, the figures constitute the pathologist's answer to the question as to what a positive, negative or doubtful Wassermann reaction means. The table shows that 20 cases gave a ++++ Wassermann with both antigens, and that, in 18 of these, definite evidence of syphilis was found at autopsy. One of the two remaining cases showed suspicious lesions in the liver, very probably syphilitic, and the other a chronic orchitis, possibly syphilitic, but since this second case was one of pneumonia and was bled while running a high temperature, the ++++ Wassermann may be regarded as non-specific. It is seen, therefore, that 18 out of 20, or 90 per cent. of positive Wassermann reactions were conclusively confirmed by autopsy findings, and that in the two remaining cases suspiciously syphilitic lesions were present—a possible margin of error of 10 per cent. Of 178 patients giving negative Wassermann reactions with both antigens, only 3 showed definite syphilitic lesions at autopsy. Hence, the negative Wassermanns were confirmed at autopsy in approximately 98 per cent. of the cases, a margin of error less than 2 per cent.

Table II.

Wassermann.	No. Cases.	Autopsy Findings		
		Pos.	Neg.	Doubtful.
++++ (both antigens).	20	18	0	2
0 (both antigens).	178	3	175	0
+, ++, +++ (with either antigen)	16	2*	13	1
Total	214	23	188	3

*Treated cases.

Sixteen patients had given a doubtful (+, ++, or +++) reaction with one or both antigens. Two were cases of definite syphilitic aortitis which were being treated. One case showed suspicious lesions in the meninges, liver, and testes at autopsy. In the 13 remaining cases, no anatomical evidence of syphilis was found. Excluding the two doubtful reactions in the cases under treatment, 13 out of 14, or 93 per cent., approximately, of the doubtful Wassermann reactions were non-specific as judged by autopsy findings. It is a fact worthy of note, that 11 out of 16, or 69 per cent., of these doubtful reactions were given by the cholesterin antigen only. Four specimens gave a doubtful reaction with both antigens,—one a treated case of syphilis, and one a case of possible syphilis. In only one instance (a case of sarcoma of the ovary) was there a doubtful reaction with the alcoholic antigen alone. It is thus evident, that while the cholesterin antigen may have the advantage of giving more reactions in cases of syphilis, and of more nearly excluding syphilis, it has the disadvantage of giving a considerably larger number of apparently non-specific reactions, as judged by autopsy findings.

Discussion.—The data presented above show a very close parallel between the serological and autopsy findings at the Presbyterian Hospital during the past three years. Though the number of cases is somewhat smaller, the character of the material is very much the same as that which forms the basis of the report from Bellevue Hospital by

Symmers and others quoted above, in which very different conclusions were reached. At Bellevue Hospital, a positive Wassermann was obtained in only 44 to 69 per cent. of the cases of syphilis demonstrated at autopsy, as compared with 85.7 per cent. at the Presbyterian Hospital. Furthermore, the authors report positive reactions in 30 per cent. or more of the non-syphilitic cases, whereas we failed to find among such cases a single ++++ Wassermann, and only 7 per cent of doubtful (+, ++, +++) reactions.

TABLE III.—DOUBTFUL REACTIONS.

		Antigen.	
	No. Cases.	Alcoholic.	Cholesterinized.
	11	0	?
	1	?	0
	4	?	?
Total	16	?=+, ++, or +++	

TABLE IV.—CASES SHOWING POSITIVE AUTOPSY FINDINGS.

		Wassermann.		
	No. Cases.	++++	0	?(+, ++, +++, Either Antigen).
Syphilis of aorta and heart.	15	11	2	2 (treated cases).
Tabes	1		1	
Congenital syphilis	2	2		
Miscellaneous	5	5		
Total.	23	18	3	2

The question naturally arises as to the reason for the difference in results at the two institutions.

The nature of the data, both pathological and serological, which forms the basis of reports of this kind, is such that a fair critical review is not possible except upon a close examination of the material itself, with careful regard to the details of the methods used.

We shall therefore make no attempt to analyze the factors responsible for the differences between our results and those quoted, except for brief reference to one point:

At Bellevue Hospital the cholesterin fortified antigen was used alone in a majority of the cases. In 49 listed cases, in which both alcoholic and cholesterin antigens were used, the results with the two antigens differed in approximately 60 per cent. In our series of cases at the Presbyterian Hospital the two antigens were used in every test with only 6 per cent. of discordant results.

Conclusions.—A comparison of the serological and autopsy findings at the Presbyterian Hospital during the past three years brings out the following facts:

(1) Among cases showing anatomical evidence of syphilis at autopsy 85.7 per cent. had given during life a ++++ Wassermann with both alcoholic and cholesterinized antigens.

(2) Among 188 cases showing at autopsy no anatomical evidence of syphilis, 93 per cent. had given during life a negative Wassermann with both antigens and 7 per cent. doubtful reactions (+, ++ or +++ with either antigen).

These findings, in our opinion, warrant the conclusion that the Wassermann test, properly carried out, can be relied upon as an important aid in the diagnosis of syphilis.

GASTROINTESTINAL HEADACHES.

BY J. RUSSELL VERBRYCKE, JR., M.D., F.A.C.P.,
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OF the many causes of headache, disturbances of the digestive apparatus account for many, probably equally as many as eye troubles. The largest number are from absorption from the bowel. These headaches may be of severe migrainous character, often dull frontal, less frequently occipital, and rarely neuralgic. They may come in attacks with perfect freedom in the interval or the head may never feel just right. There are found very frequently, in combination with the pain, various other nervous derangements, such as dizziness, easy fatigue, sleeplessness or the opposite, and many other symptoms.

A few in whom headaches are traceable to the gastrointestinal tract show hyperacidity or gastric stasis as the cause. One of the most spectacular cures on my records belongs to this class.

Mr. W. P. J., a clergyman, age 30, was referred to me Feb. 27, 1912, by Dr. Kearney. He had had no illness during his life, excepting typhoid fever many years before, but suffered from attacks of severe prostrating headaches for which he had to take paregoric. He would be very apt to spend every Monday flat in bed. He had worn glasses for 10 years but the ache was clearly not from his eyes. Examination was entirely negative with the exception of his gastric contents. There was some food retention of fat and some excess of acid, free HCl being 50 and total acidity 70. He was given general directions as to living and put on a fat free diet for a short time, and had a few stomach washes, with the result that he had no further headaches for some weeks when he partook rather liberally of fat ham. This caused him to have a headache, but two more stomach washes were sufficient to make a permanent cure. He later told me that he felt as if he had 50 extra working days a year added to his life.

This case is, of course, an exception in the speedy and complete relief after headaches of such severity and such a long period of time, but my records show many others hardly less remarkable in their response to treatment. One woman with basal headache caused by hyperacidity made but one call subsequent to receiving her list of directions, and sent a report some time later it had been unnecessary to return. Some of the gastric cases come for a stomach wash when the headache starts. They have learned the association of headache with gastric upset in their own cases. But a comparatively small number of gastrointestinal headaches fall within this group, however. One would imagine that many migraine attacks might be stopped by lavage, since bad attacks nearly always end with vomiting, after which the pain is relieved. This is not the case, however, in the majority of patients, as the vomiting is central in character, coming as the final explosion of nerve force before the attack subsides. So that artificially emptying the stomach does not usually serve to end the attack in most cases of true migraine.

By far the greater number of headaches of digestive origin are due to intestinal putrefaction and

absorption from the bowel. These patients almost always show marked indicanuria, sometimes constantly, again only preceding and during an attack. However, occasionally patients present themselves with headache and other more manifest symptoms of intestinal absorption in whom repeated examinations fail to reveal any indican. Some of these may have fermentation instead of putrefaction, but we have no test to differentiate intoxication, if there be any, from fermentation.

Some of the most marked obstinate cases of intestinal headache result from incompetent ileocecal valve with regurgitation of cecal contents back into the ileum. Such a condition is only demonstrable by means of the Roentgen ray, although it may be suspected in cases of marked intoxication in which an enema is not expelled at once but perhaps many hours after being administered and in which the enema often causes an accentuation instead of amelioration of symptoms.

We next come to the consideration of the cases in which the digestive tract is not the sole cause of headache, but in which it is an important contributing factor. In migraine, for instance, it may happen that any one of a number of factors may be sufficient to bring on an attack in the same individual. The following case will illustrate:

Mrs. C. M. E. age 42, was referred to me by Dr. Kelly in June, 1914, with a history of migrainous attacks for the past 15 years. They had at first been several months apart, but of late the intervals had been only 4 days to a week and she would vomit for 48 hours afterward at times. She was found to have gastrointestinal catarrh, slight putrefactive absorption, and mild hyperthyroidism. After her diet was regulated and general directions for living given her she went for 40 days before the next attack; in other words missing perhaps about 8 attacks, as they were running previously. I studied her case carefully and came to the conclusion that her attacks came through the thyroid but were precipitated by any one of four factors. First, she had lost her only daughter several years before. She was still mourning and went nowhere for recreation. On various days, such as her child's birthday, Christmas, and many other dates that had a special significance with her, she was bound to have an attack. Secondly, overwork would induce an attack as one would be pretty apt to follow the days that the maid did not show up and she did her own housework. Thirdly, an attack would come at the time of each period. The fourth factor was her digestion. This was the first to be remedied with the elimination of a great many headaches. Her grief was in a measure controlled after a hard fight so that this factor was removed. The influence of menstruation was the one thing which could not be helped, so that she continued to have one headache a month, but there was a wonderful diminution in the frequency. The inability to do away with the migraine at the menstrual period in this case is in the line with my experience in all these patients, and I will speak of this phase later.

Ocular disturbance and digestive disorders are frequently associated in the production of headache and the correction of vision is not enough in itself. In fact, it is often impossible, since the lens required will often vary from week to week until the effect of toxemia is removed. I have had quite a number of patients referred to me by ophthalmologists with the statement that eye trouble was present, but that it seemed impossible to find a suitable lens for the patient. It is best therefore to correct toxemia before the eye examination if the price of frequent changes of glasses is of any moment.

Mr. F. G. D. consulted me in May, 1917, with the complaint of basal headache, dizziness, nervousness, and weakness. He had worn glasses for several years and they had been changed several times. He was about to go again for another examination. I found that he had intestinal putrefaction with indicanuria, which probably influenced the eyes and head. He was told to give Dr. Burke my report on the toxemia as it might influence the examination. Dr. Burke reported that he considered the eye disturbance to be the result rather than the cause in this instance and after the indican disappeared his former glasses suited him perfectly and the headache disappeared.

Mr. T. S. R. was referred to me by Dr. Henning. He had had headaches all his life, maybe once a week, through the eye and temple. At times there would also be lassitude and easy fatigue. He had been examined by numbers of oculists. He was found to have vagotonia, a slight degree of chronic appendicitis, and some hyperchlorhydria. Belladonna and alkalies, with attention to the diet and a few enemas, served to make a new man of him in a short time.

I have already mentioned one case of deranged internal secretions in association with digestive disturbance as the cause of headache. We know very little of the ductless gland disorders, but we know that headaches can occur, and further we know that nearly all disturbance of the glands of internal secretion is preceded by either infection or toxemia, so that it is not too much to assume that intestinal toxemia can play a not inconsiderable part in the causation of this class of case.

I know little of aural headaches, but I have had several patients with headache and dizziness suggestive of labyrinthine disease in which the real cause was intestinal. So also in the class of patients with migraine dependent on swelling of the mucosa of the turbinates, I believe intestinal absorption and protein sensitization can play a part, but this is only theoretical, based upon the swellings of different mucous membranes which may occur from the action of foreign protein. I have no cases to bear me out.

The one great class of cases of headache which appears to me to be beyond hope of cure embraces those occurring at the menstrual period. Digestive headaches which may be present in the interval may be cured, but the regular monthly attack persists. I have never seen these monthly headaches of the migraine type cured before the menopause. So, when I give my prognosis as to the cure of headache I always except these.

From what has been said above it might be thought that I consider that the stomach and intestines play a part in the etiology of all headaches. This is certainly not so, and I have simply mentioned their possible association with trouble in the other organs in order to emphasize the point that the digestive apparatus should at least always be considered in the treatment of the headache patient, even if actual trouble has been found elsewhere.

Returning to the subject of pure gastrointestinal headache unassociated with disease of other organs, we arrive at the question, How can we tell whether the headache comes from the digestive tract or not? I do not think that we can. The patients will often say that they think their trouble comes from the stomach. The only thing to do, however, is to make an absolutely complete physical examination, with tests of the gastric secretion, of the urine for indican, etc. If indican is present in considerable amount it is probable that intestinal putrefaction

is the principal cause. It can only be said that such and such a finding is not normal and is sufficient to cause the trouble. Whether it does so can be found out only by correction of the thing found wrong.

The prognosis in the uncomplicated cases is good. I think a man has a better chance for complete cure than a woman because of the possible influence of the pelvic organs. If the cause can be found and eradicated the results are often marvelous and the whole life of the patient is made more worth while. I often think that if I have made mistakes in the practice of medicine and have had failures that the relief which has come to a few patients after years of suffering has made up for the defeats. And sometimes relief comes so quickly and easily.

Mr. B. H. I was able to see only once for the examination, as he came from Fredericsburg. The rest of his treatment was conducted by mail. For years he had left-sided migraine in attacks lasting 12 to 18 hours, coming about once a week. But between attacks he was never quite right as his head had a heavy clouded feeling and he was almost incapacitated for work. While he was a civil engineer he had taken to farming for his health but still suffered. He was found to have spastic colitis with ileocecal regurgitation. I last heard from him 7 months after his tratment and he reported that since his treatment he had been knocked out only twice in the 7 months with a few mild headaches in between. What a difference this is from approximately the 30 prostrating attacks he would have formerly had during this time.

Mr. W. L., referred to me by Dr. Walker, is still under treatment although reporting at rather long intervals. He was hardly ever without headaches of the dull sort, easy fatigue, and lack of energy. This had been as far back as he could remember of his 52 years. He also while a city man had taken to farming. He was found to have indicanuria, as an index of autointoxication and colonospasm. Since the day of beginning treatment he has had no bad headache. He still has somewhat of the intoxication left and his head does not always feel clear, but he remarked that if he never improved any further he would be satisfied.

All cases are not like these by any means, but think of the wasted and painful years for want of a simple test and short treatment! We do not cure all of the headaches, nor do we even help some of them, yet we can cure all that come from intestinal absorption, and these cases, more brilliant than others, have been selected to show what can be accomplished and to emphasize the importance of looking for indican as a routine part of every uranalysis. I regret to say it, but there are some men practising medicine who do not even know what indican is and what it stands for.

In regard to the treatment of these cases there is no specific. Each wrong must be corrected. Hyperacid stomach must be neutralized. Vagotonic conditions call for belladonna. The diet must be selected for the different conditions found, but a rather low protein intake is usually indicated.

The cases of absorption from the bowel are the most interesting to me. They call for attack along three distinct lines. The poisons must be eliminated. The production of the poisons must be limited by the intake of less of the particular material which is capable of being broken up by the putrefactive bacteria, and by the attempt to change the intestinal flora or to kill many of the bacteria by antisepsis or biological means, which will be considered in a minute; and lastly conditions favoring absorption of toxins already produced must be corrected as by the healing of colonic ulceration and the attempt to get an imperfectly working ileocecal valve to functionate perfectly.

We will consider these methods of treatment seratim. The poisons produced must be eliminated, and this must be done, not with laxatives or cathartics, but mechanically by washing. Patients are often made much worse by calomel and other physics. The reason for this is easy to understand. The toxins are generated in the lower bowel by bacteria putrefying bits of undigested protein. When a laxative is given, it does, to be sure, eliminate the toxins already in the colon, but it also quickens peristalsis all along the tract so that a much larger amount of material is brought to the colon from the small intestines to supply extra ammunition for the bacteria. Bowel washes are always necessary. They may be in the form of medicated enemata or irrigations in most cases. These also serve the purpose of helping in the healing of a diseased mucosa. To be successful they must be administered correctly and the patient is not always successful in taking his own treatment. It is safer for the physician or nurse to give the treatments.

In case an enema is not well taken, if there is difficulty in expelling it, and in all cases of incompetent ileocecal valve, washing from above through the duodenal tube is indicated instead. It is possible to introduce a tube into the duodenum with no discomfort in several minutes. Then when a quart of solution is rapidly put into the duodenum it is swept along, carrying everything with it and is expelled in from 8 minutes to a half hour usually, thereby cleaning the entire tract without the loss of body fluid such as would result in case of salines administered.

The diet should be limited in protein, particularly the sorts of protein which are less completely digested. Meat particularly should be entirely eliminated or much reduced. No patient eats meat without some bits showing in the stool microscopically. A few million bacteria can make quite a meal from a microscopic meat fiber. It has been attempted by the feeding of large quantities of carbohydrates to change the intestinal flora to another type. I must admit that my results have not been very successful.

The bacteria of the putrefactive type must be to a certain extent gotten rid of by some means, however, and we have here our choice between biological and chemical methods. Bulgarian bacilli have been greatly lauded not only by the manufacturers but by many physicians. My experience with the class as a whole has not been favorable nor with certain exceptions has it been constant. In children I find the Bulgarian bacilli to be much more efficacious than in adults. Further, I find my results to vary with the manufacturer. From two preparations I believe I have had some good results after some other things had failed. But on the other hand I have seen each preparation fail and something else succeed. I continue to employ them in some cases even though not sure of their actual value. A preparation containing petroleum jelly I use when there is need for a lubricant.

A new form of biological therapy is that of cultures of the *Bacillus acidophilus*. I have only recently become interested in this preparation and

can not testify as to its value. I can say so far, however, that I have had several cases of indicanuria which had persisted in spite of all other treatment clear up shortly after starting the administration of these bacilli. It is claimed that they will actually colonize in the bowel while the Bulgarian bacilli will not.

When we come to the question of chemical extermination of the bacteria most physicians will say, "It can't be done." I believe that we can come closer to it now than we ever could before. I have used extensively a phenol derivative for which there has been claimed nontoxicity as it is non-absorbable, but with a carbolic coefficient of 40, endeavoring to satisfy myself as to its value. I am on the fence. I will admit that it is probably the best thing in the way of an intestinal antiseptic we have ever had, but it will not always stop intestinal putrefaction as controlled by the symptoms and the indican test. It is often possible to completely deodorize the stool by the administration, but I am unable to explain why some cases which have resisted local treatment and Bulgarian or acidophilus bacilli will immediately clear up under the same treatment with the substitution of the antiseptic for the bacilli, while other patients uncured when treatment is begun with the antiseptic get well when the bacilli are given.

I can say, therefore, that one after the other of these means should be tried, and to date I hardly know, after the treatment of several hundreds of cases of autointoxication, the relative value of each in an individual case. But the main thing I wish to bring out in considering the subject of these cases is the importance of regarding the digestive tract as the cause or one of the causes. Then by persistence, and the trial of one of the methods after another if necessary, a cure can often be accomplished.

THE ROCHAMBEAU.

RETROPHARYNGEAL ABSCESS IN INFANTS.

BY A. NOAH SCHILLER, M.D.,

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ALTHOUGH first described by Bokai many years ago, the condition called retropharyngeal abscess, whose occurrence is more frequent than one is apt to suspect, has not had the proper amount of investigation and study. As Henoch says, it is as good as unknown to most physicians. The fault lies with the practitioner of medicine, because the diagnosis does not demand any great amount of skill, but only a more complete examination of the patient.

The examination of infants is never complete unless there has been a thorough inspection of the pharynx. This at times is difficult. Then the sensation of touch must be brought into use. The finger should be inserted into the pharynx of every infant, when we are baffled in our diagnosis, for often here the cause of the disease is to be found.

There are two types of retropharyngeal abscess: (a) those occurring in infancy; (b) those in childhood and in adult life. In this paper I shall discuss the first class, the type found in infancy. The only resemblance that these two types have is that they bear the same name and are often found in the same location.

Simon, fifty years ago, demonstrated that in infants there exists a chain of lymph glands on the lateral wall of the pharynx, which drain the base of the skull and the nasopharynx. At the age of fifteen months these nodes begin to atrophy, and continue to do so until the age of three, when no trace of them is to be found. The cervical and submaxillary glands then assume the function of draining these areas. The retropharyngeal abscess of infants is an inflammation of the lymph nodes first described by Simon; in short it is a lymphadenitis, which usually goes on to suppuration.

The type occurring in childhood and adult life is not an inflammation of these glands. It is a spreading or burrowing of pus from some other source, as tuberculous disease of the spine, peritonsillar abscess, or submaxillary abscess.

That the medical world has been ignorant of the existence of such a condition until recent times, was demonstrated during a discussion of a paper by Dr. Roe on "Retropharyngeal Abscess." At that time, both laryngologists and pediatricians, admitted that they had seen but few cases. Henoch, a close observer, saw 60 cases in fifty years. A recent report of the Budapest Hospital for Children stated that 16 out of 1,000 cases admitted to that institution suffered from this disease. A report issued twenty years ago acknowledged but 2 in 1,000. I feel certain that the disease is no more prevalent to-day than it was twenty years ago. The other 14 cases were not diagnosed because of faulty technic in the examination. In the last five years I have seen 27 cases.

If we recall the statement that the retropharyngeal lymph nodes begin to atrophy at the age of fifteen months, one would expect inflammatory conditions of these glands to exist at the height of their activity. Holt says that three-quarters of the cases occur in the first year. Bokai reported 60 cases, 42 occurring in the first year. Snow, in 114 collected cases, reported 86 per cent. in the first year. Of my cases 21 were in children one year of age or under.

Contagious diseases, as scarlet fever and measles, are apt to be complicated with retropharyngeal abscess. In general, it may be said that 1 per cent. of scarlet fever and 0.5 per cent. of measles are followed by inflammation of these glands. Culture of the pus found in these cases invariably shows the staphlococcus.

Symptoms.—Occasionally there are no symptoms; spontaneous rupture, asphyxia, and death occurring without warning. The first symptom observed by the parents is usually difficulty in swallowing or breathing. In only 3 out of 27 cases I saw was the submaxillary adenitis the symptom that attracted the mother's attention.

The first sign, and the one that every case presents, is the submaxillary adenitis. Even before there is any swelling in the pharynx large enough to induce any other symptom, the adenitis already exists. The adenitis is unilateral, being on the same side as the retropharyngeal abscess. This adenitis is so typical and so characteristic that I make my diagnosis on the adenitis and then verify it by examining the pharynx. On examination there is a puffiness, but the skin is never red. On palpation the swelling is soft, never hard; the

glands are small and distinct, never matted together. The amount of swelling is out of proportion to the size of the glands, the latter being small, but the puffiness marked. There is a marked infiltration of serum in the periglandular tissue, this and not the enlargement of the glands causing the swelling in the submaxillary area.

The other symptoms that are usually present depend upon the location of the abscess. If it is situated in the nasopharynx the cry is nasal, the child snores, and has difficulty in breathing. When located in the oropharynx it may cause difficulty in swallowing. This may be due either to the pain of the inflammatory condition or to the mechanical obstruction by the mass. If the abscess is lower, about the epiglottis, the symptoms are hoarseness, stertorous breathing, and attacks of choking and cyanosis.

On examining the pharynx, the abscess can be seen only if it is located in the oropharynx; hence the absolute necessity of making a digital examination in every case, for often the abscess cannot be seen but only felt.

Diagnosis.—Always look for the submaxillary adenitis; there is no pharyngeal condition that will cause this particular and characteristic adenitis. Stenosed conditions of the larynx, whether catarrhal or diptheritic, may give symptoms that may resemble retropharyngeal abscess. The adenitis will be sufficient to help clear the diagnosis. I recently operated on an infant of nine months for adenoids. The diagnosis of retropharyngeal abscess had been made and on examination a large mass situated laterally was found. All the evidences, both from the sense of touch and from the symptoms, favored the diagnosis of abscess, but the absence of the adenitis ruled against this diagnosis.

Prognosis. — Retropharyngeal abscess unrecognized may result in death from asphyxia. The prognosis depends upon how soon after fluctuation is present the abscess is opened. Henoch reports a case of a professor, who had recognized a case of retropharyngeal abscess, but postponed the operation until the following morning so that he might show it at his clinic. During the night the infant died suddenly of asphyxia. Aviragnet reported a similar case. Bokai in a series of 317 cases reported 14 deaths, a mortality of 4.5 per cent. To-day the diagnosis being more promptly made, and surgical interference instituted the mortality is much lower.

Treatment.—The treatment is surgical. The abscess cavity should be opened as soon as fluctuation is detected. The incision, whether made by a scalpel, the tip of which only is exposed, or by the finger, which is the method I use, must open all pockets of pus.

The patient is seated in the lap of the assistant, the body of the infant is held firm. The mouth is then opened and kept open either by a tongue depresser held between the jaws or by the cheek of the patient pressed inward between the jaws. As soon as the abscess is opened the head of the child is bent forward to permit the pus to drain through the mouth and nares. By this method the pus and blood are prevented from entering the trachea and causing asphyxia. A mouth-gag should never be used to keep the jaws apart. Snow has reported a death following the use of this instrument.

1855 Seventh Avenue.

Medicolegal Notes.

Privileged Communications.—The Idaho Supreme Court holds that where a physician is employed to take an *x*-ray picture of a fractured arm, and helps to interpret the fracture, and advises with the patient's regular physician as to the treatment, such physician should not be allowed to testify as to facts learned by him during such employment, if the patient claims the privilege granted by the state statute.—Shaw v. City of Nampa, (Idaho) 171 Pac. 1132.

Practising Medicine Without License.—The Minnesota Supreme Court holds that the act of a person who styles himself a doctor, in receiving a patient who has applied to him for medical attention and examining him and diagnosing his ailment or disease and recommending an operation as treatment therefor, is practising medicine within the meaning of the Minnesota statute prohibiting the practice thereof without a license, though he prescribes no drug and administers no specific treatment to the patient.—State v. Rolph (Minn.), 167 N. W. 553.

Practice of Medicine Without a License.—An information following the language of the Missouri statute prohibiting the practice of medicine and treatment of sick, etc., without a license, charging that without license from the State Board of Health the defendant represented himself as authorized to practise medicine and surgery and to treat the sick and others afflicted with bodily and mental infirmities by offering to treat a certain person for ovarian disorders for a certain sum paid to him, contrary to the form of the statute, etc., was sufficient. There was evidence that the defendant held himself out as being authorized to treat the sick, or those afflicted with bodily or mental infirmities; that he maintained an office near the entrance to which was a large sign in the following language, viz.: "Evertz School of Suggestion. Oscar Evertz, S. D. Suggestionist. Treatment. Instruction;" that he circulated advertising matter concerning his method of treatment which is said to have been that of "auto-suggestion," and that he offered to treat the witness, Lennor Howes, in consideration of the sum of $45 to be paid to him in advance, and it was conceded that he was not a licensed physician. It was held that a violation of the statute was shown by this evidence.—State v. Evertz, (Mo.) 202 S.W. 616.

Insanity Defense—Questions to Medical Expert.—On a trial for murder where practically the only defense was insanity objection was made to a question asked of a medical expert on cross-examination: "Did you ever see a criminal who had an expressionless face?" The doctor had testified fully as to the appearance of the defendant, the condition of his skull, and had been examined in regard to his history and that of his antecedents. It was held that no harm was done by asking him if he had ever seen a criminal who had an expressionless face, as he answered "Yes." It was true that counsel should not have asked him the question, "If they had a family history of crimes and the grandfather had been a drunkard and epilepsy ran in the blood, and they had criminal tendencies, bank robbers, shooters, or what nots, and these descendants of such a race, when you come on down with them, you would find these fellows in the pen, wouldn't you?" The court did not think, however, that in the mass of evidence that was before it this mere question would have stood out and prejudiced the jury against the defendant, especially as the doctor answered that criminal tendencies were not inherited. An assignment of error objected to the question, "You all get mad out there on the farm sometimes, don't you?" It was claimed that the question had no bearing on the case. The court said that it probably had not, but it could hardly have been any more prejudicial than if the witness had been asked if he like all other men was not a miserable sinner.—State v. Mueller, North Dakota Supreme Court, 168 N. W. 66.

Military Medicine.

THE CRANIAL WOUNDS OF WARFARE.

Cerebral hernia is a common complication of penetrating cranial injuries when a more or less extensive attrition of the brain substance occurs. It is due to infection involving either the meninges or the cerebral substance, thus setting up an increase in the size of the contents of the cranial cavity and, therefore, hypertension of the cerebrospinal fluid. When the meningitis becomes generalized a hernia of the brain rapidly ensues. The dressings are soaked, the cerebrospinal fluid flows off in large amount, and when the wound is examined the hernia is seen. By slight pressure on its edges a decidedly purulent liquid is made to issue and when the overflow has taken place the hernia can be reduced to a certain extent, but always returns. The meningitis usually becomes localized, as the cerebral serosa possesses an extraordinary power of bacterial defense. A rather extensive area forms around the wound and in this false membranes become organized, forming a barrier against general invasion of the cranial content and then no more fluid will issue from the wound. For a cerebral hernia to form in these circumstances, the development of cysts in the false membranes must occur. The serosa will secrete into the cystic cavities, which slowly increase in size along with the increase of the hernia.

When the infection involves the cerebral substance an abscess will develop rather late in the wound evolution, but always coexists with a meningitis localized around the cranial wound, with or without cystic formation, but a localized meningitis may exist without an intracerebral abscess. In all these processes there must result a hypertension of the cerebrospinal fluid, a fact proven by the exit of the fluid under pressure when lumbar puncture is done, which is a dangerous procedure in these cases. Another proof is the reduction of the hernia after withdrawal of the purulent fluid in cases of generalized meningitis or after evacuation of the turbid serous liquid in meningeal cysts or after giving vent to the pus of a cerebral abscess. A diagnosis of generalized meningitis may be made by merely inspecting the dressings, and when a cerebral hernia exists for some time a diagnosis of its reduction can be made by finding the dressing pus soaked, which indicates that the cysts have broken down or that the cerebral abscess has been partially or totally emptied, after which the progress of the wound will be usually satisfactory.

Post Malarial Anemia.—Captains A. W. Harrington and W. Whitelaw, R. A. M. C., contribute a paper to the *Glasgow Medical Journal* of July, 1918, concerning the forms of anemia following attacks of malaria, observed and investigated by them in Macedonia. They found a great deal of post malarial anemia in that part of Europe, much of which was of a severe type. This occurred chiefly among Serbian soldiers, although occasionally among Bulgarians and other nationalities. From careful examinations and blood counts the following deductions were drawn:

Severe Forms.—(1) Post malarial anemia may assume a grave type characterized by all the signs and symptoms of pernicious anemia, but without evidence of oral or intestinal sepsis. (2) The spleen is enlarged, sometimes considerably so, but the liver is seldom enlarged. (3) The blood shows marked diminution of red corpuscles, high color index, leucopenia with a relative increase of lymphocytes, and to a lesser extent of large mononuclears, poikilocytosis, megalocytosis, polychromasia, occasional granular basophilia, the presence of megaloblasts and normoblasts, and a small percentage of myelocytes which persist. (4) Such cases occur most frequently as a sequel of subtertian malaria, but may follow benign tertian. (5) Recovery usually follows prompt and energetic treatment, but death may occur and the gravity of the prognosis increases with the age of the patient. (6) Treatment by arsenic used as in pernicious anemia, either as liquor arsenicalis in increasing doses or galyl or arsphenamine intravenously, usually leads to recovery. It should be combined with treatment by quinine, orally or intramuscularly, as indicated.

Mild Forms.—(1) The blood shows a less marked diminution of red corpuscles, a low color index, except in a few more recent cases, a less marked leucopenia with a relative increase of lymphocytes and large mononuclear cells; slight poikilocytosis, occasional megalocytes and polychronasia, rarely granular basophilia, the presence of normoblasts, and a small percentage of myelocytes frequently and of myeloblasts constantly. (2) The average age of the patients is lower. (3) Recovery is the rule.

Hygiene From the Soldier's Point of View.—In the *Dublin Journal of Medical Science* for July, 1918, Dr. W. F. Wicht discusses the personal hygiene of the soldier, pointing out that unless such hygiene is effective, an army will not be healthy and contented, and therefore will lose a great part of its potency as a fighting machine. In no war have the conditions been so difficult from the standpoint of personal hygiene as in the present war, and never before has hygiene gained so great a triumph.

Dr. Wicht emphasizes the need for personal cleanliness, and draws attention to the fact that the skin may be regarded as the first line of defence against disease, and states that the parts of the body that require special attention and should be washed every day, are (1) between the legs and buttocks, (2) the arm-pits, (3) feet and toes. Baths should be taken at least once a week if possible twice, or even more often. The hands should be washed before every meal, special attention being paid to the nails, as dirty nails are a common means of conveying infection. The hair should be kept short, should be brushed and combed daily, and washed frequently. A very important part of the body, which is only too often neglected, is the mouth. The mouth must be kept scrupulously clean, and the teeth cleaned, at least once, and if possible, twice daily, by rubbing with a brush. The best time for cleansing the teeth is immediately before going to bed; this removes all particles of food adhering to them after the evening meal. All decaying or painful teeth should be reported to the medical officer. The

mouth should also be washed out frequently with water.

Closely connected with the care of the skin is clean clothing. Dirty clothes foul the skin; and sweat and dirt from the skin soak into the clothes. For these reasons it is necessary that underclothes should be changed at least once a week. The same clothes should not be worn by day and by night. Socks especially should be changed frequently. Every man should try to have two pairs in use, one pair for morning and one for evening wear. If the socks are allowed to become foul and dirty, the feet very soon become soft and tender. If washing of clothes is found to be impossible, airing and exposing them to direct sunlight does a great deal of good. The sun's rays, if given time, will kill most germs, and also sweeten and freshen dirty clothes wonderfully. The hair-brush is an article which very easily becomes dirty. To clean this article rinse it, say, once every two weeks in a basinful of cold water to which a teaspoonful of washing soda has been added. Do not use hot water and soap.

Concussion Injuries of the Eye.—With regard to these injuries Ormond accepts Nettleship's view that, passing through the soft tissues, the force of a projectile is partly changed into vibrations which radiate from the track of the projectile. He thinks that such vibrations may pass through the bone without doing great damage and prove destructive in the soft tissues. He recognizes four ways in which the concussion effects are produced upon the eye: (1) By a missile traversing the orbits without rupturing the globes; (2) By vibrations, the results of blows upon the orbit and face transmitted to the interior of the eyes; (3) By vibrations transmitted from direct blows on the eye through the corneoscleral coat without rupturing it; (4) By vibrations the result of air pressure or windage.—Transactions of Ophthalmological Society of United Kingdom, 1917.

Statistics of Venereal Diseases in Troops.—Charlet and Bulliard publish in the *Annales de dermatologie et de syphiligraphie*, the statistics of 560 consecutive cases of venereal diseases treated during a period of eighteen months. The patients were from all services, active, reserve, territorials, Moroccans, and may be said to represent the entire army of the French. But a single geographical sector was represented and the troops were all men of the line. Very close to the sector was a large town which was far from being depopulated of civilians, for it sheltered from 15,000 to 20,000 of them. Aside from this place the civilian population was relatively small and scattered. The 560 cases comprised 153 of syphilis, 333 of gonorrhea, and 72 of chancroid. Of the total number 143 men were contaminated at the front—67 in the large town mentioned—and 417 in the interior. Of the latter 338 were on leave of absence. The men at the front were infected about equally by their "wives," who were largely of the common law variety, by public women, and by casuals personally known to them. The infections from public women were contracted in brothels. There are no statistics in reference to contaminations at the rear. Of the 153 syphilitics 38 were infected at the front and of the 333 cases of gonorrhea 98 were infected in the same area. But 7 cases of chancroid out of 72 were contracted at the front. There was not a single case of nonvenereal transmission, but there were 2 cases of extragenital chancre. To the 72 cases of chancroid are to be added 10 mixed cases with a total of 82 infections with Ducrey's bacillus. The percentage of contaminations at the front, which was about 25, agrees fairly with that of other observers. The authors are unfavorably impressed with the large number of cases of contagion out of control, for women out of the zone are of course practically unknown to the authorities and beyond supervision of any kind. Careful measures at the front are offset by the disastrous results of leave of absence. Of the 333 patients with gonorrhea 106 suffered from orchitis, 10 of which were double. Of the 72 cases of chancroid 14 were complicated with suppurating bubo.

Health of the Army.—The Surgeon General's health report for the week ended August 30 shows a slight increase over the previous week in the death rate from diseases among troops in the United States. There were 117 deaths during the week as compared with 94 for the week ended August 23. The sick or wounded soldiers from the American Expeditionary Forces landed in the United States during the last week numbered only 37 as compared with 423 for the preceding week.

Blood Transfusion at Australian Dressing Stations.—According to a cablegram to the New York *Sun* a regular system of blood transfusion has been adopted throughout the Australian dressing stations on the Western Front. It is stated that many men who otherwise would have died have, through this procedure, been enabled to stand an operation and have been put on the road to recovery. It is said that there is no difficulty in finding men who volunteer to give their blood for a comrade and often men with very slight wounds offer their blood for seriously wounded comrades.

Refuse Commissions for Doctors on Local Draft Boards.—Provost Marshall General Crowder has sent a letter to the Surgeon General's office requesting that commissions for doctors who are connected with local and district draft boards and medical advisory boards be refused until it is determined whether the doctor is not indispensable as a member of the selective service system. General Crowder points out that during the next few months nearly 14,000,000 men will have to be registered and hundreds of thousands examined, and that it is essential that the draft system be unhampered for the increased amount of work. The Surgeon General's office has replied that the present arrangement will render more than 18,000 medical men unavailable for commissioned service and it is suggested that some more economical method of examining registrants might be devised. Draft boards have been cautioned not to release any competent and necessary examiner until his case has been taken up at the executive chambers. General Crowder has also issued a protest against the practice of certain draft boards of sending

men who have been rejected at one camp for physical disability to another camp on a subsequent call, since this brings extra transportation expense on the Government.

Importance of Eliminating Mentally Unfit.—A cablegram received at the War Department from General Pershing states that the number of defectives received in recent replacement units in France suggests the importance of eliminating the mentally unfit from draft organizations before their departure for France. The War Department also complains that local boards have not always complied with the selective service regulations in sending men to camps where sleeping car accommodations are necessary en route. Failure of boards to issue proper Pullman or tourist requests has resulted in forcing many draftees to travel long distances in day coaches.

Another Hospital Bombed.—On the night of September 4 German aviators bombed a French-American hospital southwest of Soissons. Eighteen bombs were dropped, two of which struck the "red cross" on the lawn. There were no casualties, the patients having been removed to nearby caves when the bombing began. The hospital doctors relate with pride the bravery of the women nurses who went to and fro between the caves and the hospital during the raid to be sure that all the patients were under shelter.

Mount Sinai Hospital Reports on War Work.—The annual report of Mount Sinai Hospital, New York, shows that, in addition to caring for 9,983 patients at an expenditure of $695,859 at home, it is maintaining a base hospital in France which cost up to the time of its departure $100,000. Twenty-three doctors, 65 nurses, and 155 enlisted men are serving with this unit. Major Daily, M. C., U. S. A., is in command of the Mount Sinai Base Hospital Unit, known as Base Hospital Unit No. 3. Dr. Walter M. Brickner has succeeded Dr. Howard Lilienthal as head of the surgical department. The report calls attention to the large number of the attending and dispensary staff who are serving the Government in other directions, both in this country and in Europe. Members of the staff are also conducting classes for the training of medical officers.

No Longer a Shortage of Nurses.—The Committee on Nursing of the Council of National Defense announces that the nursing requirements of the American Army have been provided for and that there is no longer any shortage of nurses either here or abroad. In response to Surgeon General Gorgas's appeal for 25,000 graduate nurses 27,000 have already enrolled with the American Red Cross and of these 16,000 are actually in military service. A future supply of nurses will be assured by the Army School of Nursing established by the Surgeon General in connection with twenty-two of the military camps throughout the country. The appeal for high school and college graduates between the ages of 21 and 35 to take the prescribed course has resulted since June in more than 17,000 responses and more than 1,000 have actually been enrolled. Training units of from thirty to forty students have been sent to Camps Wheeler, Jackson, Sherman, Dodge, Shelby, Wadsworth, Devens, and the Walter Reed Hospital. Additional training units will be assigned to other camps within a few weeks. If it proves necessary quickly to augment the forces of nurses abroad, the plan is to send these students over at a suitable stage of their training and to allow them to complete their training while in service at the front.

Course for Hospital Aids Begins.—A special three months' course in bacteriology to train laboratory workers for immediate war service, began, on September 3, at New York University and Bellevue Hospital Medical College and also at other medical schools throughout the country. The courses have been undertaken at the request of Surgeon General Gorgas and arranged by Dr. William H. Park and Dr. Anna M. Williams.

Red Cross to Care for Captives.—The Atlantic Division of the American Red Cross has obtained two large storage houses at Copenhagen, Denmark, and at Renens, Switzerland, in which food, clothing, and other comforts will be assembled at once in sufficient quantity to maintain 10,000 American soldiers in prison camps in Germany, if that number should need care. During the month of July the American Red Cross extended aid to 372,835 civilians in France and 26,141 persons received treatment at the eight hospitals and seventy dispensaries maintained for the civilian population. During the week from December 16 to December 23 the Red Cross will hold a "Christmas Roll Call," at which it is hoped that practically every man, woman, and child in this country will become a member of that organization.

Lieutenant Harry A. Seigall, M. R. C., U. S. A., of Hartford, Conn., has been twice wounded during the performance of his duty as a surgeon on the Western Front, and is being cared for at the American Red Cross Military Hospital No. 3 in Paris.

Colored Doctors Appeal for Commissions.—The National Medical Association, with a membership of 5,000 colored physicians, at its annual convention in Richmond, Va., during the last week in August, passed resolutions deprecating the system of the War Department whereby, they claim, members of their race are not given a fair representation in the medical reserve corps of the Army and their nurses not allowed to care for colored soldiers on the battlefields of Europe.

Summer Nursing Course Ends.—Diplomas were awarded on September 9 to 418 young women who have completed their course at the Women's National Nurses Training Camp at Vassar College. These graduates will enter hospitals in various sections of the country for a two years' course in training.

Rest Houses for Nurses.—The American Red Cross plans to provide special nurses' recreation houses at all large base hospitals at a cost of $350,000. Contracts have been let for forty such homes. Several are already completed. The buildings are similar in architecture to the convalescent homes for soldiers, though smaller.

Nurses' Psychiatric Unit.—A special psychiatric unit of forty nurses has been assembled and outfitted in New York and will soon sail for overseas. These nurses have been specially trained to care for soldiers suffering from shell shock.

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MESENTERIC EMBOLISM AID THROMBOSIS.

THIS condition has been considered very rare but is not so rare, actually, as the statistics of reported cases would make one believe; in fact, it is the making of the correct diagnosis that is the rarity rather than the condition itself. A very interesting and instructive article on this subject by Eisenberg and Schlink, under the title, "Mesenteric Vascular Occlusion," appeared in the July number of *Surgery, Gynecology, and Obstetrics*. They adopted this title for the reason that a definite symptomatological picture which would enable one to make a diagnosis of arterial rather than venous occlusion does not exist. They also consider that even the terms "thrombosis" and "embolism" are of no value clinically, since the most frequent source of a mesenteric thrombosis is an embolus. Tiedemann, in 1843, reported the first case of mesenteric vascular occlusion; and Trotter, in 1193, was able to collate 366 cases. Since that time 35 to 40 more cases have been reported, thus bringing the total to about 400 cases; yet Eisenberg and Schlink, during a period of only two months, had the opportunity of studying four cases. Their series makes a very instructive picture of the same condition being brought about by three different causes—acute infection, chronic infection, and injury. In two of the four cases the correct diagnosis was made before operation; in the third case the patient was operated upon for supposed intussusception; while the history of the fourth case is not given. To make the correct preoperative diagnosis in even 50 per cent. of the cases is doing remarkably well as compared with the records of previously reported cases; for of the 366 cases collected by Trotter, the correct diagnosis was made during the life of the patient in only 13, or approximately 3½ per cent. This, as the authors say, must be due to the fact that mesenteric occlusion is not thought of when considering the differential diagnosis of an acute abdominal condition.

The authors find that the occlusion is venous in about 40 per cent. of the cases, and in the majority of these both the superior and inferior veins are simultaneously involved. The common causes of venous occlusion are said to be descending portal thrombosis (usually due to sepsis or pressure due to cicatricial contraction of the liver), or more rarely a primary condition due to phlebitis resulting from an infectious process in the intestine (most often appendicitis). Arterial occlusion occurs in about 60 per cent. of the cases; the most frequent causes are emboli from the mitral or aortic valves, atheroma of the aorta, and pulmonary emboli.

Regarding symptomatology, the authors say that because of the various forms in which the disease appears it is impossible to outline a definite course. One factor to be emphasized is that the symptoms are the same whether they are due to arterial or venous occlusion. The condition may occur at any age. Legane mentions a case occurring in a child one month old; while the oldest reported case was that of a woman of 85. The majority of the cases occur between the ages of 20 and 60. The disease begins suddenly in most cases with attacks of colic or cramp-like pain in the abdomen lasting for five or ten minutes at a time and recurring after a period of equal duration, or the pain may be continuous. In all of the authors' four cases pain was the earliest symptom. In the majority of reported cases the pain has been generalized throughout the abdomen, being most intense usually about the umbilicus or in the epigastrium, or possibly in either hypochondrium or in the lower abdomen. Abdominal distention is a constant sign, usually appears early, and increases as the disease advances. Visible peristalsis is extremely rare. In only a few cases has a definite tumor been felt, palpation being so difficult by reason of the distention and the extreme tenderness. Gastrointestinal symptoms may be due to irritation, in which case diarrhea and melena preponderate, or they may resemble those of acute intestinal obstruction. The first vomitus consists of gastric contents, but later may contain blood. Usually the temperature is at first subnormal but may later rise to 104 or 105°. The pulse is generally that of a severe internal hemorrhage—small, rapid, and often irregular. Respiration soon becomes rapid and thoracic in type. The facies presents a combination of pallor and cyanosis.

The two chief reasons for the almost universal failure to make a diagnosis during life are first, the alleged rarity of the disease, and secondly, the extreme variation in the clinical picture. The signs and symptoms which the authors consider of the greatest importance in the diagnosis are: (1) Severe colic-like pain; (2) abdominal tenderness, tympanites, and occasionally shifting dulness; (3) rapid and excessive fall of tempertaure, associated with a weak and rapid pulse; (4) profuse melena with diarrhea followed by constipation; (5) persistent vomiting; (6) palpable tumor due to the mesenteric hematomata; (7) appearance of the patient

manifesting grave constitutional disturbances; (8) source for the embolus, *e.g.* endocarditis; (9) age of the patient, usually over 20 years.

Few patients have recovered under expectant treatment, and in these cases the correctness of the diagnosis is questioned. The form of treatment offering the greatest chance of recovery is immediate operation—the earlier the better—and doing whatever operative work necessary as rapidly as possible.

While cases in which the vessel occlusion is very extensive and a large segment of gut is sure to become gangrenous are hopeless from the start, there are many in which prompt operation offers a fair chance for recovery. It is impossible to believe that the condition is anything like so rare as the comparatively small number of reported cases would seem to indicate. The subject is an important one and we have devoted considerable space to its discussion for two reasons: First, that general practitioners as well as surgeons, when confronted by acute abdominal conditions of somewhat obscure origin, may keep the possibility of mesenteric vascular occlusion in mind; and, second, that those who see such cases may be induced to report them in detail so that the clinical aspects, especially, of this condition may be more generally understood and recognized. Certainly it is not creditable to the profession that but 13 out of a series of 366 such cases were discovered during the life of the patient.

MONOPHAGISM AND PELLAGRA.

THE term monophagism is sometimes used for a monotonous diet, although the word is somewhat misleading. The infant at the breast is a monophage, and the Scotch peasant who lives on oatmeal brose is another; yet neither appears to suffer from deficiency diseases. On the other hand, the child with a notable variety of diet who can be made to eat only a few dishes, and whose fickle appetite even refuses these at times, may not be monophagic, yet suffer from deficiency of certain foods.

The puzzling feature about pellagra is twofold. Not only is the diet monotonous but it is commonly believed that the maize is unfit for food. This question does not come up in the case of beriberi, for no one asserts that polished rice is not wholesome. Even in the scorbutic group, it is not claimed that the articles on which the patient subsists are unfit for food. It is therefore quite possible that there are two components to pellagra, viz., deficiency and intoxication. To throw light on this subject much experimental work is being done, and with the present food shortage the need of research is even more imperative than it was before the war. The scanty diets of the day are giving rise to new and unsuspected types of deficiency disease as well as to new types of food poisoning.

Animals have been poisoned with spoiled maize but the results obtained do not correspond to human pellagra. Experiments by Bezzola have even shown that sound maize as an exclusive diet may be fatal to animals. It has further been shown that an exclusive cereal diet is sometimes a cause of scorbutic symptoms. The vitamine theory has thus far failed to account for pellagra. Nevertheless, recent authors have been advocating the deficiency theory—which by the way is old, having been held as long ago as 1850 by Lussana. In this connection the American experiments are of interest, for these have shown that elimination from the diet of meat, fresh vegetables, etc., is followed by pellagroid symptoms.

In some of the recent experimental work in Italy attempts have been made to isolate certain components of the disease. Thus Volpino in the *Annali d'Igiene* for May 31 has studied especially the hypersensitiveness of the disease. A sterile extract of spoiled maize was first injected into pellagrins in accordance with a technique which has been in use for some years. In nearly all of the subjects a peculiar reaction was set up. In a few cases the latter was severe in type but in all of the cases it subsided in a few days. The first symptoms to be mentioned were stupor and somnolence with amnesia. Tremor was marked. Of general symptoms which accompanied the neuroreaction nausea and malaise may be first mentioned. The temperature rise may be considerable and the erythematous areas show increased redness. The reaction was next studied in controls and no less than 23 nonpellagrins were injected with the extract of spoiled maize. In 19 the only reaction was a slight rise of temperature. The other four gave the pellagrous reaction. These men were at once examined for evidences of the disease. The first patient had Banti's disease but bore no signs of pellagra. He had, however, lived on maize since childhood, eating it at least twice a day. There could be little doubt that he had eaten spoiled maize in his time. In the other cases nothing was found to throw light on the reaction. Although the author states that the latter was specific he adds that the neuroreaction shown by the pellagrins was absent. In this difference the author sees evidence of a strong predisposing factor—the pellagrin becomes such because of a nonresisting nervous system. Without this nerve component the subject does not develop the disease, at least in its pernicious form. There is, however, a question of acquired immunity—those who escape the disease may do so because of the development of protective antibodies.

SMALLPOX AND FLEAS.

IN a country like Brazil contagious plagues take on new significance. Most of the country is tropical, and it is said that vaccines do not keep well in hot climates, and consequently give inadequate protection. Local scientists are therefore interested in other forms of prophylaxis than those which obtain in temperate climates, and in the actual manner of diffusion during an epidemic. If carriers can be proved to be active then mere personal contact and fomites will be less in evidence, and isolation, disinfection, etc., must be carried out along different

lines. In the *Brazil-Medico* for December 29, Ferrari of the Rio smallpox hospital relates some experimental work done by himself and Meirelles, the latter an industrious student of variola. As soon as a new case is received six questions are put which cover the subjects of vaccination, known exposure, proximity, sleeping place, and the presence of fleas in numbers. In 24 per cent. of these groups and during a certain period there had been a case of the disease in the dwellings; in 22 per cent. the patient had been exposed to a case outside his own residence; in 70 per cent. there were domestic animals in the house; the number vaccinated was 51 per cent., successful in less than a third; those who slept on rugs and mats numbered 44 per cent., while 38 per cent. complained of fleas.

It becomes at once evident that the majority of victims had not been knowingly exposed to the disease, and the writer suggests that the disease is not improbably spread by the agency of fleas. One argument in support of this is that a mild case will often beget a malignant one in the same household, this sudden increase in virulence being attributable to passage of the organism through fleas. Again, it has been claimed that in certain towns in which the houses have cement floors epidemics of variola have never occurred. In Santiago, Chili, many unvaccinated prisoners in the House of Correction were vaccinated on admission. But of the 700 inmates many had never been vaccinated. Presently a very severe epidemic of variola broke out among the poor of the city. The prison was equipped with smooth cement floors, which were kept sterile. No cats or dogs were allowed on the premises, and the prisoners' clothing was kept fumigated. Not a single case of variola developed in the prison, and the non-vaccinated prisoners must in part have been protected by some of the prophylactic measures employed. The authors clearly believe in antiflea measures.

LEPROSY.

Leprosy is known to have been cured by intercurrent diseases, among which are erysipelas and high continued fevers, notably variola. The inference in such sequences is that Hansen's bacillus cannot survive a certain temperature maintained for a certain period. So far as we know, however, no one has as yet made any systematic use of hyperthermia in the treatment of the disease. One reason for this omission may be the fact that intensive and prolonged treatment with chaulmoogra oil by intramuscular injection will occasionally bring the disease to an arrest if not a cure. But it must not be forgotten that leprosy not infrequently undergoes a spontaneous arrest, so that not much can be inferred from the outcome of any single case. Of two formulas in use in leper asylums, that of Jeanselme is said to be superior to the one known by Mercado's name. Both contain chaulmoogra oil and camphor. The former also contains guaiacol and the latter resorcinol. Originally, chaulmoogra oil was used externally and by the mouth, but its reputation as a specific has been greatly enhanced since it has been administered by the subcutaneous, intramuscular, and intravenous routes. An offshoot from this treatment is the use of the alkaline salts of gynocardic acid, as reported by leprologists in the Philippines and in Hindustan. Bacteriological control is used, and a slow sterilization appears to be demonstrable.

In the April number of the *Cronica Médico-Quirúrgica*, Dr. López Silvero brings out the above facts. Dr. Ribón of the Agua de Dios leper asylum in Bogotá has recently placed on record numerous cases of cure of leprosy, as a result both of intercurrent disease and of treatment. The average duration of treatment with intramuscular injections is placed at two years, after which interval patients may be bacillus free.

Dr. Cabrera of the Rincon leper hospital in Havana recently delivered an address before the Society for Clinical Study on the so-called Garcia plan of treatment which had been much discussed in the popular press. It is apparently a decoction of miscellaneous herbs, used as an adjuvant to chaulmoogra oil to mitigate its disagreeable action on the stomach. Hot baths are also part of the treatment, which may represent a reaction against the use of the oil by the syringe. A committee of prominent Havana physicians, appointed to investigate the Garcia treatment, found the bacillus in the lymph and mucosities of patients under treatment by the Garcia method while the results were in no wise superior to the general sum of those under the usual treatment.

Intellectuals and the War.

The world is upside down and it will take a long time for conditions to revert to normal. Indeed, such radical changes have been effected in so many directions that life will probably never again be the same. In the *Glasgow Herald* a few weeks ago there was an article dealing with the effect of army life upon the intellectuals. The writer argues that military service tends to intellectual atrophy and believes that many of these men of brain and culture will be quite unable after the war to carry on the work in which they were formerly engaged. The first lesson the intellectual has to learn in the army is that of complete subservience of mental faculties. He has to reason but to reason along stereotyped lines. He loses the independence of thought to such a degree that the reasoning becomes in the worst sense mechanical, which is intellectual stagnation and even death. The day of the soldier is filled with mechanical work, the mind atrophies, stimulation is lost, and intellectual interests are deprived of their grip. Physical exhaustion plays its part until the victory of matter over mind is complete. The craving for relief from the benumbing routine of work becomes intense and takes the form of an overpowering desire for sensuous pleasures. As a matter of fact, mental work is almost impossible among the surroundings of trench life and mental apathy supervenes. The entire system of army service is hostile to intel-

lectual life and frowns upon any attempt to exercise the reasoning powers except within very narrow limits. If, then, military life is inimical to intellectual life and renders the reasoning faculties torpid, the question arises, Can men of brains who have been thus affected "come back"? The writer whose views we have quoted appears to be pessimistic regarding their ability to do so. He thinks that, as a rule, their powers of mind have been virtually killed or so greatly inhibited that they will require very careful treatment in order to be enabled to recover. They will have forgotten much that they knew and will have to begin over again to a large extent. Therefore, ambition must be revived in them and their minds must be stimulated to regain an interest in matters which have become alien to their thoughts. There may be a little truth in what the writer says, but he takes altogether too black a view of the intellectual who has fought in the war. Although he will never regard life with the same eyes as formerly, his mind will have been stimulated rather than blunted and he will come back more of a man, mentally and spiritually, than he went in, and his views of life and its problems will be widened immensely.

The University of Athens and the War.

In the July issue of the *Journal de Médecine de Bordeaux*, Dr. Portmann, a naval surgeon attached to the French Legation at Athens, writes entertainingly on this topic. The University of Athens, he says, is regarded as the principal center of culture in the Orient. Its influence is felt in Egypt, Asia Minor, and the regions northerly to it; or, broadly speaking, through the entire eastern basin of the Mediterranean. Students from this combined area return home and disseminate the modern Hellenism. Originally this was based largely on French culture, but in the course of time the Teuton in his "Drang nach Osten" found in Hellenism a stumbling block and set about to remove it. His task was to supplant a Greco-Latin by a German civilization. In this movement he had the support of Greek royalty. At the beginning of the war the movement was just bearing fruit. Empty chairs were filled with Germans and Germanophiles. The students were advised to complete their studies at Bonn, Breslau, and Munich. The cause was already half won and many returning graduates were proclaiming German superiority throughout the Orient. This was true particularly of the medical students, who come into the most intimate contact with the people. The Medical Department of the University of Athens became saturated with Teutonism and the hospital staffs seemed to consist largely of men with German diplomas. At this juncture Venizelos took a hand in the game and sixteen professors, of whom seven belonged to the medical faculty, were released from their duties. At the same time the French graduates organized themselves into a Franco-Hellenic movement. Two new medical societies were organized and three periodicals were begun to aid the movement. Professors were exchanged between French universities and the Greek institution. It soon became apparent that the German bluff had been called. Greek medical students are in the French army and when the war ends many will be graduated from French universities. The French culture is betted suited to the genius of the race than the mechanical methods of the Teuton. The Philhellenist and the Francophile will not perish from the earth to make way for the Hun.

Physiology of the Rectosigmoid Intestine.

Bufaloni, writing in the *Rivista critica di clinica medica* of May 4, says that the abdominal viscera are innervated by the sympathetic in association with fibers from the central nervous system, the whole forming an autonomous system, the center for which is the lumbo-aortic plexus. The intestine proper is insensitive to pain and the sigmoidorectal mucosa shares this insensitiveness until we come to the lowest segment of the rectal ampulla. The painful sensations in volvulus, etc., are derived from the peritoneum and mesentery while spasmodic pains proceed from the muscles. The pain in rectal tenesmus is present because of the above mentioned sensitiveness of the lowest rectal segment and that of the musculature. The sensitiveness of the anal canal is intense and persists for a space of 4 to 5 cm. above the internal sphincter. The muscle tonus in the sigmoidorectal segment is permanent and serves to retain the fecal bolus in the sigmoid from one evacuation to the other. If the tonus is increased spasticity is the result, and, if diminished, atony. In a spastic gut the bolus is compressed into a ribbon, while in an atonic sigmoid it is pasty and shapeless. The muscle tonus is not sufficient to cause defecation, for this purpose peristalsis is superadded. Antiperistaltic movements also occur, for example when a subject neglects a call of nature and also whenever there is an obstacle to evacuation. The physiology of the rectosigmoid includes the power of absorption of food, as utilized in rectal alimentation. This segment of intestine secretes sufficient mucus to lubricate the fecal cylinder for its passage through the anus. The usual duration of passage from stomach to sigmoid is 18 hours; during this period the food residues reach the sigmoid and undergo dehydration, so that 24 hours usually elapses from breakfast to defecation. It is the contact of the fecal mass with the sensitive area of the lower rectum which causes the summons for defecation. The latter usually follows a meal (breakfast), because the latter excites peristaltic waves.

News of the Week.

The Volunteer Medical Service Corps.—The Council of National Defense announces that many thousand blanks for enrollment of the legally qualified men and women physicians of the country in the reorganized Volunteer Medical Service Corps are being mailed by the chairman of the General Medical Board of the Council of National Defense. With the blank are enclosed a letter and a folder giving all details as to the organization.

The Volunteer Medical Service Corps organization provides means for obtaining quickly

men and women for any service required; furnishes recommendations and necessary credentials to assure the best of medical service, both military and civil, and determines beyond question the attitude of the individual toward the war. The object of the corps is to place on record all medical men and women in the United States; to aid the Army, Navy, and Public Health Service in supplying war medical needs; to provide the best civilian medical service possible, and to give recognition to all who record themselves in Army, Navy, Public Health activities, or civilian service.

Under the reorganization, every legally qualified physician, man or woman, holding the degree of Doctor of Medicine from a legally chartered medical school, who is not now attached to the Government service, and without reference to age or physical disability, may apply for membership and be admitted if qualified; the original organization admitted only those who for various reasons were ineligible to membership in the Medical Reserve Corps. The organization will mobilize the medical profession in order to provide for the health needs of the military forces and the civil population, and the recording and classifying of doctors will afford means of obtaining quickly men and women for any service required.

To date about 40,000 of the 144,116 doctors in the United States—not including the more than 5,000 women doctors—either are in government service or have volunteered their services. Up to July 12 the Surgeon General had recommended to the Adjutant General 26,733 doctors for commissions in the Medical Reserve Corps. About 9,000 others who applied were rejected. With the 1,194 in the Medical Corps of the National Guard and 1,600 in the Navy, the total, 38,527, constitutes 26.73 per cent. of the civilian doctors. Deducting those who declined their commissions or who have been discharged because of subsequent physical disability or other cause, the number actually commissioned in the Medical Reserve Corps stood on August 23 at 23,531, with several hundred recommended whose commissions were pending. Of the 23,531 there are 22,232 now on active duty. It is estimated that at least 50,000 doctors will be necessary eventually for the Army. It can readily be seen that with the enrollment of these active men their places in communities and institutions must be cared for and the work, therefore, throughout the country must be so systematized and coordinated that the civilian population may not suffer. An important aspect is the need for medical men in the communities where munitions and other vital war products are being made. The Volunteer Medical Service Corps, supervised by the Central Government Board, will thoroughly care for these needs.

Influenza on Liner Causes Two Fatalities.—A liner arriving at an Atlantic Port on September 4 was detained at quarantine on account of an outbreak of influenza. There were in all twenty-five cases of the malady during the voyage. Of these two developed pneumonia and died at sea. The remainder have been removed to a local hospital.

Marriage and Fecundity of College Women.—A recent statistical report on 16,739 graduates of women's colleges in the United States shows that 39 per cent. were married. It appears from this report that employment affects marriage, for of the total number who have been gainfully employed only 39.5 per cent. were married. Of the married graduates 69.9 per cent. had children, averaging 2.1 per family. One Wellesley graduate reports eleven children, and for none of the colleges was the maximum number less than six. In the entire group of married graduates 29 per cent. had three or more children. In connection with these figures the fact is to be taken into consideration that many of these women are still young and their families are not complete. It is observed that the mortality among the children of college women is low. Of all the children born to women included in this census only 6.7 in every hundred had died and only 4.5 per cent. had died during the first year. The figures of the Federal Children's Bureau show that in Manchester, N. H., and Johnstown, Pa., the infant mortality rates were 16.5 and 13.4 respectively, and in a residential suburb in New Jersey where living conditions were of the best the rate was 8.5 per hundred.

Nurses Needed for the Insane.—The New York State Hospital Commission announces that 1,000 young women are needed in State hospitals for the insane to replace nurses and attendants who have gone into national service. The New York State Hospitals have arranged with the Federal Government to receive all mental cases developing in citizens of the State with the army and navy forces. A considerable number of such cases have already been received and the number is constantly increasing. The State hospitals also train male nurses and applications are invited from men who are available for military duty. Training school classes for a shorter course of instruction for attendants, covering about six months, will be started October 1. Further particulars in reference to this course may be obtained from the State Hospital Commission, Albany, N. Y.

To Aid Needy Professional Men.—The will of Michael J. Dunn of Springfield, Mass., provides the nucleus of a trust fund which when it amounts to $100,000 is to be devoted to assisting the education of needy professional men. The Springfield Lodge of Elks is to administer the fund.

Civil Service Positions.—The New York State Civil Service Commission announces the following examinations to be held on October 5, 1918. Assistant Serologists, at a salary of $2,000, open to men and women between the ages of 21 and 35 years. Candidates should have a college education or its equivalent. Assistant Bacteriologists, at a salary of $1,200 to $1,800, open to men and women. Training and experience in sanitary chemistry are desirable for this position. Bacteriologist-Pathologist, at a salary of $2,500, open to men and women between the ages of 25 and 40 years. A degree in medicine or an equivalent education in a college maintaining a standard satisfactory to the Commission, and training and experience in chemistry are desirable though not essential. Laboratory Assistant in Bacteriology, at a salary of $720 to $1,200, open to men and women, between the ages of 21 and 30. Only candidates who have satisfactorily completed a course in bacteriology will be accepted. Laboratory Ap-

prentice, State Department of Health, at a salary of $600 to $720, open to men and women between the ages of 21 and 30 years. Physiological Chemist, at a salary of $1,500, open to men and women between the ages of 21 and 35 years. A degree from a college maintaining a standard satisfactory to the Commission is required. Assistant Physician, regular or homeopathic, at a salary of $1,200 with increase, open to men and women who are licensed practitioners of medicine in this State. Application must be in the hands of the Civil Service Commission, Albany, N. Y., not later than September 25.

Dr. Edward Fauver of Middletown, Conn., has been appointed football coach at Wesleyan University for the coming season.

Prague Decimated by Disease.—A report submitted by the sanitary officer of Prague to the City Council shows that in 1913 the number of children born alive was 3,274; in 1917 the number dropped to 1,718, or in other words there was a decrease of 48 per cent. in the birth rate. At the same time the number of deaths increased from 3,000 in 1913 to 3,828 in 1917. Thus there were 2,115 more deaths than births in 1917, causing a reduction in the population of 6½ per cent. Most numerous among the causes of death is tuberculosis, which has caused from 18 to 25 per cent The report states that the sanitary condition of the city is deplorable. Much of the report has been suppressed.

Monument to Oswaldo Cruz.—A monument is to be erected in some one of the public resorts of Rio de Janeiro to the memory of the distinguished hygienist, sanitarian, and bacteriologist, Oswaldo Cruz, founder of the institute which bears his name and which corresponds to the Pasteur Institute of France, and similar institutions in other countries. The design, which has been approved for the memorial, was recently published in the *Brazil-Medico*. Aside from a large sum subscribed by the Government of Portugal the names of subscribers to the memorial are exclusively those of Brazilians, either individuals or societies. State governments, banks, college faculties, and other bodies of men are represented, as well as numerous hospitals.

Obituary Notes.—Dr. Frederick Henry Cleaves, a graduate of George Washington University, Washington, D. C., in 1887, died at his home in Boston, Mass., on August 21. He was acting assistant surgeon in the United States Marine Hospital Service, in which capacity he served in the out-patient department at the customs house at Boston for eighteen years. He was also the medical examiner for the Union Mutual Life Insurance Company of Maine.

Dr. Robert John McFall of Paris, Tenn., a graduate of Vanderbilt University Medical Department, Nashville, Tenn., in 1892, was run over and instantly killed by a railroad train near his home on August 15. Dr. McFall was 53 years of age.

Dr. Andrew J. Osborn of Lawrenceville, Va., a graduate of the Medical College of Virginia, Richmond, in 1899, died in a local hospital on August 8, aged 49 years.

Dr. Rebecca Moore died at Kennett Square on August 26, at the age of 83 years. She was graduated from the Woman's Medical College in the class of 1883.

Dr. William Merrill, a retired physician, who practised many years in Portland, Me., died at his home in that city on Aug. 16, aged 85 years.

Dr. Charles J. V. Fries died of apoplexy at Philadelphia, on August 30, at the age of 55 years. He was graduated from Hahnemann Hospital and Medical College in the class of 1894.

Dr. Harry F. McKay died of arteriosclerosis at his home in Portland, Ore., on August 24, aged 56 years. He was a graduate of Willamette Medical Department in 1895, and for the past six years had served on the State Board of Medical Examiners.

Dr. James MacKellar of Hazleton, Pa., died in a hospital at Philadelphia on August 31, at the age of 54 years. He was graduated from the Medico-Chirurgical College in 1891. He was a member of the Luzerne County Medical Society, of the Medical Society of the State of Pennsylvania, and of the American Medical Association. He was a member of the Hazleton Exemption Board.

Dr. Cornelius Van Riper of Passaic, N. J., a graduate of the University of New York Medical College, in 1866, died at the residence of a relative in Jamaica Plain, Mass., on August 20, aged 77 years.

Dr. John A. Chard, a graduate of New York University Medical College in 1897, died at his home in Jersey City, N. J., on August 30, aged 54 years.

Dr. Alexander McLean Jeffrey of New York, a graduate of New York University Medical College in 1896, died following a stroke of apoplexy at his summer home at Mt. Kisko, N. Y., September 2, aged 59 years.

Correspondence.

OUR LONDON LETTER.

(From our Own Correspondent.)

PUBLIC HEALTH AND POLITICAL PROGRESS—COMPULSORY EXAMINATION OF WOMEN FOR EVIDENCES OF VENEREAL DISEASES—CHANGES IN THE INDIAN MEDICAL SERVICE—THE PERILS OF SMALLPOX.

London, August 16, 1918.

The position of Ireland is, for obvious reasons, an extremely embarrassing one, not only for Great Britain but for all those nations who are fighting for the Allied cause against the Central European Empires. Especially has it difficulties for the United States of America, where Irish national aspirations have received such generous support. Fortunately—for the task would be indeed a difficult one—there is no onus in a medical paper to discuss political questions. I need make no attempt to evaluate how far bad government by Great Britain, or religious prejudices and antiquarian sentiment in Ireland, manufacturing greed, agrarian ignorance, or treacherous interference by Germany with Irish politics, have played a part in the confusion which exists, but one factor in that confusion has a distinctly medical significance and that is the abominable condition of public health in Ireland. The rural districts of Ireland are cared for medically by the officers of the Irish Poor-law Medical Service. These doctors, too often chosen for their posts for other than medical reasons, are overworked, ill-paid, un-

supplied with material assistance in such matters as hospital and laboratory accommodation or expert and consultant opinion, and are unable to afford to the districts in which they practise any medical care comparable to what might be expected in an integral part of the British Empire in the 20th century. Ireland is to-day a sparsely populated island, and, despite its enormous potential wealth, notably in the direction of agricultural and fishing industries, the population is a poor one. The significance of this is that the officers of the Irish Poor-law Medical Service cannot expect any substantial addition to their official salaries from the fees of private patients. Here, however, it may be said that Ireland is not much worse off than many parts of Scotland, or some of the more sequestered districts of England. Again, it may be admitted that general public health organization and administration matters less when a population is small—to reduce this point to absurdity there is no central drainage or water scheme required in the Sahara Desert, because the number of persons who would benefit by the innovations is not large enough to warrant the expenditure. But Ireland is not at fault in public health administration only in its rural regions; of its great cities the same story can be told, and here we can note a most serious effect on the birth-rate, sick-rate and death-rate of the country, which may well be playing a serious part in promoting the political unrest. While, for example, the birth rate of London, with a population of over four millions, was, in the first week in August, only 11 per mille, that of Belfast was 15 and of Dublin nearly 16. In both the great Irish cities the expectation of life at all ages is terribly below what it should be, while the infantile mortality is correspondingly heavy. From a medical point of view it stands to reason that if these two cities, in which are concentrated the two representative classes of political thought, enjoyed a higher standard of public health, political questions would be approached in a far more wholesome manner. Therefore, the submission of a great housing scheme for Dublin is an important event to the whole British Empire and our Allies, for in a more healthy Dublin politics will be discussed with less rancour. Dublin is a great medical center, where the men of our profession have enjoyed for many generations high prestige as exponents of their calling in every division and specialty. The public health of their city has been the despair of the doctors, for it is impossible to keep down the ravages of such diseases for example as tuberculosis and infantile diarrhœa when the population lives in a perpetual environment favorable to the incubation and spread of pathological conditions. Dublin medical men, therefore, will share with particular keenness the delight of all thinking people in learning that the Engineering Inspector of the Irish Local Government Board, Mr. P. C. Cowan, has submitted to the Chief Secretary in Ireland a scheme for dealing drastically with the rehousing question in Dublin. Mr. Cowan's scheme will entail an expenditure of from eight to nine millions of State money, for he sets out the necessities of the case as follows:

"Sixteen thousand new self-contained houses to prevent overcrowding and to permit the separation of the sexes; the improvement by remodeling of 3803 first and second-class tenement houses, in which 18,991 families now live, so that the total number of remodelled houses may afford suitable accommodation in tenements of from one to four rooms for 13,000 families. The figure of 16,000 is adopted as the number of new houses that are required to-day. These houses, if built in continuous rows on each side of a street, would be 25 miles long. The houses should be erected by a board representing the Government, the city of Dublin, the urban districts, and the Dublin County Council. The board should not exceed 11 in number, and should hold office for 10 years. Mr. Cowan estimates the expenditure, it will be seen, under two headings of rebuilding and reconstruction. The 16,000 new houses, at £400 each, makes a total of £6,400,000, which the acquisition and reconstruction of old tenement houses should cost, he thinks, £2,040,000. Those who do not know what a distinguished city Dublin is, may be surprised at the possibility of acquiring within its boudaries nearly 4000 houses which could possibly be adapted by reconstruction to the purposes of a central sanitary scheme. But Dublin, as a matter of fact, is full of magnificent houses quite capable of intelligent alteration, for Dublin was once a great and profuse capital. If Mr. Cowan's scheme is carried out a vast improvement must occur in the public health of the city, and by the removal of a visible reproach to British management political progress will be served.

The regulation under the Defence of the Realm Act ("Dora"), commonly known as "Dora 40.D," which orders the compulsory examination of women, in certain circumstances, for evidences of venereal diseases, has now been in force for some time, and all classes of the community are coming to the conclusion that its value as a measure of public health has been disappointing. The regulation was desired, it must be remembered, as a measure of public health, and not either to protect the fornicator or to punish one party in the commission of fornication, the form of the instruction running thus: "No woman who is suffering from venereal disease in a communicable form shall have sexual intercourse with any member of H. M. Forces, or solicit or invite any member of H. M. Forces to have sexual intercourse with her." Now, if it is found difficult to bring evidence sufficient to satisfy a legal tribunal that a particular woman has a venereal disease in a communicable form the regulation is likely to fail in its purpose; but if it should be doubtful whether Adam infected Eve or *vice-versa*, the prosecution of Eve must fail. And there is no machinery for prosecuting Adam, even if Eve were a member of one of the women corps cooperating with H. M. Forces. The National Council for the Prevention of Venereal Diseases, recognizing these difficulties, as well as the fact that attempts to secure convictions against women, even when the poor pathological grounds were reinforced by all the arguments of probability, have failed in a large proportion of the cases which have reached a legal tribunal, are now advocating the rescinding of 40.D.; and their view will be largely supported, though the commanding officers in big camps will not be pleased. The case here is so different that it should not baffle official ingenuity to meet the special difficulties. As a general measure 40.D is open to two main objections: (1) diagnosis, (2) allottment of responsi-

bility. The vagina, cervix, and especially the urethra contain lurking places which the bacteriologist, save with the most rigid inspection and prolonged investigation, cannot safely pronounce to be free from communicable mischief; coitus is a more thorough test than bacteriology, and again the woman may be uninfected but a temporary carrier. Secondly, the infected man may not have acquired the germ from the last coitus, to which inevitably he attributes his trouble, but to a previous adventure; while if the examination of the woman, which is proved positive, is not made immediately, what is to prove that the sufferer, alleging her guilt, may not himself have infected her, being, unknown to himself, in an infectious condition before their embraces? But this is not to say that nothing should be done to rid the neighborhood of great camps from the molestation of prostitutes, any of whom may be the focus of infection for a large number of susceptible men. It is the commanding officers of such camps, witnessing the sick-rate from a preventable disease wasting their numbers daily, who demand a legal remedy, and who do so on very good grounds. There is every reason to suppose that if 40.D is rescinded, because of its futility, regulations will be provided for dealing with the mischief in its grosser and more concentrated forms.

Small measures of reform in the Indian Medical Service are constantly announced, and are received not so much with gratitude, as with a feeling that they may prove to be an earnest of far greater changes in the future. There have just been created, for the period of the war only, eight important administrative appointments in the Service, which will be filled by officers holding the rank of or promoted to the rank of colonel, and by selection in accordance with circumstances. Colonels in the Indian Medical Service, after active service in that rank, are eligible for a substantial addition (£250 per annum) to their retiring pensions, and the new appointments are to carry the same privilege.

With all our admitted progress, in every civilized country in the world, in the realm of sanitation and preventive medicine, we cannot afford to ignore the only prophylectic known to science as yet against smallpox—namely, vaccination and revaccination; yet this country now contains many thousands of unvaccinated children, and adults who have received no protection since their infancy, or who are now in a condition of more or less modified susceptibility. The presence of a world war must make this situation a thoughful one—at any rate for medical men, and those who think. Smallpox is present in every quarter of the globe, while an enormous admixture of peoples and races and languages is taking place as a result of the war. Prisoners are being taken on one front who have recently arrived from another; populations are being deported; wanderers and refugees of the poorest classes are finding their miserable way from one hideous refuge to another, and all these people may have emerged from, or may be journeying to, places where an attack from smallpox is a likely event. We have, therefore, the fire laid for a fierce conflagration; it may burst out anywhere, and our sanitarians ought to be prepared. In a report to the English Local Government Board which has just been published, Dr. Bruce Low, one of the Medical Inspectors of the Board, gives a detailed account of the behavior of smallpox in almost every quarter of the globe, and in sounding a warning note as to the dangers that may arise in England, calls pointed attention to the fact that the Franco-German war, forty years ago, was followed by a disastrous epidemic of smallpox, which spread over the whole of Europe, and which caused half a million deaths, ten per cent of this hideous mortality occurring in England. With such battle-fronts as are now concerned, in comparison with which the areas involved in the Franco-German war are quite tiny, the risk not only to England but to the United States is great, and should smallpox get a hold in either country the consequences might be disastrous, for many of those experienced medical men, who could be trusted to put down an epidemic with promptitude, are absent from their local duties. In the present day many of the younger generation of British medical practitioners are unacquainted with smallpox; they might fail to diagnose it, and could be pardoned if they did not at once take the right steps to stamp out an epidemic. But none of these things affect the serenity of a public reassured by the comparative disappearance of the disease from among us. May there be no rude awakening!

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

RED CROSS LIFE AND HEALTH INSURANCE—AMERICAN RED CROSS IN ITALY—DR. STRONG OF HARVARD RECEIVED AT THE ACADEMY OF MEDICINE.

PARIS, July 30, 1918.

THE American Red Cross has arranged for the furnishing of life, health, and accident insurance to its own workers abroad who are not eligible to the benefits of government war risk insurance. All foreign workers are to get free of cost and without medical examination $1,000 life insurance on the term plan, payable in event of death or at the end of two years, in event of total and permanent disability, and also accident and health insurance providing for weekly indemnity payment in case of disability from sickness or injury. All foreign workers are also to have the privilege of buying additional life insurance on the ordinary life plan with medical examination, up to a total of $5,000—including the $1,000 above mentioned. The worker will pay the regular normal premium on the same and the American Red Cross will assume the extra war risk premium. In its efforts to secure the best solution of this problem, the Red Cross War Council appointed a committee of the Actuarial Society of America which, in cooperation with Robert C. Rathbone, director of the Red Cross Insurance Bureau at Washington, prepared and recommended this plan of insurance. An adjustment office will be established in France and the general administration of the insurance will be conducted from the Red Cross Insurance Bureau at Washington. The Red Cross workers are not eligible for the benefits of government war risk insurance unless actually enlisted in the U. S. Army or Navy, therefore the insurnace plan announced by the Red Cross is a most important relief measure for its own workers, many of whom

are voluntarily serving abroad at great personal sacrifice.

Dr. William Charles White has resigned as chief of the Bureau for the Care and Prevention of Tuberculosis of the American Red Cross. He is succeeded by Dr. Donald E. Baxter, who has been the assistant chief of the Bureau of Tuberculosis since its formation and was associated with Mrs. Wharton's work, "Les Tuberculeux de la Guerre," before the Red Cross Commission came to France. He is returning to his duties in Pittsburgh, where he is professor of the faculty of medicine in the University of Pittsburgh.

Mr. Rudolph Reeder has been assigned assistant chief of the Children's Bureau, in charge of all matters relating to the care of destitute children, juvenile delinquents, trade instruction, and similar non-medical matters. Before coming to France, Mr. Reeder was superintendent of the New York Orphan Asylum at Hastings, N. Y. He was a pioneer in the development of the cottage system for children's institutions in America and in getting needy children established in occupations or professions. More than fifty of his former charges are now in the American Army.

The American Red Cross has issued a report summarizing the work done during the first five months in Italy. Although the report gives figures, it adds: "It is impossible to convey by statistics even more imporant results—results which may be measured only by the present universal spirit of brotherhood and sincere good-will for all Americans now existing throughout Italy. It meant much to the Allies to have a visible sign that the United States was actively in the war and ready to devote every man and resource to winning the war. It meant much to Americans to realize that in Italy the United States had an ally whose great heart was open to Americans, ready and willing to cooperate with the latter zealously and effectively. There is scarcely a village where the American Red Cross has not brought a message of friendship to the Italians, who for three years have bravely borne the burden of history's most terrible war. During April representatives of the American Red Cross, traveling day and night, visited more than 2,000 towns and villages distributing relief among 318,200 needy families of soldiers at the front. The American Red Cross has now in operation throughout Italy 41 kitchens, distributing 120,163 rations weekly, 43 workrooms, employing 3,000 women, producing 63,800 garments monthly; 30 schools teaching 2,258 children; 10 hospitals for children who during the summer will be transferred to camps; 14 lace, mattress, shoe, and carpentry shops; 3 shops selling American dry food at nominal prices; 5 children's asylums, and 10 rest stations and canteens for soldiers and refugees, feeding thousands daily. It is hoped soon to build a model American village near Pisa housing 2,000 refugees. At the front the American Red Cross has four ambulance sections and seven rolling kitchens or canteens, giving tired soldiers hot coffee and jam.

At the opening of the session at a recent meeting of the Academy of Medicine, the president rose and called the attention of the academy to the fact that they had as guest Dr. Strong, the distinguished professor of Tropical Pathology of Harvard University, and that in the name of the Academy he desired to salute in him the magnificent work done by his country for the Cause of Humanity.

146, Avenue des Champs Elysées.

Progress of Medical Science.

Boston Medical and Surgical Journal.

August 29, 1918.

1. The Relation of Food Idiosyncrasies to the Diseases of Childhood. Fritz B. Talbot.
2. A Clinical Study of 400 Patients with Bronchial Asthma. I. Chandler Walker.
3. The Present Status of Immunization in Hay-Fever. J. L. Goodale.

3. The Present Status of Immunization in Hay-Fever.—J. L. Goodale presents the results of an investigation begun in 1914 to determine the value of desensitization in hay-fever. The review includes 330 cases of true hay-fever, 123 of which had received desensitizing treatment for two or more years. The following were the results, based upon the statements of the patients and the author's own observations: (1) No improvement noted, 7 cases. (2) Improvement as compared with previous years, but showing, nevertheless, troublesome symptoms for a short time, 46 cases. These patients in general may be considered as only moderately well satisfied with the results, and, in my opinion, were not materially better than most cases treated in previous years by cauterization and general hygienic measures. (3) Very definite improvement, apparently beyond criticism, was observed in 59 cases. These include patients with a previous history of severe attacks, who, under treatment, exhibited only slight symptoms, causing not more than moderate annoyance. Here are included patients with a previous history of hay asthma, who were able to go through two or more summers without asthmatic symptoms. (4) Five patients showed no hay-fever for two or more years. By this is meant complete absence of subjective or objective vasomotor disturbance, in spite of full exposure to pollen.

New York Medical Journal.

August 31, 1918.

1. Pasteur's Relation to Medicine and Surgery. W. C. Borden.
2. Fracture Depression of Laminæ of Fifth and Sixth Cervical Vertebræ. John J. McGrath and Joseph Byrne.
3. Rhythmical Breathing. Irwin H. Hance.
4. Some Phases of Medical Inspection in Public Schools. George M. Retan.
5. Can Flat Foot Be Cured? J. Madison Taylor.
6. The Systematic Development of *X*-Ray Plates and Films. Millard B. Hodgson.
7. Thrombosis and Embolism. H. R. Coston.
8. Milk as a Galactogogue. Leroy S. Palmer and C. H. Eckles.

3. Rhythmical Breathing.—Irwin H. Hance. See Medical Record, September 7, p. 433.

5. Can Flat Foot Be Cured?—J. Madison Taylor answers this question in the affirmative, if the condition be properly treated. He disapproves of arch supports, but favors a hollow heel with an elevation just anterior to the calcaneum. This permits the os calcis to rest comfortably in its normal position, leaving the whole foot free to function normally, and holding it back from the compressing action of the front part of the shoe on the toes. The rigidity of the metatarsophalangeal joints must be overcome by persistent and skillful manipulation, bending the toes down till gradually the normal flexor action can be performed. At the same time the toes should be forcefully widened, *i.e.* separated and stretched apart, until with the foot resting on a step or raised surface the toes can be bent at an angle of 90 degrees, *i.e.* from the horizontal to the vertical. On standing on a step the toes should be made to touch the upright (vertical) surface below them. This facility, passive though it be, is only acquired after months of careful molding and mobilizing. At the same time the patient should make voluntary

efforts to perform flexion acts, *i.e.* to bend down or flex the toes as nearly as possible to an angle of 90 degrees. This movement is a normal but long lost flexor function. When flexion can be readily performed daily, the arch has become practically normal. Power will be increased by performance. There are in addition many other accessory movements of equal importance. Among these are placing the bare foot on the floor about 20 inches in advance and then pressing down with the toes, drawing the foot toward one at the same time rotating it inward, describing the quadrant of a circle. Of course this involves work, hard work, but the price of emancipation from any protracted motor disability is viligant and persistent correction of faulty action.

Journal of the American Medical Association.

August 31, 1918.

1. Responsibility of Nation, State and County for Rural Sanitation. W. S. Rankin.
2. Pneumonia at a Base Hospital: Observations in One Thousand One Hundred Cases at Camp Pike, Ark. Arthur A. Small.
3. Epidemic of Streptococcus Pneumonia and Empyema at Camp Dodge, Iowa. Joseph L. Miller and Frank B. Lusk.
4. Pathology of the Epidemic Streptococcal Bronchopneumonia in the Army Camps. W. G. MacCallum.
5. The Principles of Thyroid Surgery. C. H. Mayo.
6. Goiter in the Southeast. Edward G. Jones.
7. Temporary Loss of Voice Following Thyroidectomy. Donald Guthrie.
8. Hypophysical Tumors Through the Intradural Approach. A. W. Adson.
9. Sporotrichosis Resembling Tuberculosis Cutis: Report of a Case. J. S. Eisenstaedt.

2. **Pneumonia at a Base Hospital.**—Arthur A. Small. See MEDICAL RECORD, July 6, page 37.

3. **Epidemic of Streptococcus Pneumonia and Empyema at Camp Dodge, Iowa.**—Joseph L. Miller and Frank B. Lusk. See MEDICAL RECORD, July 6, page 38.

4. **Pathology of the Epidemic Streptococcal Bronchopneumonia in the Army Camps.**—W. G. MacCallum. See MEDICAL RECORD, July 6, page 38.

5. **The Principles of Thyroid Surgery.**—C. H. Mayo. See MEDICAL RECORD, June 29, page 1141.

6. **Goiter in the Southeast.**—Edward G. Jones. See MEDICAL RECORD, June 29, page 1141.

7. **Temporary Loss of Voice Following Thyroidectomy.**—Donald Guthrie. See MEDICAL RECORD, June 29, page 1141.

The Lancet.

August 10, 1918.

1. The Lumleian Lecture on Cœliac Disease. G. F. Still
2. Study of an Outbreak of Bacillary Dysentery. G. S. Buchanan.
3. The "Instinct-Distortion" or "War Neurosis." Donald E. Core.
4. On Disappointments of Various Therapy. H. G. Adamson.

1. **The Lumleian Lecture on Cœliac Disease.**—G. F. Still devotes this first lecture to the symptoms and prognosis of this disease. A remarkable fact developed from his own series of cases was the greater frequency of the disease in girls than in boys, only 11 of his 41 cases being in boys. The child is pale and emaciated, the large abdomen contrasting with the wasted limbs. The stools are bulky, pale, porridge-like, and greasy; later, however, they become greenish or dark brown in color; the odor is very offensive. The urine is usually normal. The liver is not enlarged, and may even be smaller than normal. There is marked pallor, due to the deficiency in hemoglobin, which is the only constant blood change. One of the most striking features of the disease is the arrest of physical development, not merely a cessation of gain in weight but also in arrest of growth. The voice is high pitched and feeble, in contrast to the rather gruff voice in other conditions associated with arrest in growth such as cretinism. The dentition may be slightly but not markedly delayed. There is great muscular weakness. The mental capacity does not seem to be affected. Among the complications observed were general edema, tetany, scurvy, purpura, and chronic glossitis. The disease is very chronic in its course, and when recovery occurs it is not until the end of a year or two. Whether complete recovery, in the sense of attaining eventually average height and acquiring normal puberty development, ever occurs, the author cannot say from personal observation, but he has knowledge of two cases in which this was said to have occurred. Six cases of the forty-one ended fatally, two of them, however, from accidental complications.

British Medical Journal.

August 10, 1918.

1. A Lecture on Treatment of the Wounded in the Aid Posts and Field Ambulances. S. Maynard Smith.
2. On Gunshot Wounds of the Head. T. O. Graham.
3. Traumatic Aneurysm of the Left Subclavian Artery. J. Sinclair White.
4. Blood Pressure in War Traumatisms: A Possible Source of Error. Edgar F. Cyriax.
5. A Note on the "Man Value" of Working Class Diets. Major Greenwood and Cicely M. Thompson.

4. **Blood Pressure in War Traumatism: a Possible Source of Error.**—Edgar F. Cyriax calls attention to a possible source of error in the reports of blood pressure in war traumatisms, in that he has found that in a certain proportion of unilateral traumatisms the pressures in the two arms may show wide differences. Not only is this so, but the readings on one day may be higher in one arm than in the other, but the reverse a day or two later. When differences occur they generally diminish as improvement proceeds and disappear some time before complete recovery. His readings were taken with Riva-Rocci apparatus, and were measured alternately first from the one arm and then from the other on successive days. The interval between the two readings on the same day varied from five seconds (two apparatuses being employed) to ten minutes. Neither the length of this interval nor the arm in which the pressure was first estimated seemed to have any influence on the actual readings; this was shown by a number of controls taken from ten to thirty minutes later. These were obtained first from the arm which was dealt with last and with a different interval. Thirty-six cases were examined in all; in twenty-six no difference, or only a slight difference (2 to 4 mm.), was found; such differences were considered negligible. In six cases differences of 6 to 8 mm. were found, which sank to about half this amount about three days later, and disappeared at the end of the week. In the four other cases, details of which are given in tabular form, the differences ran from 6 to 22 mm., and in two increased rather than diminished during the period of observation lasting about a month.

Münchener medizinische Wochenschrift.

June 25, 1918.

War Enuresis and Its Relation to the Elimination of Chlorides and Carbohydrates.—H. Rietschel tells us that nocturnal enuresis in adults has considerably increased during the war, particularly during the winters of 1916 and 1917. This enuresis is also met with in wounded soldiers, but is especially common among the civilian population. There is always polyuria, pollakuria, and nycturia. The writer insists on the latter symptom because it indicates that there is above all a delayed urinary elimination. This nocturnal polyuria occurs in neuroarthritic subjects and in those having a "weak bladder"; the enuresis would not arise if the conditions of emptying the bladder were normal. To explain the process, the writer bases his remarks on his knowledge of infantile pathology. The chlorides and hydrocarbons possess an hydropigenous action, delaying aqueous elimination, as has been shown by Volhard and von Hiemann. Since the food of the German population is now especially composed of potatoes and bread, both of which are rich in potash, a chloride retention results, which in itself has an hydropigenous action and this becomes added to the hydropigenous action of the carbohydrates. From this nycturia results, and when the enuresis arises it is due to a disturbance of the bladder reflexes. The writer remarks that this condition is both debilitating and humiliating to the German people.

Should Antityphoid Vaccination Be Done During an Epidemic of Typhoid Fever?—A. Hegar and W. Mockel state that this is a mooted question because according to many writers, during the period of formation of the antibodies and bacteriolysins the receptivity for

the bacillus is greater (negative phase of Wright). An epidemic of typhoid occurred in the insane hospital at Wiesloch and the writers vaccinated all the inmates and personnel (1500 persons in all). The percentage of rise in temperature above 101.5° F. was 2.5 — 2 — 1.5 per cent. for the first, second, and third injection respectively. One hundred and twenty-nine cases of typhoid occurred. The proportion of serious cases before vaccination was resorted to was 44 per cent. and 23 per cent. among vaccinated subjects. Eight subjects were vaccinated during the incubation of their typhoid, the disease running a normal course with, perhaps, a lower temperature than usual. No complications were observed and the epidemic was, in fact, nipped in the bud. Therefore the writers reply in the affirmative to the question they put forward.

Deutsche medizinische Wochenschrift.

June 20, 1918.

Experiments with Antityphus Vaccination.—Möllers and Wolff have employed a serum taken from the blood of patients with typhus fever. They noted a febrile reaction when the serum furnished by the German sanitary service was used, and this reaction they attribute to the fact that the product was infected. They therefore added 0.2 per cent. formalin to it to overcome this infection. Experiments on guinea-pigs with this serum gave very satisfactory results, although many of the animals died from anaphylactic shock. Six hundred and fifty vaccinations were done on human beings and 21 of these subjects contracted typhus as follows: Six persons who were vaccinated during the incubation period; four persons who received only two injections instead of three; six persons developed typhus more than three months following the vaccination, and five persons developed the disease in less than three months following the vaccination. Möllers and Wolff conclude that antityphus vaccination is not more dangerous than those for typhoid or cholera and that it does not confer any greater immunity than do the latter two, as they had five positive cases, one being fatal out of a total of 650 vaccinated subjects, the typhus in these cases occurring in less than three months following the vaccination.

Successful Results with Autoserotherapeutic Treatment of Typhus Fever.—Lazló Gyori employs the blood serum taken from the patient himself. The forty-one cases so treated may be divided into three groups as follows: (1) Cases in which the serum was removed on the eighth day of the disease. (2) Cases in which the serum was removed before the eighth day of the disease. (3) Children and young adults. In group 1 a rapid fall in temperature was noted, likewise an amelioration in the general condition which made cardiac stimulants and antipyretics unnecessary. In group 2 the results were less marked, while they were nil in group 3, but in children the disease is more serious than in adults. The writer believes that autoserotherapy in typhus is especially efficacious in serious cases, but should not be resorted to before the end of the first week of the disease, during which time balneotherapy is to be employed.

Deutsche medizinische Wochenschrift.

June 27, 1918.

A Prophylactic and Curative Serum for Weil's Disease.—Uhlenblutt and Fromme have, from their studies on Weil's disease, been led to manufacture a serum whose curative virtue they consider absolute. They have noted that the blood-serum of animals and man infected with the icterogenous spirochete contains antibodies which persist for seven months, two years and six months, or even twenty years after recovery from the disease. The writers' "hyperantitoxic artificial serum" is manufactured as follows: Cadavers of guinea-pigs infected with the spirochete are skinned and the digestive tract removed. The cadaver is then cut into small bits and reduced to a mush in the autoclave. The blood solution obtained from this mush is mixed with physiological salt solution in the proportion of 1 liter for each cadaver. This serum is injected into sheep and horses at the dose of 50 to 100 c.c. from time to time during two years, or 100 to 1000 c.c. during eight months. The serum of the animals thus treated possesses an antitoxic power of 1/100; 0.01 c.c. of this serum neutralizes 1 c.c. of virus. The serum has a distinct curative power when injected at the beginning of the disease, before icterus has appeared, if employed in the dose of 50 c.c. injected into the muscle or intravenously.

Pseudocerebellar Ataxia from Lesions of the Temporal Lobes.—Knapp shows that lesions of the temporal lobes may cause an ataxic syndrome absolutely simulating cerebellar ataxia. This ataxia is an important symptom of lesions of the temporal lobe, after which should be mentioned sensorial aphasia (left temporal lobe), partial paralysis of the third pair and contrololateral hemiparesis due to compression of the cerebral pedunculus. These four symptoms serve to differentiate pseudocerebellar temporal ataxia from true cerebellar ataxia, as there is nothing characteristic in the gait which would lead to a correct diagnosis. At autopsy, as Loewenstein has shown, there is no macroscopic nor microscopic lesion of the cerebellum. Pseudocerebellar ataxia from lesion of the temporal lobes is, consequently, not due to a distant action on or by extension to the cerebellum, corpora quadrigemina or the labyrinth, and should be considered as a focal phenomenon. It can only be explained by admitting that the temporal lobe is the center of equilibrium.

La Presse Médicale.

May 23, 1918.

The Stages of Azotemia in Bright's Disease.—Widal, Weill and Pasteur Vallery-Radot contribute a characteristic article on their most recent conception of this subject. The statement is reiterated that in the 1 gram of urea per liter stage there is no chance for involution—death will almost always occur within two years. With less than 1 gram per liter the prognosis is not so inexorable. The authors have now been able to follow up old material over many years and have accumulated data on lower degrees of azotemia. If the amount per liter is between half a gram and a gram, the course of the disease may be of several types. The disease may recede altogether or may remain almost at a standstill. Exceptionally the figure may even exceed 1 gram per liter. In one case in a young man under treatment since 1913 the urea has oscillated between 0.62 and 0.98 grams per liter. His condition is now excellent, edema originally present has long vanished, and the only symptoms of the disease are albuminuria and cylindruria. Such a case shows that one must be careful in prognosis in a case so near the 1-gram mark. The stage of half a gram to a gram of urea per liter represents the first stage of accumulation, but not the first stage of abnormal excretion. Ambard's coefficient shows us in advance of this period when there are disturbances in N excretion. An increase in the coefficient is often seen in nephritis when the blood urea is normal. The authors have also seen a normal coefficient in 17 nephritics who had less than half a gram of blood urea per liter. An increase in the coefficient is so common in Bright's disease without azotemia (76 per cent.) that it may be regarded as a symptom of that affection. In a large number of cases the increase is only transitory, but even when the increase is permanent it does not mean azotemia. In one patient followed up for eight months the coefficient was increased throughout, but the blood urea kept within normal limits. Two years later his blood urea was above 1 gram per liter and four years after the first analysis death occurred. In two other cases the outcome was of the same character after years of latency. In a fourth case in which blood urea was less than 1 gram per liter Ambard's coefficient did not permit a prognosis of the duration of the disease. The relation between the coefficient and azotemia is merely this: that with a lessened amount of renal parenchyma there may still be no pathological retention of nitrogen. When the azotemia exceeds the 1-gram mark it is useless to determine the coefficient. To sum up, a permanently increased coefficient may be conceived as a period of pre-azotemia. When azotemia between 0.5 and 1.0 gram has appeared we have the second stage

of ureosecretory trouble and the first stage of urea accumulation. When the 1-gram mark is surpassed we have the third or fatal phase, when we can foretell the outcome with considerable certainty.

Norsk Magazin for Laegevidenskaben.

February, 1918.

Fever with Sarcoma.—Schiotz reports a case in a woman of twenty-five who late in April, 1917, began to complain of pain in the side with loss of appetite and strength. Later she developed an eruption and diarrhea. She was first seen May 15 with temperature 104, pulse 140, blood pressure 75. The exanthem paled out in a few days, during which she had a series of chills, one each day. She seemed to be septic and on the 25th was given intravenous injections of collargol. No intra vitam diagnosis seems to have been made, and the objective finds were few, slight and equivocal. Section showed a general sarcomatosis of most of the lymphnodes, sarcomatous deposits in the pericranium and dura, sarcomatous ulcers of the tonsil and stomach and degeneration of most of the viscera. Death had occurred from marasmus. The dominant symptom in this case had been the fever of a pseudo intermittent type. Every other symptom was insignificant. The case should be called "sarcoma fever." Several such are on record.

Renal Function in Prostatics.—Bie states that the late Paul M. Pilcher was the pioneer in this study. At the time of his death the late Ojestland was working along these lines. The author continues his labors. The tests were as follows: Diuresis; solids excreted daily; specific gravity; phenolsulphonephthalein test; urinary constituents in blood stream. The author relates 12 cases in detail, but does not draw very full or final conclusions from them. All show evidences of overburdening and back pressure on the kidneys. The tests have little prognostic value, for even with notable urea retention for prostatics there was good survival and health, and the same is seen with poor elimination as shown by the phthalein test. One man is living and vigorous after 30 months with thalein 30 per cent. and blood nitrogen 1.46.

Brazil-Medico.

February 2, 1918.

Sporotrichosis in Brazil.—De Rezende relates the case of a woman in the poorhouse of Guaratingueta who was referred to the hospital for what were alleged to be two wounds of the left hand. These were seen to be productive lesions, very hard and prominent, adherent to the subjacent parts and surrounded by reddened skin. Both lesions showed superficial ulceration and an adherent fibrinous deposit. A month before the lesions had begun as what were judged to be mosquito bites and had increased steadily in size. There was no reaction in the lymphatics. The latter fact at once excluded primary syphilomata, which lesions were strongly suggested. An injection of an organic arsenical compound was made into the muscles. Forty-eight hours later distinct improvement was apparent and the injection was repeated, but no further benefit was noted and syphilis was definitely excluded. The lesions then proved resistant to the local exhibition of antiseptics. An expert diagnostician who was called in counsel placed the patient upon mercury, iodide of potassium and sarsaparilla, and the lesions gradually disappeared. During the following year the author saw very similar lesions on the face of a boy aged 11 years. These were seated respectively on the bridge of the nose, middle of forehead and temporal region. Others appeared in the submaxillary region and left forearm. The affection dated back five months. A distinguished physician had been unable to make a diagnosis. There was not and had not been the least reaction in the lymphatic system. All of the lesions were ulcerated and none showed any tendency to cicatrize. The patient received intensive local and general treatment in vain —Donovan's solution and local caustic applications—when as a last resort a simple dressing of sublimate, 1 to 1000, effected a rapid cure. In speculating on the nature of the mysterious affection a diagnosis by exclusion of sporotrichosis was made. Cases of the latter were known to occur in Sao Paulo in the same province. At this juncture two other cases appeared in the city and yielded promptly to sublimate, 2 to 1000, locally with potassium iodide inwardly. The author apparently had no laboratory facilities and was aided in his diagnosis largely by a comparison of his photographs with those of cases published in which cultural researches were positive. The recovery under potassium iodide is evidence of this affection.

Hospitalstidende.

April 17, 1918.

Treatment of Night Blindness with Liver Substance.—Von Stenitzer and Schroeder, because of a multiple experience that individuals who ate liver daily escaped night blindness when it attacked a given community, decided to use cooked liver in the treatment of that affection. That this idea is not new well appears in a discussion on night blindness which appeared in the Hospitalstidende in 1904, where it was stated, in connection with hemeralopia in vagabonds, that this condition disappeared after the daily consumption for three successive days of half a pound of calf's liver. Ronne, the ophthalmologist, has recently made a similar observation, but is sceptical in regard to any possible specific activity of liver substance, choosing to ascribe the benefit solely to the nutritive value of the organ. The authors subjected thirty-four patients with hemeralopia to exclusive liver treatment, 200 grams of steamed liver being fed them daily. Of this number thirty made complete recoveries and the other four were benefited. The duration of treatment varied from six to seventy-eight days. Most of the patients gained weight, from a fraction of a kilo to over 11 kilos. But at the same time twenty-four controls with night blindness received no treatment at all, yet twenty recovered completely and three were improved. All controls also gained weight. A careful analysis of the two sets of figures shows absolutely nothing in favor of the liver treatment. Hemeralopia follows fasting and abstinence periods and disappears upon an adequate diet.

May 1, 1918.

Case of Narcolepsy.—Askgaard first cites ten observations from literature from Westphal's case of 1877 to the cases of Henneberg and Mendel published 1916. His own patient was a girl of fourteen of sound stock and not herself subject to any nervous disorder. The first of her attacks had come on four years previous without apparent motivation. Epilepsy could be excluded, but patient had been taking bromides and adonis for a long time without any benefit. When first examined she was seen to be finely developed for her years and free from any serious trouble. The case was followed up. Every few days she had brief seizures of somnolence, waking quickly. Some of the attacks occurred when she was busy with duties. It was impossible to study her during the paroxysms, for she always quickly wakened. She received no benefit from treatment. The case was evidently an independent neurosis.

A Toothbrush in the Stomach.—The following case published in the *Journal de Médecine et de Chirurgie Pratiques* for May 10 is believed to be unique. It was originally reported by Durand in the *Lyon Médical*. The victim was a woman with melancholia and ideas of persecution which tended to motivate suicide. It was doubtless with suicidal intent that she swallowed her toothbrush. The handle slipped down the gullet, the brush end pointing upwards, and entered the stomach. The *x*-ray revealed the latter fact and by reason of the emaciation of the subject the handle could also be felt through the abdominal wall. Gastrotomy showed that the brush proper had remained within the limits of the esophagus, having doubtless been arrested by the contact of the bristles. Had the object been smooth—a teaspoon, for example—it could have been expelled readily by the bowel. Durand had a patient who swallowed the same spoon twice.

Book Reviews.

Burns and Their Treatment: Including Dermatitis from High Explosives. By J. M. H. MacLeod, M.A., M.D., F.R.C.P., Physician for Diseases of the Skin, Charing Cross Hospital, Royal Flying Corps Hospitals, etc. Price, $2 net. New York: Oxford University Press, American Branch, 1918.

This book is dedicated by the author to "Our heroic airmen who, in spite of crashes and burns, still carry on." This was doubtless suggested by the fact that the author has had an extensive experience in the treatment of burns of all sorts at the hospitals of the Royal Flying Corps, as well as at the Charing Cross Hospital. MacLeod has written a very valuable little book for both the general practitioner and the surgeon in civil practice, as well as for those engaged in war work; while the added chapters on burns from corrosives and high explosives make it of particular value to present and prospective members of the Medical Reserve Corps.

Five chapters are devoted to burns from heat. In these, Dupuytren's classification into six degrees is described and much space is given to the discussion of symptoms, histological changes, prognosis, general and the various forms of local treatment, including the newer methods, as applied to the various degrees of burns. There are also chapters on burns from electricity, from lightning, from *x*-rays, from radium, from the sun, from corrosives, and from high explosives. All these subjects are well handled and the book presents a mine of useful information. While essential facts and descriptions of technique are given in few words, the author has the happy faculty of putting what he has to say in an interesting way; so that, without conscious effort, the reader gains the knowledge which the author wishes to impart. The book is thoroughly up to date and one cannot fail to feel well repaid for the time spent in its study.

Scopolamine-Morphine Semi-Narcosis During Labor By William Osborne Greenwood, M.D. (Leeds), B.S. (Lond.). Price, $2. New York: The Oxford University Press, American Branch, 1918.

This volume is written for the profession. Aside from the earliest results in Germany, the material appears to be taken essentially from the experience of British accoucheurs. The author's personal experience is in part neatly tabulated at the end of the book. He states candidly that numerous points are still to be elucidated. Chapters are devoted to technique, effects on the mother, effects on the infant and results. The total number of cases of labor was 200, without maternal mortality. The four deaths from still birth—2 per cent.—are a little less than the average of general midwifery practice. We see no summary as to the amnesia obtained, but there was a remarkable absence of shock and exhaustion.

The Treatment of Cavernous and Plexiform Angiomata by the Injection of Boiling Water (Wyeth Method). By Francis Reder, M.D., F.A.C.S., Visiting Physician to City Hospital, Consulting Surgeon to St. John's Hospital and Missouri Baptist Sanitarium, St. Louis. Price, $1.50. St. Louis: C. V. Mosby Company, 1918.

This little work contains an autographed introduction by Dr. Wyeth. There are sixteen photographs of separate patients treated and two colored plates, one of which is the frontispiece. There are other photographs of some of the patients after successful operation. The volume is of the rare type which every surgeon will buy on sight. The cost is negligible and the means are supplied for eradicating a most burdensome condition without risk of mortality and damage suits.

How to Enlighten Our Children. A Book for Parents. By Mary Scharlieb, M.D., M.S. Price, $1. New York: Fleming H. Revell Company, 1918.

This volume contains nine chapters which comprise discussions of the physiology and hygiene of puberty and adolescence, the social evil, venereal disease, eugenics, and allied topics. One chapter is devoted to the exegesis, so to speak, which may be used by parents to make these subjects intelligible to children. The book answers its purpose well and any criticism naturally applies rather to the type of volume rather than to the individual effort. It has not yet been proved that enlightenment brings results, but it is very difficult to understand how such a book could possibly do harm; hence we must give it the benefit of the doubt.

Treatise on Applied Analytical Chemistry. Methods and Standards for the Chemical Analysis of the Principal Industrial and Food Products. By Professor Vittorio Villavecchia, Director of the Chemical Laboratories of the Italian Customs, with the collaboration of G. Fabris, G. Rossi, R. Belasio, A. Bianchi, G. Silvestri, F. Barboni, G. Armani, G. Bosco, A. Capelli. Translated by Thomas H. Pope, B.Sc., A.C.G.I., F.I.C., University of Birmingham. Vol. I, with 58 Illustrations in the text. Price, $6.00 net. Philadelphia: P. Blakiston's Son & Co., 1918.

Although there is no lack of books on technical analysis, the present volume is of interest because it gives the standard methods adopted in Italy; and the very wide experience of the author and his collaborators gives unusual value to the methods here presented. As a rule only one or two methods are given for each test, but these are carefully selected as tests which have been officially prescribed or have been employed almost daily by well known specialists. In addition to these well selected tests the book contains numerous tables which show the average results of the analysis of different samples. The present volume deals with potable waters, chemical products, fertilizers, cement materials, metals and alloys, fuel, coal-tar and its products, mineral oils and their derivatives, fatty substances and the industrial products derived therefrom. A valuable feature of the work is the inclusion of various criteria and standards by the aid of which the industrial, commercial and hygienic value of various products may be ascertained from the analytical data which have been obtained. The book is well printed, and is so bound that it lies open at any desired page. It will prove a valuable addition to the library of any laboratory in which industrial or food analysis is carried on.

Chemistry of Food and Nutrition. By Henry C. Sherman, Ph.D., Professor in Columbia University. Second Edition, Revised and Enlarged. Price, $2. New York: The Macmillan Company, 1918.

The first edition of this work appeared in 1911 and contained 355 pages. The present edition, with about one hundred additional pages, is issued at the old price—$2—a remarkable value for the buyer. The table of contents shows that it is virtually a new book. Hardly any of the chapters of the first edition are recognizable in those of the second. The number of indexed titles has nearly doubled. The book runs to real facts and there is no reason for the contrary, although most books still incline to the dogmatic and speculative. But there are not so many facts as there should be; for example, we do not find a table of the magnesium content of the leading foodstuffs, although the author might have supplied one.

The Surgical Clinics of Chicago. Volume II, Number 2, April, 1918. Octavo of 209 pages with 80 illustrations. Published bi-monthly. Price per year, $10. Philadelphia and London: W. B. Saunders Co., 1918.

There are nineteen contributors to this number, and a wide range of subjects is discussed. One of the most interesting articles, even if it is not of great value from the standpoint of clinical teaching, is that by Roy L. Moodie, Ph.D., entitled "Pathologic Lesions Among Extinct Animals; A Study of the Evidence of Disease Millions of Years Ago." Among the lesions mentioned, and in some cases illustrated, are necrosis and exostoses of bone, various examples of arthritis, hemangioma in the tail of a dinosaur 18,000,000 years old, and a photomicrograph showing bacteria supposed to be 100,000,000 years old. The author finds no geologic evidence of syphilis prior to 500,000 years ago. Among other articles of more value to the practitioner of to-day are that of Ochsner on gallstones, Bevan's article on salivary calculi, Oliver's presentation of several cases of sarcoma, and Mitchell's article on the extra-genital chancre as a complication in minor surgery.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting Held January 10, 1918.

DR. HERBERT B. WILCON IN THE CHAIR.

Acute Infectious Jaundice in Six Children in One Family.—Dr. CHARLES HERRMAN presented this communication, in which he said that two cases of acute infectious jaundice in one family were not uncommon, but he had been able to find only one other instance of six cases in one family, namely, that reported by Rankin in 1894. In the family under consideration there were nine children. The eldest two, boys of 18 and 16 years respectively, were not affected, probably because they went to work early in the morning and returned home late, so that they did not come in contact with the younger children. The remaining children ranged in age from twelve to two years. All contracted the disease between October 1 and November 3. An infant six months of age was not infected. The rarity of catarrhal jaundice in young children was probably due to their relative natural immunity which they enjoyed from other infectious diseases. The disease in the six children followed its usual course, beginning rather suddenly with headache, drowsiness, and lassitude, rise in temperature, and, in some instances, by vomiting at the onset. After three or four days the conjunctiva became yellow, the urine dark, the stools light in color. At this time examination of the patient showed a distinct enlargement of the liver, some enlargement of the spleen, pain in the epigastrium, and some pain in the legs. In ten days the urine and stools regained their normal color; the pigmentation of the conjunctiva and the enlargement of the liver persisted for a somewhat longer time. In two of the children, after ten days, there was a secondary rise in temperature which lasted for a few days. An infectious jaundice was epidemic in New York every few years, the last epidemic occurring in the latter part of 1912 and the first part of 1913, when the writer reported 98 cases which he had seen during the previous six years. The disease might present itself in all grades of severity. The infectious material apparently had a special affinity for the biliary passages in the same sense that the typhoid bacillus had for the follicular structures of the intestinal tract. Indiscretions in diet played no part in the etiology of the disease. The seasonal incidence and the frequent presence of catarrhal symptoms in the upper respiratory tract would point to the nasopharynx as the possible portal of entry of the infectious material. During the present epidemic the writer had seen 15 cases in addition to the ones herein reported, all in the borough of the Bronx. The course of the disease was in all respects similar to that observed in other groups. The fact that six cases occurred in one family and that two cases occurred in each of two other families occupying adjoining apartments tended to indicate that the disease was mildly communicable. Epidemics of acute infectious jaundice had frequently occurred in camps. During the Civil War there were 23,500 cases with 161 deaths. Large numbers of cases had occurred in the Franco-Prussian and Boer wars and in the camps of the French and British during the present war. About three years ago several Japanese investigators succeeded in finding a specific spirochete, which was present in acute infectious jaundice. To this disease they gave the name of "Spirochetosis icterohemorrhagica." This name was appropriate in the severe cases, but there was a certain percentage of cases without jaundice and without hemorrhagic tendency. The spirochete was found in the circulating blood only during the first few days of the disease and then only with the greatest difficulty. If the blood taken in the early stage was injected into guinea pigs intraperitoneally, they developed the characteristic symptoms of the disease in from four to five days and died a few days later. The spirochetes could be recovered from the blood and from the liver and in smaller numbers from the kidneys and suprarenal capsules. A few might be found in the spleen, bone marrow, and the lymph nodes. In acute infectious jaundice of this type the spirochete might be found in the urine during the third week, also in the stools, and occasionally in the sputum. In patients and inoculated animals, in which the disease was produced, the serum after the second week contained immunizing substances. If this convalescent serum was injected into guinea pigs which had been inoculated before the appearance of the jaundice, the disease did not develop and the spirochetes disappeared from the blood shortly after the introduction of the serum. The type of infective jaundice seen in New York was mild and except for this fact varied in no way clinically from that described by Japanese, French, German, and English observers. The English observers gave a mortality of four to five per cent., while the Japanese gave a mortality as high as 32 per cent. For this reason it seemed not unlikely that the disease as it was observed here bore the same relation to spirochetosis icterohemorrhagica that so-called Brill's disease did to typhus fever. The absolute proof of this relation would, of course, depend upon the finding of the specific spirochete in the cases seen here.

Dr. HENRY KOPLIK called attention to an epidemic of acute infectious jaundice recorded by Dr. West which had escaped the observation of the writer of the paper, and recalled an instance in which two children in an Italian family were affected by the disease. He cited another instance in which three children in one family were infected. Some were inclined to attribute the severe cases, with marked jaundice, gastrointestinal symptoms, hemorrhagic tendency, and enlarged spleen, and the mild cases to the same organism, but he thought the better way to look at it was that the different types of the disease were caused by different types of organism; some might cause the severe cases, the so-called Weil's disease, and another type of organism might cause the cases of mild infectious type.

Dr. CHARLES GILMORE KERLEY added another instance of several cases of acute infectious jaundice occurring in one family. In this instance the mother and four children all had the disease at the same time. None of them was particularly ill; they had some fever, catarrhal symptoms, and jaundice, and all made good recoveries. It was of interest in connection with this family that they lived in a malarial section and they had all had malaria during the previous summer; they then came down in the fall with the acute infectious jaundice of rather mild type. This had been a rather unusual experience with him, but he supposed the cases came under acute infectious jaundice.

The Hypertonic Infant; the Curative Action of Atropine on Certain of Its Manifestations.—Dr. SIDNEY V. HAAS read this paper, in which he described the hypertonic infant of a definite clinical type, characterized by hypertonicity of all the skeletal muscles. He stated that the hollow viscera showed increased activity of their smooth muscle fibers, which expressed itself in the form of spasm involving practically every part of the digestive tract and, depending upon the region, presented the symptoms of colic, visible peristalsis, vomiting, constipation, or any combination of these. The hypertonic infant presented the symptoms of vagatonia. Food regulation alone did not correct the fault, whereas treatment by the drug atropine was followed by a rapid subsidence of the symptoms, the result being so prompt and regular as to constitute a specific action. The tolerance for milk, which was usually low in these infants, was at once materially increased so that a normal amount might be utilized. In the teaching of infant feeding both the food and the infant had been studied from many angles, but few serious attempts had been made to study the possibility of altering the infant's reaction toward food when it was found impossible to adapt the food to the infant. Personal experience during the past few years had convinced the writer that in this direction lay a field which was full of promise. To make clear the course of reasoning that led to this conclusion, Dr. Haas reviewed some points in reference to the vegetative nervous system, stating that that vegetative nervous system was divided into two parts, the sympathetic and the autonomic. The sympathetic reacted to small amounts of adrenalin. The autonomic nervous system was all that portion not included in the sympathetic, including the vagus, and reacted to very small amounts of acetylcholine.

Under normal conditions these two systems, sympathetic and autonomic, were in equilibrium, producing a tonic innervation of smooth muscles. Stimulation of one or the other of the two systems by hormones or other factors might produce spasm, contraction, or paralysis. For instance, vagal stimulation might cause turbulent gastric peristalsis and might manifest itself in vomiting. Hence the benefit upon cardiospasm of atropine. Owing to the close relation of the glands of internal secretion, the autonomic nervous system doubtless had a marked influence not only upon the pancreas and the thyroid glands, but also upon the entire mechanism of metabolism. The essayist stated that there were a number of apparently healthy, normal infants fed upon the breast who took their food with satisfaction, grew, and increased in weight, but were unhappy and restless, cried more or less constantly, and slept only at intervals for short periods of time, vomited, and were constipated. A much larger number of artificially fed infants reacted in this abnormal manner and presented this same picture. The cause of this state was to be found in the manner in which the individual child reacted to its food. In this group were to be found the colicky baby, the irritable baby, the sleepless baby, the restless baby, the baby which did not prosper on any food, although there was neither gastric nor intestinal indigestion, the baby suffering from pylorospasm accompanied by vomiting, usually projectile in type, and the constipated baby. Without exception these infants were of the spasmophylic diatheses and usually had a neurotic ancestry. The usual therapeutic procedures and rearrangement of the diet were as a rule insufficient to relieve the symptoms. The vomiting was not related to the taking of food, but was characterized by its irregularity. These cases passed from hand to hand, changes were made in the formulas and method of feeding, but usually without much result. The correct therapy in these cases showed results which were remarkable in their regularity and with the rapidity with which they occurred. In cases in which indigestion existed, this, of course, must be improved by appropriate methods of feeding; as a rule, however, no change in the diet was necessary. By the administration of atropine in sufficient doses, the entire picture changed in from forty-eight to seventy-two hours. The atropine was administered in 1-1000 solution, beginning with one drop in each bottle and increasing it, in forty-eight hours if there was no improvement, to two drops in each bottle, and later to three or four drops if necessary. An interval of forty-eight hours was allowed between changes in dosage. If the diagnosis was correct the atropine would control the frequency of the vomiting, the child would begin to sleep much better and for longer periods, and was more comfortable in its waking moments. There had been no ill effects noted from these large doses of atropine in infants. If atropine were used early and in sufficient dosage the number of cases of pylorospasm which finally reached the operating table as cases of hypertrophic pyloric stenosis would be reduced to an unimportant minimum. It was not to be supposed that all infants who vomited, cried, were constipated, or sleepless, would respond to this treatment. If the cause were anywhere else than in the autonomic nervous system there would be no result from this treatment. The earliest effects of atropine in infants was a flushing, which gave them the appearance of having fever (this sometimes existed but usually was not high), dilatation of the pupils, and slight puffiness of the eyelids. A series of typical cases belonging to the group of hypertonic infants was reported in detail in which atropine relieved the condition immediately and apparently increased the infant's tolerance for milk.

Dr. Charles Gilmore Kerley said he was hardly prepared to discuss the use of atropine in this class of cases, as he had never employed this measure for the class of cases Dr. Haas described. Dr. Kerley asked Dr. Haas how he diagnosed pylorospasm and whether he had any cases that might have been diagnosed as pylorospasm and later turned out to be pyloric stenosis. It seemed that in this series of cases all recovered. One could take up a series of cases and use a familiar line of treatment and all of the cases would get well by some fortunate chance; it was always an advantage in reports to include those that did not get well. This presentation, however, seemed to supply a means of apparent value of treating difficult feeding cases.

Dr. Koplik said he was struck by the fact brought out in the paper that pylorospasm and pyloric stenosis might be relieved by atropine or by other methods of treatment. There were some cases of pyloric stenosis and spasm absolutely cured by a variety of drugs and by a variety of lines of treatment, if one could persist in the treatment until the child improved, but there were cases in which operation was indicated, and which he doubted if anything but operation would help, and in which at operation much thickening of the pylorus was found, indicating that nothing but an operation would have been effective. It was difficult to see how anatomical stenosis of the pylorus could be relieved by atropine. There were cases in which the treatment brought forward should be used, but in some cases we would not get the action of atropine so brilliantly as had been pointed out this evening. He had never used it and did not think we would find it a *sine quo non* in cases in which the metabolism and physiological functions were disturbed. That was the idea he wished to combat. We should be careful not to think that we had one drug that would gloss over many cases, and he should feel very sorry to see sidetracked those well-known principles of feeding which were applied in feeding children whom formerly we could not help on account of lack of intimate knowledge of the fundamental principles of infant feeding.

Dr. Godfrey R. Pisek said they all recognized that Dr. Haas had been treating a type of infants in which attempts had been made to adapt them to many different formulæ. The child cried, vomited, had increased peristalsis, and all the train of symptoms that had been described as a result of the many types of feeding that had been forced upon it. If one took a series the same type as these and adjusted the feeding in the way he had been accustomed to doing he would get the same kind of a chart that had been shown tonight. It would be unfortunate if there should go forth from the meeting tonight a note to the effect that feeding was not so important and that by giving atropine these children might be carried along with a certain measure of success. Certain children reacted very badly to atropine. If the drug were generally used to control vomiting, there would be great danger that it might come to be used in dispensary practice and that the dosage might be increased above the limit of safety.

Dr. Herman Schwartz said it was not an uncommon occurrence that babies that were vomiting a great deal were not retaining enough food to nourish them properly, and he noticed that in most of the babies in this series Dr. Haas increased the amount of food, giving them about what a normal baby would have. Although the babies were hypertonic babies a great deal of their crying and restlessness was due to hunger. The different doctors who had treated them had reduced the amount of food they were getting and when Dr. Haas came along he increased it to the proper amount. The child might continue to vomit, but as it had taken more food, more would remain in the stomach, and as a result the child would gain in weight. If he had only given atropine and made no change in the food he would have proven something more definite.

Dr. Thomas Southworth stated that he had used atropine and had found it a distinct adjuvant in cases of vomiting. It was also true that he prided himself that the good results obtained were partly due to manipulation and adjustment of the diet to what he considered proper feeding. Nevertheless it did seem to him that we did have a certain amount of irritation and spasm of the pylorus in which the atropine might be a definite aid. He thought the reason there had been criticism was that in making his presentation Dr. Haas had appeared to lay stress on the weight curve of the charts, whereas he clearly stated that a cessation of vomiting, irritability, and constipation was more éclatant than the mere gain in weight.

Dr. Ward B. Hoag related an experience that he had had with atropine in an infant of the type described by Dr. Haas. In this case, without making any change in the formula but simply adding the atropine, the baby was brought to fairly good condition and the vomiting ceased. He could not attribute the marked change in this baby to anything but the atropine.

Dr. CHARLES HERRMAN said that in a large percentage of cases of pylorospasm the infants were at the breast. A certain number of these were rapidly improved by the administration of atropine without any change in the feeding, so that the decrease in the amount of vomiting might be ascribed solely to the use of atropine. Dr. Haas surely did not mean that atropine was to be used in all difficult cases of feeding, but only in a certain group of cases that represented a definite clinical entity. Not all of these, however, reacted favorably to atropine.

Dr. HAAS, in closing, explained that it was not intended that atropine was to be used in difficult feeding cases; it was absolutely of no use unless the case belonged to this group of hypertonic infants. From his study it seemed that the condition was dependent upon the vegetative nervous system. He thought that if those who were skeptical would try atropine in cases of irritability and vomiting, they would find that it would cure some of these cases. After experience with several of these cases one recognized them at once and would know that they belonged to the hypertonic group. Dr. Hoag had answered Dr. Schwartz's question very well, but if further proof were needed that the food was not responsible for the good results it was found in this: After giving atropine for a time, an attempt was made to stop it. In some cases the child got along without it, but this was not always the case; in almost every case repeated attempts were made during the course of months to stop it, but with immediate recurrence of symptoms, until a time arrived when apparently the drug was unnecessary. Of course in the use of atropine it was essential that care should be taken. Eppinger and Hess believed that the reason better results were not obtained from the use of atropine was because of insufficient dosage. They had been giving 1/10 of a grain a day, without the deleterious effects that had been spoken of. In a very large number of cases in which he had used this drug on infants only two cases which he had cited gave any severe symptoms. He did not mean to say that atropine was the only drug that would do the things described. He believed that after investigation it would be shown that there were several drugs which would have an effect, not only in this group but in other groups as well. Dr. Haas referred to several cases in which operation was advised for pylorospasm which were relieved by atropine. He said he had no opportunity to use this drug in true pyloric stenosis, but unless the case was in good condition, where a delay of several days in operating was unimportant, its use would be unjustifiable, in view of the excellent operative results. The way in which he had sifted out the cases belonging to this group was if there was no improvement after the administration of atropine, he concluded that they did not belong to this group, such as cases in which there was just vomiting or just constipation.

Obscure Foreign Bodies in the Bronchi and Esophagus.—Dr. SIDNEY YANKHAUER made this presentation, the purpose of which he said was to call attention to the fact that a foreign body might be present in the bronchus of a patient who had no recollection of and who denied the history of its inhalation, in whom the radiograph showed no shadow which could be interpreted as a foreign body, and in whom the physical signs and clinical symptoms closely simulated other diseases. It did not always happen that every suspicion of a foreign body was absent, but it was worth while to remember that there might be no clue that would lead to the diagnosis of a foreign body, and that a justifiable suspicion was an evidence of the highest clinical acuity. The classical symptoms for the diagnosis of a foreign body were: (1) The history of the inhalation or the swallowing of the object. (2) The physical signs, clinical course, and symptoms. (3) The radiographic picture. (4) Bronchoscopic examination. In the absence of history of the inhalation or the swallowing of a foreign body the object might be discovered by radiograph, but only if the foreign body were one which threw a distinct shadow on the plate. Bones small enough to be inhaled or swallowed, especially if they had been cooked and much of the mineral matter removed, did not throw distinct shadows. Chicken bones rarely threw any shadow at all, and likewise the bones of fishes, the kernels of nuts, the seeds of soft shells, were not usually recognized in the radiograph. But when the radiograph did not show the presence of a foreign body it was useful still in the diagnosis. For instance, in a boy five years of age, with the physical signs and clinical symptoms of a persistent consolidation of the left lower lobe in whom pus was withdrawn and a diagnosis of empyema made, the radiograph showed a shadow which was consolidated at the hilus, but toward the periphery of the chest clear lung tissue was found as far as the diaphragm. The diagnosis of probable lung abscess was made. Bronchoscopy was done as a matter of routine and also because of knowledge gained by experience, that these cases in children were frequently caused by the presence of a foreign body. Two pieces of peanut kernel were removed from the bronchus, and the dilated cavities were subsequently irrigated with physiological saline solution, with apparent recovery, though the case was still under treatment. On the other hand, the history might be absent and the foreign body of such a nature that it did not throw a radiographic shadow, and then the diagnosis might be made by the course of the disease and the physical signs. The auscultatory signs caused by a foreign body varied with the size and shape of the foreign body, with the degree of fixation in the bronchus, and with the amount of obstruction which it caused. A foreign body might be loose in the trachea and with each respiration might be shuttled back and forth. The irritation caused by such a foreign body would, of course, cause bronchitis. If the foreign body were practically fixed anywhere in the bronchial tree, so that it would move with the respiratory air current, sound would be produced which had been likened to the vibration of a Jew's-harp. If, on the other hand, the body were immovably impacted, the physical signs would depend on the amount of obstruction. It had happened that a patient had retained a foreign body in a bronchus for a long time, but such cases were rare. As a rule the presence of a foreign body set up a profound reaction. It was important for the physician to recognize the tracheitis which occurred shortly after the inhalation of a foreign body, especially in children. This tracheitis might be limited to the subglottic region, or it might extend down as far as the bifurcation. The secretion which was formed on the surface of the edematous mucous membrane was thick and tenaceous, causing considerable respiratory obstruction, sometimes sufficient to cause death. This tracheal edema might be recognized by a peculiar stridulous breathing which was heard in both inspiration and expiration, and which differed from the stridulous breathing of croup by the fact that the voice of the child had a clear and distinct tone even though the edema might be marked enough to cause considerable dyspnea. It rarely occurred that a foreign body was present in the bronchus and was not disclosed by the bronchoscopic examination in the hands of an expert. Failure to find the object with the bronchoscope would occur only when the body was so small that it had penetrated into a branch too small to be penetrated by the bronchoscope. It was usually possible to recognize and look into bronchi of the fourth order, but the interior of these small branches could be seen only in those branches which could be brought in line with the bronchoscope. Foreign bodies which had been present for a long time and had become encysted might also be beyond bronchoscopic visability. In closing, the essayist spoke of prophylaxis and suggested that others should be taught that nothing small enough to be swallowed should be placed in a child's hands, that objects easily broken, the pieces of which might be swallowed, should be kept from children, that pieces of instruments, such as sprays, syringes, etc., used upon children by parents, nurses, and physicians should have no loose parts or breakable ends, and that children and adults should be warned against holding objects of any kind in the mouth. Children should also be taught to permit the use of the tongue depresser, to allow their throats to be examined without struggle; this would permit a more frequent and a more thorough examination of the child's throat.

Direct Laryngoscopy in One Hundred and Eighty-nine Cases of Croup.—Dr. ROBERT W. GOVER read this paper, the report being based upon the records of cases of croup examined at the Willard Parker Hospital. There were 112 membrane cases in 36 of which intu-

bation was subsequently performed, there being but one intubation among the 77 cases showing no membrane. The advantages claimed for direct laryngoscopy in croup were: (1) In deciding as to the administration of antitoxin in a case of croup presenting no membrane in the fauces. (2) In deciding as to the necessity of establishing quarantine, or immunizing, or of testing the contents by the Solnick method. (3) In avoiding mistaking a foreign body in the larynx for croup. (4) In deciding as to the necessity for intubation. (5) In occasionally facilitating the removal of large pieces of loose membrane, with permanent relief.

Dr. Henry Lowndes Lynah expressed the opinion that Dr. Yankhauer was right in placing importance on the history. He related several instances in which cases of suspected laryngeal diphtheria were found on direct laryngoscopic examination to have a foreign body present, in one instance a safety-pin, in another a piece of meat, and in a third a mass of orange pulp. He also related an instance in which a child was supposed to have swallowed a button and the *x*-ray showed a shadow that appeared to be a button; the object in this instance was found to be a mass of casein. So far as the bronchiectasic bronchitis was concerned, when this was caused by the presence of a foreign body there was a peculiar inspiratory and expiratory dyspnea, a definite wheeze like that of an old asthmatic. If the membrane were slightly loosened it might act like a valve, blocking the expiratory air, which would then back up, balloon the lung, and compress the heart. He believed that Dr. Yankhauer was correct when he said that many cases in which a foreign body was present were interpreted as pneumonia or bronchopneumonia when if they had been studied more carefully it would have been found that the patient was suffering from having inhaled a foreign body. The points brought out this evening should be taken into consideration; we must always listen to the history of the case first and to the breathing next. Since it was now possible to wash out a lung abscess cavity this condition was not as serious as it formerly was since many of these cases by constant washing could be cured. Dr. Lynah said a matter that had impressed him was the danger attendant upon the efforts of parents and friends to remove a foreign body from a child's bronchus or esophagus. He cited an instance in which a child's tonsil had been completely enucleated by a parent trying to remove a pin from a child's throat. He thought Dr. Gover had demonstrated that direct laryngoscopy was a thing all physicians should do, both the pediatrician and the general practitioner, if called to see a case suffering from dyspnea for which there seemed to be no definite cause. Direct laryngoscopy did no harm if one used a small laryngoscope and it might be remembered that in looking for a diphtheritic membrane one might find a foreign body. In doing a laryngoscopy one should always have a small bronchoscope handy, and if the laryngoscope caused spasm or cyanosis it was not hard to pass the bronchoscope. It frequently happened, when a foreign body had been aspirated and was lodged in the larynx, that when the laryngoscope was passed the larynx relaxed and the object slipped through into the bronchi, so that by having the bronchoscope ready for use one might save a number of cases.

Dr. Koplik said there had never been anything more wonderful than the removing of a foreign body from the esophagus and bronchi and yet we should not forget that bronchoscopy was a very serious operation in children. He had noticed that Dr. Yankhauer took great precautions against accidents and he thought we should emphasize this fact. We should endeavor to get a history, though it was rarely that one did get a history, but one might find that there was a cough which had persisted for a long time, or a cough with a spasm that had persisted for a long time, when a foreign body was present in the bronchus. If in addition there was a certain amount of collapse of the lung, or a pneumonia, or the signs described by Dr. Yankhauer, which were frequently heard and frequently not heard, one might feel quite confident of the presence of a foreign body. Another point that should not be forgotten was that the *x*-ray did not always discover a foreign body. It was quite possible to have a bean, a melon seed, or a vegetable substance, which the *x*-ray would not reveal. Dr. Koplik referred to a series of cases of foreign body in the esophagus and lungs reported some ten years ago by Dr. Roche. These children ranged from early infancy to ten years of age. In five of them the foreign body was aspirated into the lung and all of these children recovered either by coughing up the foreign body, or else an abscess formed and the foreign body was eventually coughed up. It was well to remember not to allow yourself to become panicky because there was a history of no foreign body having been swallowed, for a study of these cases showed that they were not usually fatal even though an abscess formed. Dr. Koplik recalled that he had reported a case at the time Dr. Roche made his report in which a child had swallowed a peanut and an abscess formed in the lung, which was operated on and the child recovered. On the other hand, he knew of cases that had been bronchoscoped and died. Dr. Koplik related several such instances.

Dr. Eli Long said he must confess he could not see how a boy could be killed by looking into his bronchi. He felt qualified to speak of bronchoscopy and direct inspection in diphtheria and it was notable that the mortality had been reduced though the incidence of the disease had not been decreased. In many cases in which it was difficult to make a diagnosis between diphtheria and catarrhal inflammation anything that offered help was welcome and making a direct inspection as Dr. Gover had described was very easy and it was a great addition to our means of making a diagnosis.

Dr. Yankhauer, in closing, said that when a foreign body case was brought to be bronchoscoped soon after the swallowing or inhalation had occurred there was almost no danger from bronchoscopy. The mortality was very low. But when the foreign body had been present for weeks and pneumonia had developed bronchoscopy was then a much more serious procedure. Nevertheless, it must be done, because without removal of the foreign body abscess formation occurred and the large majority of these cases proved fatal. As he remembered the statistics showed that about 66 per cent of the cases in which foreign bodies had been inhaled had proved fatal if the foreign body had not been extracted, while something like 11 per cent. resulted in death when the foreign body was removed by the bronchoscope. We must get away from the idea that a foreign body would be coughed out when it was once impacted. The statement made by Dr. Gover and confirmed by Dr. Lynah, that direct examination of the larynx was a very simple matter was correct; it should be learned by every pediatrist and general practitioner. It was not much more difficult to make a direct laryngoscopic examination than to use a tongue depressor, at least in children.

Dr. Gover, in closing, stated that a part of the cases reported in this series were markedly stenotic, consequently he was always prepared when making the examination to pass a bronchoscope, intubate, or do a tracheotomy, should the condition of the patient demand it. As nearly as he could recall he had seen but two cases in which it was necessary to discontinue the examination on account of the increasing stenosis. In one of these the child was markedly croupy before beginning the laryngeal examination and he had to discontinue the examination and intubate the case This patient really demanded intubation before the examination. The other case was one that had been reintubated several times, and each time on removing the tube had to be reintubated. Many of these children when one first brought the larynx into view held their breath and completely closed the upper aperture of the larynx, but as soon as they inspired the larynx opened. Direct laryngoscopy was a very simple procedure and did not require many instruments or assistants.

SECTION ON SURGERY.

Stated Meeting, Held February 1, 1918.

Dr. Seward Erdman in the Chair.

Hypertonic Contracture of the Bladder Due to Injury of the Spine; Laminectomy; Cure.—Dr. Martin W. Ware presented this patient, who consulted him on January 5, 1918, for severe hemorrhage cystitis, great frequency of urination, and tenesmus with marked pain in the left lumbar region, a temperature of 102,

and much loss of weight. He stated that the patient gave a history of having fallen from a ladder two months before, sustaining a fracture of both ankles. Not having voided by the following morning, he was catheterized, and thereafter he was catheterized daily for six weeks. No paralysis of the limbs developed. The *x*-ray failed to show any injury of the spine. The fractures healed kindly and the retention of urine gave away to repeated frequent urination, amounting to almost constant dribbling. Examination showed the patient to be greatly emaciated and in a septic condition, as the result of the cystitis. The urine, painfully voided, was mixed with pus and blood; the finger in the rectum caused a gush of urine. The bladder was found very tender by rectum as well as suprapubic palpation. Tenderness extended along the course of the left ureter up to the left kidney. All the muscles of the left half of the abdomen and lumbar region were likewise tender. There was no anesthesia or paralysis of the limbs, nor was loss of any of the reflexes to be made out. The possibility of a spinal fracture was entertained, nevertheless, to account for the assumed isolated disturbance of the bladder mechanism. The following day after admission a suprapubic cystotomy was performed under general anesthesia. The operation was difficult, the peritoneal fold having been drawn far beneath the pubic arch, the abdomen was accidentally entered. The bladder when entered was found to admit the index finger and permitted the scantiest excursion of it. There was no projection, prostatic enlargement, calculus, or ulcer, but the bladder wall was fully one-half inch thick. A rubber drain was placed in the bladder. Immediately following the operation there was an improvement of the general condition. At the end of two weeks the urine cleared up and the drain was removed. After several weeks a complete closure of the bladder wound was effected. The bladder, which before the operation could only be distended to 30 c.c., could now be distended to 60 c.c. The patient, however, could not retain even the smallest amount of urine for any length of time. Attention was again directed to the possibility of a fracture of the spine. There was marked tenderness over the dorso-lumbar region of the left side and a kyphosis taking in the last dorsal and upper lumbar vertebrae. A very small butterfly shaped area of anesthesia was demonstrated in the anal fold, extending forward to the scrotum. There was no dissociation of heat and pain sensation. Dr. George Jacoby corroborated these findings and added the absence of the cremaster reflex and a slight increase of the left patellar and left abdominal reflexes. Dr. Jacoby concurred in the diagnosis of bony injury causing spinal pressure. The *x*-rays showed a compression fracture of the body of the twelfth dorsal and first lumbar vertebrae. A Laminectomy was advised. The spinous processes and the lamina of the twelfth dorsal and the first, second, and third lumbar vertebrae were removed down to the articular processes. Upon palpation a tense band was felt over the lower part of the exposed dura. The dura was incised between two guide sutures. The opening of the dura was enlarged up and down. The cord was then seen to be angulated, corresponding to the altered position of the fractured vertebræ. At the location of the band referred to above numbers of fine adhesions passed between the dura and the cord. No injury to the nerve roots was encountered. It was evident that resuturing of the dura would subject the cauda to pressure again, since the latter protruded beyond the slit in the dura. Therefore, a fascial graft from the fascia of the dorsal muscles an inch and one-half by one-half an inch was interposed, sutured in place with fine silk, the smooth side of the graft facing the cauda. Fluid from the cord no longer escaped. A slight, troublesome hemorrhage from the bone was controlled with bone wax. The muscles were sutured in layers and then the fascia and the skin. The operation lasted forty-five minutes. On the third day the suprapubic wound was opened and daily bladder irrigations given until the urine began to clear. At the end of four weeks the patient was discharged, able to walk freely and to void small quantities of urine. At no time after the operation was there any paralysis of the limbs or the rectum, or any undue abdominal distention. At the present time, one year after the operation, the return of the urinary function had set in. At no time was the sexual function in abeyance.

Fracture of Base of Skull; Ligation of Carotid Artery.—Dr. WARE presented this case also. He stated that the patient was a little boy who presented himself in July, 1917, with the history of having fallen down an area-way. The injury which he received was attended by loss of blood from the ear. He was taken to a hospital following an auditory examination. The ear was tamponed in order to stop the hemorrhage. Facial paralysis was present at once. After observing the boy for a few days an endoscopic examination was made, as result of which it was stated that the bleeding came from the ear drum. The hemorrhage stopped and the boy went home apparently all right. After a few days he had a recurrence of the hemorrhage and was brought back to the hospital and given the same treatment as before. An operation was contemplated and an *x*-ray examination ordered. While waiting for the *x*-ray another severe hemorrhage took place and hematoma formed just below the ear. A small incision was made and the hemotoma evacuated. No pulsating artery was noticed. After evacuating the hematoma the wound was tamponed and there was no further rise in temperature and no further bleeding. At the end of seven days the boy appeared to be out of danger. That night, however, he received a telephone message stating that the boy had had a very profuse hemorrhage and was almost exsanguinated. He then went to the hospital and gave the boy a transfusion of 500 c.c. of citrated blood, the father being the donor. He thought then that he was dealing with an injury of the internal carotid and tied that vessel. The transfusion was very effective. Six or seven days later there was another profuse hemorrhage, which was tamponed. He then thought possibly the hemorrhage was from the jugular sinus or the bulb under the petrous bone. He also took into consideration the possibility of the hemorrhage coming from the external carotid or a branch of the internal maxillary. He decided to tie the common carotid and when this was done the hemorrhage immediately stopped, so he was inclined to think that the hemorrhage came from that vessel; it seemed that if it had been from the internal carotid the boy would have died following any of the numerous hemorrhages. The boy recovered very rapidly. At the time of the first operation Dr. Ware stated that he noted an irregularity of the auditory canal and afterward there was an extension of the paralysis to the eye, mouth, and palate, so that his food regurgitated through the nose. This paralysis was now wearing off.

Tuberculous Peritonitis.—Dr. CHARLES P. L. PUTNAM presented this case, a woman who came to the hopsital in March, 1913, complaining of discomfort in the stomach, weakness, and exhaustion. She had worked throughout the Christmas rush in the basement of a department store. The physical examination of the lungs was negative, the von Pirquet test negative, and the blood count showed a leucopenia. There was an even rounding of the abdomen. The diagnosis of tuberculous peritonitis was made. An operation was performed and the patient placed out of doors. About three weeks after the operation, when the scar was healed, she developed a marked tuberculosis of the skin in that region and reacted very markedly to the von Pirquet test. After a three months' stay in the hospital, she made a good recovery. It was now five years and she had led an active life. She had, however, on several occasions been obliged to stop work and rest. In 1916, she developed hemoptysis and pulmonary tuberculosis was recognized. In the meantime she had been married and went to one of the speaker's colleagues asking for treatment so that she could become pregnant. She had a low grade of tuberculosis of the lungs, which was not active at the present time. The tuberculous peritonitis seemed to be cured, though there were tubercles scattered all over the parietal peritoneum at the time of the operation, and there were also tubercles in the pelvis. The mesenteric glands, the appendix, and ovaries were not specially involved.

Intraligamentous Fracture at the Ankle (Two Cases).—Dr. CHARLES R. L. PUTNAM presented these patients, who had had fractures of the lower end of the fibula,

because they illustrated what could be done with the ambulatory method of treatment. These women had been treated by the ambulatory method because they were working and would lose their places if not able to be about. In the treatment of fracture of the lower end of the fibula by the ambulatory method it was important to give sufficient protection by means of a plaster cast so that no deformity would be produced. In the one case it was about a year since the injury occurred and in the other about two months. In both the results were excellent.

Lipoma of Ascending Colon.—Dr. RICHARD LEWISOHN presented this patient, a woman fifty years of age, who was admitted to Mount Sinai Hospital on October 11, 1917. She had been complaining of right abdominal pain for two months. The attacks were severe, intermittent in character and of short duration. There was abdominal distension between the attacks. There was no blood in the stools. Physical examination revealed a moderate amount of myocarditis and nephritis, and a round nodular, very movable mass, at the level and to the right of the umbilicus. The *x*-ray showed a tumor protruding into the lumen of the ascending colon. At the operation, on October 17, a pendulous tumor the size of a plum was found, which originated from the inner wall of the ascending colon. The base of the tumor was soft and the distal portion felt hard and nodular. On account of the suspicion that the tumor might be malignant, the ascending colon with the ileocecal valve and the appendix were resected, both ends were closed, and the ileum and transverse colon united by a isoperistaltic lateral suture anastomosis. The patient made an uneventful recovery and left the hospital on November 7, 1917. Inspection of the specimen showed that they were dealing with pendulous lipoma, gangrenous in its distal half. The gangrene had evidently been caused by the constriction of the ileocecal valve in which the tumor had been caught at frequent intervals, thus causing obstructive symptoms of short duration. The microscopical diagnosis was gangrenous lipoma.

Carcinoma of Splenic Flexure.—Dr. RICHARD LEWISOHN presented this patient, a woman forty-one years of age, who was referred to him on June 27, 1917. She gave a history of having had an operation on her right kidney twelve years ago. This proved to be an abscess. Her present symptoms started two weeks ago with pain in the left upper quadrant and constipation. She had noticed some blood in her stools. Examination revealed an irregular mass in the left hypochondrium, hallotting into the loin. There was no abdominal distension. The previous history and physical findings suggested an affection of the left kidney, whereas her present clinical symptoms pointed to an intestinal neoplasm. She was immediately admitted to Mount Sinai Hospital for further study. The cystoscopic and roentgenological examination of the kidneys was negative. A barium enema showed a complete obstruction in the descending colon. At operation, on June 30, 1917, a carcinoma was found at the splenic flexure with a pin hole perforation posteriorly. The tumor was freed by splitting the peritoneum on its anterior and posterior attachments. The tumor was resected and both ends closed with purse string sutures. A lateral suture anastomosis restored the lumen of the gut. The specimen showed a large ulcerating circular carcinoma involving three and one-half inches of the intestine. The microscopical examination showed an adenocarcinoma. The patient left the hospital, on July 26, after an uneventful convalescence and was in perfect health at the present date.

Carcinoma of the Sigmoid Flexure; Complete Obstruction for Two Weeks; Three Stage Operation; Cure.—Dr. RICHARD LEWISOHN presented this patient, a woman seventy-four years of age, admitted to Mount Sinai Hospital on August 21, 1917. She had been perfectly well up to two weeks previous to her admission to the hospital. Since that time her bowels had not moved at all and her abdomen had gradually increased in size. She had been vomiting fecal material for two days before admission. Physical examination showed a very markedly distended abdomen. Rectal examination was negative. An immediate operation was performed for intestinal obstruction, which revealed a small annular, very movable carcinoma in the sigmoid flexure without glandular involvement; this was the cause of the obstruction. A typical Mikulicz Vorlagerung operation was performed. The afferent loop was opened on the following day and the tumor was removed on the sixth day. The microscopical diagnosis was adenocarcinoma. The patient left the hospital after an uneventful recovery on September 15. She was readmitted on November 25 for a closure of the artificial anus. Naturally they hesitated to submit this patient to another operation and explained to her the dangers of such a procedure at her advanced age. However, she insisted upon the closure of the anus. The speaker, therefore, performed another operation on December 5. After freeing from adhesions, the two ends of the gut were liberated and closed by an end to end anastomosis. No recurrence of the growth nor any glandular involvement was found. Her bowels moved on the sixth day. A small pin hole fecal fistula closed on the fifteenth day. She left the hospital on January 1, 1918, restored to her previous good health.

Dr. GEORGE BARRIE said that in reference to Dr. Ware's spine case, the *x*-rays were not especially good, but from what one could tell they showed what was known as Kümmel's spine. It was Kümmel of Hamburg who first described this injury, which was a crushing together of the vertebræ and not an actual break.

Dr. WARE thanked Dr. Barrie for his suggestion and agreed that the *x*-rays were not particularly good, but, nevertheless, they had helped to make them certain of the diagnosis. There were the three types of bladder paralysis and this case was of the third type. He believed it was the first case on record to show the fascial graft of the spine to make up the defect in the dura.

Dr. GEORGE H. SEMKEN recalled that the question of the ligation of the carotid was discussed at the last meeting of the Section. If this patient had injured his internal carotid it was doubtful if he would have survived the accident. In any event, ligation of the internal carotid in the neck would not have checked the hemorrhage, for immediate collateral circulation would be established through the circle of Willis. Dr. Ware's second supposition was that the patient had injured the internal maxillary branch of the external carotid; and for this, he ligated the common carotid. It was questionable whether this ligation would be effective in such an instance. After ligation of the common carotid, collateral circulation took place in the external carotid within a few minutes by retrograde flow through the internal carotid. If the internal carotid also had been tied (as well as the common carotid), collateral circulation in the external carotid was soon established, mainly through the free anastomoses between the opposite superior thyroids and the facials. Dr. Ware's patient did not have a continuous bleeding, but the hemorrhage came after intervals of four or five days. It was not wholly clear how much, if any, benefit came from the ligations.

Dr. WARE in closing said he did not have any delusions as to the effectiveness of ligating the internal or common carotid arteries and that he was familiar with the way in which the collateral circulation was reestablished in the circle of Willis. His object was simply to determine where the hemorrhage came from and, owing to the presence of the facial paralysis, the possibility of its being in the lateral sinus occurred to him; if it had been from the carotid it would probably have killed the child forthwith. A pulsation was seen, but it was not possible to say whether it was in the artery or vein at this point. The way the facts stood the hemorrhage had stopped after the ligation of the common carotid, but he was not at all sure in his own mind where the source of the hemorrhage was.

Dr. ROBERT T. MORRIS said that in regard to the case of tuberculous peritonitis there were several points worth while discussing. Why was there no von Pirquet reaction while the tuberculosis was confined to the peritoneum, but was distinctly active? Why was the skin involved later? That was certainly an unusual occurrence. All those who were dealing with tuberculous peritonitis almost daily would say that this was a most unusual condition to have the skin lesion follow the tuberculous peritonitis. No matter what one did for tuberculous peritonitis, whether one injected irritants or simply exposed the peritoneum to the air, the patients would recover in a large propor-

tion of the cases, because there was a hyperleucocytosis set up which destroyed the tubercle bacilli and that was very effective unless there was a very distinct focus remaining. The second unusual feature was the tuberculosis of the skin. It would be interesting to know if this had been treated with radiant light, since that might have been effective. A third interesting feature was that the tuberculous peritonitis was followed by lung tuberculosis and, while that was not a very common event, we might ask ourselves why it should not occur oftener than it does. Dr. Morris recalled a case in which the appendix was removed and found to be tuberculous, and the patient afterward developed general miliary tuberculosis. The patient recovered from this tuberculosis and later developed tuberculosis of both lungs and finally recovered from that. It was not often that a tuberculous peritonitis was followed by tuberculosis of the skin, and it was not often that there was a general tuberculosis following operation for a peritoneal tuberculosis.

Dr. WARE asked if the patient at the time of the peritoneal involvement had tuberculosis of the adnexa. If the adnexa were found to be tuberculous that might explain the etiology of the tuberculous peritonitis. The experience of Dr. Morris confirmed his own. He had had a patient with no symptoms of tuberculosis, but with an appendicitis. The appendix was removed and a good share of the abdomen explored and there was no indication of tuberculosis. Six months later the patient had a recurrence of his symptoms at the site of the ileocecal valve. Another laparotomy was performed and tubercles were found scattered all over the peritoneum and the intestines, yet the examination of the appendix six months before showed no evidence of tuberculosis. This patient developed a general tuberculous peritonitis and tuberculosis of the lungs. Dr. Ware said that by reporting this case he did not mean to convey the idea that he wished to discourage operations for tuberculous peritonitis.

Dr. WARE said he was much interested in the ambulatory treatment of fractures of the tibia. He had never seen the necessity of using pads under the casts. Everything depended upon having a properly fitted plaster bandage and in putting up the foot at right angles so that the patient could walk in a proper way, and he would then pound the sole of plaster into a soft pulp. Nothing was gained by using the pads; the real hold was from above and about the ankle and then the pressure of the foot on the ground gave the counter pressure. A little cotton at the center of the point of fracture was all that was necesssary.

Dr. ROBERT T. MORRIS said the question came up in this connection as to the necessity for so much apparatus when the patient walked with an intraligamentous fracture. The reason he brought the question up was that a physical instructor in one of the large universities formerly called all these fractures "sprains," and he always treated them by massage and directed the patient to keep on walking and not to stop at all. Lucas Championnière treated them in much the same way. Until the *x*-ray came into use we did not know that these so-called sprains of the ankle were mostly fractures. The question was how many of these fractures would recover under massage and walking without plaster. Dr. Morris said he was not advising this treatment, but wished to call attention to the fact that before we learned that these injuries which were supposed to be sprains were actual fractures, many patients made good recovery without the employment of splints or supports of any kind.

Dr. PUTNAM said he was very fortunate in having Dr. Morris bring out the three interesting points in this case. The patient when she came was in a very emaciated condition and no doubt had the lung condition at that time, although not recognized. It was unusual to have the lung involvement come after the tuberculous peritonitis. This patient had a leucopenia and failed to react to tuberculin, but later developed immunity, as indicated by the tubercular skin lesion, and developed the ability to protect her leucocytes. The skin lesion was treated by exposure to air without dressing. The patient was kept outdoors almost all the time in the recumbent position for three months.

Dr. PUTNAM said, with reference to his second case, that when he was an interne they had employed a German method of ambulatory treatment for fractures, with two inches of padding on the soles. They used it for Pott's fractures and the patient walked on the plaster cast. These cases that he had shown were both active people, who could not afford to stop work. He treated them for three days with hot and cold water and then put them in the plaster casts, using a reasonable amount of padding. The plaster was taken off on the eighteenth or nineteenth day. Most so-called sprains were in reality fractures, and it was better to have the ankle properly protected if the patient was going to use the foot.

The Surgical Treatment of Cancer of the Face.—Dr. GEORGE H. SEMKEN made this presentation, which was profusely illustrated by lantern slides. He said the regions considered were the skin, the eyelids, the nose, the parotid gland, and the lips. Two types of epithelioma were met—one, the basal celled; the other, the prickle or squamous celled. The former was of slow growth and remained localized throughout its whole course; the latter was more malignant, grew more rapidly, and eventually became generalized through the development of lymphatic gland and visceral metastases. Chronic irritation still must be considered the main factor in etiology. Apparently selective sites for the development of epithelioma were usually found to be regions of long continued irritation. Cancerous lesions of the face were usually single, but multiple lesions were not uncommon. The appearance of epithelioma was usually characteristic, though its forms were varied. Occasionally, however, it would resemble lupus or luetic lesions, especially the tertiary type; and differentiation from the mixed tumors was sometimes difficult. Simple suppurative inflammation in a long standing process had led to error at times. The best plan of treatment for cancer of the face was still a subject for discussion. Partial destruction or irritation through any form of chemical, ray, or surgical treatment was likely to stimulate the growth and might transform the basal celled type into the prickle celled type. Thorough destruction in one sitting was essential. The galvano-cautery was suitable for small growths, but excision was recommended for the larger ones. *X*-ray and radium treatments were not dependable as primary measures. Some cases of cancer were unimproved by these ray treatments; and in many others the repeated recurrences after apparent cure showed that complete destruction of the cancer had not been accomplished. In these cases the tumor finally acquired a resistance against the rays that made the ray treatment totally ineffective thereafter. Contrasting the recurrences after radiation treatment with those following properly performed surgical extirpation, it might be stated that in the surgical cases the only source of recurrence was the unrecognizable cancer extension, more or less remote from the periphery of the tumor; whereas, following radiation treatment, continued cancer growth might come from the tumor itself, as well as from these extensions, since the rays might not have completely destroyed all the cells of the cancer. Most unfortunate were those cases in which a small and easily destroyed epithelioma, that had been subjected to ray or chemical treatment, repeatedly recurred after apparent cure, and eventuated in an extensive erosion of the face. This was rarely met with after surgical extirpation. Surgical procedures must be radical to be effective. Conservative operations were never desirable in dealing with cancer. The problem thus becomes twofold—(1) the removal of the cancer, and (2) the repair of the resultant defect. Of the methods of repair, suture *in toto* was not usually practicable, because the excision was too wide to allow it. Partial suture and a Thiersch graft was the simplest method of wound closure. Thiersch skin grafts might even be successfully applied over extensive cut bone surfaces. Where skin and subcutaneous tissue were required for the closure of the defect, these might be taken in the form of pedunculated flaps from the cheek, forehead, or neck; or of migration flaps from the upper arm. Extensive defects might be closed in this manner. In the parotid gland the mixed tumor was the neoplasm most frequently encountered. Some of these tumors, though remaining benign, simulated cancer; some eventually became malignant. The parotid might be well exposed by a longitudinal incision, supplemented

by a transverse incision anteriorly, along the malar bone, and one posteriorly, under the ear. In the cases of cancer the longitudinal incision must be prolonged in the neck, along the anterior border of the sterno-cleido-mastoid, so that the cervical lymph nodes also might be removed. The removal of the parotid necessitates the division of the facial nerve. The added removal of the lymph nodes in the upper part of the neck would be followed by a persistent edema of that side of the face. In the dissection of the jugular fossa, a good landmark was the fine fascia under the digastric muscle. Cancers of the lip presented a different problem from the other cancers of the face, because the lip cancers were almost invariably of the prickle cell type. Hence, the removal of the respective, associated lymph nodes became the first duty, no matter how small the lip cancer might be. In early cases it was sufficient to remove the submental and submaxillary groups, with the submaxillary salivary gland, through Kocher's incision. It was safer, however, to remove the carotid and digastric packets also; and for this purpose the incision along the sternocleidomastoid should be extended. For the lip operation wedge excision and suture of the lip was the usual procedure. Where larger areas required excision, closure might be made by means of flaps taken from the cheek or neck. In cases of total or sub-total resection of the lower lip, Dr. Semken said that the method of choice was the Dieffenbach operation.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, Wednesday, June 5, 1918.

DR. THOMAS R. NEILSON IN THE CHAIR.

Psychological Examining in the Army. — MAJOR ROBERT M. YERKES, San.C., N. A., said that the principal purposes of the examining of drafted men and of company officers were to assist the psychiatrist and neurologist in eliminating the mentally unfit; to assist the personnel officer in classifying soldiers; and to aid all officers in the selection of men who were fit for special responsibility or for training in officers' training camps. Methods for this work had been devised during the summer of 1917 and had since been greatly developed. Approximately 300,000 men had been examined. Of these 10,000 were officers and approximately 25,000 were students in officers' training camps. At least 50,000 psychological examinations, he said, were being made a week. The work, he believed, had more important significance for the personnel bureau of the army than for the medical department. The procedure of examining was outlined as follows: A group of from 100 to 300 drafted men reporting in examining room was divided into two sections of men, consisting of those who could read and write English fairly well, and those who because of foreign birth or lack of education were illiterate in English. The literate group was then given one form of examination; the illiterate an entirely different sort of examination, which did not require either reading or writing. A man failing in either or both examinations was given individual examination. Several varieties of individual examination were said to be used and were applied in accordance with the characteristics of the individual to be examined. The personnel for this work Major Yerkes describes as of very high quality. More than seventy officers had been trained for work in military psychology at the School in Military Psychology, Medical Officers' Training Camp, Fort Oglethorpe, Georgia. These men, he said, were now conducting psychological examinations in the various army training camps. At the school above mentioned about two hundred and fifty of the enlisted men had been given regular training in military psychology.

Neuropsychiatry in the Army.—COLONEL PEARCE BAILEY, M.C., N.A., said that in the examinations to determine whether or not men were to be allowed to go overseas, one method employed consisted of a rapid survey of the whole organization—of all the troops, officers included. All passed under the eye of one or more neuropsychiatrists. They were given a test of about a minute and a half, long enough to test the knee jerk, tremors of hand and tongue and the reaction to the immediate situation. This test determined the indication for a more extended examination. The other method, used much in the first draft and before the neuropsychiatry department was organized, was a method of referred cases, in which only those referred by other officers, line or medical, were examined. In this method there had been more cooperation from the laymen than from the medical officers. At the present time, he said, very close cooperation was had from everyone. The psychiatrist did not recommend a discharge without such recommendation going through the disability boards and it thus was endorsed by at least three non-specialists. It was believed that by the means employed in the work neuropsychiatry would reach a point of preventive medicine of high significance. In the reconstruction of soldiers neuropsychiatry it was believed would also have an important function. Examiners were stationed at the camps, depots, and ports of embarkation. A certain percentage of the men were found to be nervously unfit. Not many neurological cases had yet been returned from the other side. A hospital at Plattsburg had just been secured to which patients were transferred from the cantonments as fast as possible. How these cases differ from the war neuroses of the other side the author said was not known, but he was confident that there were no neurotic symptoms produced on the front not to be found in this country. A much smaller number of insane requiring hospital treatment had been found than had been anticipated. A contributing factor to this smaller percentage was the fact of the examinations having been made at the point of entrance to the army. The States, with but few exceptions, Colonel Bailey said, had cooperated in caring for their insane when insanity developed immediately after entrance into the army. While only 300 had gone back, it had been shown that army life rendered a neurotic the subject of custodial care. There had been less than 500 cases of drug addicts. If the number proved to be very much above this a special camp, it was said, would be established for the treatment of such patients, after which they would be drilled for military service. There were at present in the neuropsychiatric department some 360 officers, about one-third of whom were on the other side. They had come chiefly from the State hospitals. Requests had been received to send men with neurological training and on this account it had recently been necessary to decline at least one hundred applications for positions to be filled. Men who were able to speak Italian and Spanish were said to be especially wanted.

Dr. F. X. DERCUM said that the symptoms of the psychoneuroses met with in the army could be grouped under the familiar clinical pictures seen in civil life. Curiously enough, they occurred largely among the draftees just as in the out-patient departments and hospital wards; they were less frequent among officers, just as they were less frequent among the better classes in civil life. It was most important, he believed, that these cases be excluded at the source. So far as the psychological tests were concerned, Dr. Dercum thought that a man might not be able to pass the tests involved and yet make a very efficient soldier. Such tests were not, he observed, a measure of a man's physical strength, of his endurance, of his ability to shoot, of his personal courage. Many a man had sprung from the ranks who did not have the qualities of mind enabling him to pass through such a series of complicated tests, Dr. Dercum said, and yet had made an efficient officer.

Dr. THOMAS MCCRAE expressed the opinion that if anyone who has been abroad working on the medical side in the war were asked who had the best chance of being of use, he would answer the neurologist. This truth he did not believe to be sufficiently recognized. He had urged upon every man connected with the formation of a military hospital unit the necessity of having a well qualified neurologist on the staff. As head of the medical side of a hospital without a neurologist he had had to meet the neurological problems arising among 2000 patients. Many cases of nerve injury were extremely complicated and the decision as to treatment was often a difficult matter. He strongly emphasized the need in this war for the neurologist.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

COLORADO BOARD OF MEDICAL EXAMINERS.

Denver, April 2, 1918.

ANATOMY.

1. Describe the spinal column as a whole.
2. Describe a typical lumbar vertebra.
3. Give attachments, action and nerve supply of the following muscles: Deltoid, pronator radii teres, sartorius and sternomastoid.
4. Give the course and branches of the femoral artery.
5. Explain the anatomical conditions which favor the production of femoral hernia.
6. What structures are supplied by the following nerves: Phrenic, third cranial, musculospiral?
7. Explain the anatomical basis for hemorrhage from the stomach in cirrhosis of the liver.
8. Name and describe the valves of the heart.
9. Describe the knee joint.
10. Describe the trachea.

PHYSIOLOGY.

1. Describe the lymphatic system and tell its function.
2. What part of the brain controls coordination of muscular action? How is it done?
3. Give the various enzymes that would act when a piece of bread and butter is eaten.
4. Give the factors concerned in the regulation of the beat of the heart.
5. What is the meaning of systolic and diastolic used in relation to blood pressure? How produced?
6. Describe reflex action.
7. Describe the changes that take place in the eye when vision is directed to a near object.
8. Name four excretory organs of the body, and give their functions.
9. What are the functions of the medulla oblongata?
10. How is secretion in the salivary glands effected?

CHEMISTRY.

1. Define chemistry; state how it is divided; give examples.
2. Define the terms atomic weight, atomic volume, molecular weight, molecular volume.
3. Explain the significance of the prefixes hydro-, hypo-, hyper-, sub-, bi-, nitro-, and the suffixes -ous, -ic, -ite, -ate and -ide.
4. Describe (*a*) distillation, (*b*) filtration, and (*c*) precipitation, as applied to process for purifying drinking water.
5. Mention some substances used for disinfection after the prevalence of contagious disease and explain their reaction.
6. What is hemoglobin? Name its properties and functions and state how it may be recognized.
7. Give the uses of the urinometer. State its importance as an aid in diagnosis and method of determining specific gravity of urine insufficient for urinometer.
8. What chemical changes take place as a result of muscular action.
9. Describe pepsin and name the medium in which it is most active.
10. Define fats and give the names and formulas of three fats.

ANSWERS.

ANATOMY.

1. The *spinal column* is flexible column formed by the vertebræ superimposed one on the other, and of intervertebral substance. The vertebræ are seven in the cervical region, twelve in the dorsal, five in the lumbar, five in the sacral, and four in the coccygeal. The two last sets unite to make the sacrum and coccyx. It is about 26 inches long. Viewed laterally the spine shows four curves, the cervical, dorsal, lumbar, and pelvic; these curves are alternately convex and concave (from before backwards). Through the center of the spine is the spinal canal for the spinal cord. The *general characters of a vertebra* are: Body or centrum, arch, two pedicles, two laminæ, four articular processes, two transverse processes, and one spinal process.

2. The *lumbar vertebræ* have a large body, wider transversely, and with no facet or demi-facet; the laminæ are short and thick; the spinous process is horizontal; the transverse processes are "rudimentary"; the superior articular process is directed inward and slightly backward; the inferior articular process is directed outward and slightly forward; the spinal foramen is larger and triangular.

3. DELTOID. *Origin:* From the outer third of anterior border and upper surface of the clavicle, from the outer margin and upper surface of the acromion process, and from the lower edge of the spine of the scapula. *Insertion:* Into the deltoid impression on the middle of the outer side of the shaft of the humerus. *Action:* It raises the arm from the side so as to bring it at right angles with the body; its anterior fibres draw the arm forward; its posterior fibres draw the arm backward. *Nerve supply:* The circumflex.

PRONATOR RADII TERES. *Origin:* From the front and upper part of the internal epicondyle and the supracondylar ridge of the humerus; the common tendon, and intermuscular septa; also from the coronoid process of the ulna. *Insertion:* Center of outer surface of radius. *Action:* To pronate the forearm and assist in flexing the elbow joint. *Nerve supply:* Median nerve.

SARTORIUS. *Origin:* Anterior superior spine of ilium and upper part of notch. *Insertion:* Internal surface of shaft of tibia, just behind the tubercle. *Action:* It flexes the knee joint, the hip joint, and the pelvis upon the thigh; it is an internal rotator of the leg, and an external rotator and abductor of the thigh. *Nerve supply:* Anterior crural nerve.

STERNOMASTOID. *Origin:* Upper and outer part of the anterior surface of the manubrium sterni, and upper surface of the clavicle at its sternal end. *Insertion:* Outer surface of mastoid process of the temporal bone, and outer part of the superior curved line of the occipital bone. *Action:* To flex the head to the same side as the muscle; the two acting together flex the head on the thorax and also raise the upper thoracic wall in forced inspiration. *Nerve supply:* The spinal accessory nerve and a branch from the cervical plexus.

4. The *femoral artery* begins at Poupart's ligament; it is the continuation of the external iliac, and passes down the fore part and inner side of the thigh, to terminate at the opening in the adductor magnus at the junction of the middle with the lower third of the thigh, where it becomes the popliteal artery. *Branches:* Superficial epigastric, superficial circumflex iliac, superficial external pudic, deep external pudic, muscular, anastomotica magna, and profunda femoris (with branches: external circumflex, internal circumflex, and three perforating).

5. *Femoral hernia* leaves the abdomen through the femoral ring and descends into the femoral canal; this canal is funnel-shaped, is about ½ inch in length, and ends at the saphenous opening. Femoral hernia is always *acquired*, and has a sac. Its course is first vertical, then forward, then upward over Poupart's ligament. The femoral ring is, naturally, a weak spot in the abdominal cavity; further, in women the pelvis is wider, the ring is larger, and Gimbernat's ligament is less developed than in men. The canal is funnel-shaped.

6. The *phrenic nerve* supplies: The diaphragm; it also supplies twigs to the pericardium and the mediastinal pleura.

The *third cranial nerve* supplies: The levator palpebræ superioris, superior rectus, inferior rectus, internal rectus, and inferior oblique muscles of the eye, and the ciliary muscle.

The *musculospiral nerve* supplies: The triceps, anconeus, brachialis anticus, extensor carpi radialis longior, supinator longus, and the skin of the back of the arm and forearm.

7. The gastric veins (which enter into the portal vein) and the esophageal veins (which enter the general circulation through the inferior thyroid veins) anastomose. Cirrhosis of the liver causes pressure on the portal vein and hemorrhage results in the stomach (and elsewhere where the portal and general venous circulations meet).

8. VALVES OF THE HEART.—"The *mitral* and *tricuspid*

valves are situated in the left and right ventricles respectively, at the auriculo-ventricular orifices, and prevent the passage of blood into the auricles during the ventricular systole. They consist of flaps or cusps, two in the mitral and three in the tricuspid, connected by their bases to the auriculo-ventricular orifices; their free margins and lower surfaces give attachment to the chordæ tendineæ which connect them with the musculi papillares. They are formed of a duplicature of the lining membrane of the heart, strengthened by connective tissues. During the ventricular systole, the pressure of the blood in the ventricles presses their free edges, or rather their marginal surfaces, together, the musculi papillares regulating the tension of the chordæ and preventing the valves from becoming retroverted into the auricles.

"The *semilunar valves* guard the aortic and pulmonary openings. They consist of three semicircular folds attached by the convex margin to the wall of the artery at its junction with the ventricle, and are formed by a reduplication of the lining membrane strengthened by fibrous tissue. In the center of each free margin is a little nodule, the corpus Arantii, the three meeting in the center when the valves are closed. On each side of the corpora Arantii is a thin semilunar marginal surface, where the fibrous tissue is absent, called the lunula; these surfaces come in contact when the valves close."—(Ashby's *Notes on Physiology*.)

The *Eustachian valve* is found in the right auricle, between the interior margin of the postcava and the auriculo-ventricular orifice. It is semilunar in shape and is formed by a duplicature of the lining membrane of the auricle. The *coronary valve* is a semicircular fold of the lining of the membrane of the right auricle; it protects the orifice of the coronary sinus.

9. The *knee joint* is a ginglymus, and is formed by the condyles of the femur, the head of the tibia, and the patella. "The *external ligaments*, the *anterior* or *ligamentum patellæ* is the continuation of the tendon of the triceps extensor. Above it occupies the apex and rough marking on the lower and posterior surface of the patella; below it is attached to the lower part of the tubercle of the tibia. There is a bursa between the upper part of the tubercle and the ligament. The *posterior ligement* (*ligamentum posticum Winslowii*), broad and thin, covers the back of the joint. It consists of a central and two lateral parts. The lateral parts spring above from the femur above the condyles and are attached below to the head of the tibia. The central part is derived from an expansion of the semimembranosus tendon, and passes from the inner tuberosity of the tibia to the inner side of the upper part of the outer condyle of the femur. The *internal lateral ligament*, broad and flat, is attached above to the inner condyle of the femur; below, to the margin of the inner tuberosity, to the internal fibrocartilage, and to the inner surface of the shaft of the tibia for 1½ inches. The *long external lateral ligament*, a rounded cord, is attached above to the external condyle of the femur, and below to the external part of the head of the fibula, dividing the biceps tendon into two parts, a bursa intervening. The *short external lateral ligament*, very indistinct, lies parallel and behind the preceding, attached above to the outer condyle of the femur, and below to the styloid process of the fibula. The *capsular ligament*, thin, fills up the intervals between the special ligaments; it is attached to the margins of the articular surfaces of the bones, and blends with the fascia lata of the thigh: above it receives expansions from the vasti (*lateral patellar* ligaments).

"The *Internal Ligaments:* The *anterior* or *external crucial ligament* is attached to the depression in front of the spine of the tibia and to the external semilunar fibrocartilage; it passes upwards, backwards, and outwards to the posterior part of the inner side of the external condyle of the femur. The *posterior* or *internal crucial ligament* is attached to a depression behind the spine of the tibia, to the popliteal notch, and the posterior border of external semilunar fibrocartilage, this latter slip being sometimes called the *ligament of Wrisberg;* it passes upwards, forwards, and inwards, the posterior fibres attached by side of oblique curve of inner condyle, the anterior ones to the fore part of intercondylar fossa and to the anterior part of the outer surface of the inner condyle. The *semilunar cartilages* are thicker at the circumferences than at the central margins and serve to deepen the cavities for the head of the femur. The *internal semilunar cartilage* is oval in shape, the anteroposterior diameter being the longer. Its anterior extremity is attached to the tibia in front of the anterior crucial ligament, and the posterior extremity in front of the posterior crucial ligament. The *external semilunar cartilage* is nearly circular; its anterior extremity is attached to the tibia in front of the spine, the posterior extremity to the back of the spine."—(*Aids to Anatomy.*)

10. The *trachea* begins at the level of the cricoid cartilage, in front of the sixth cervical vertebra. It is a wide tube, about four and a half inches long, kept patent by a series of cartilaginous rings; posteriorly these rings are incomplete, and so the trachea is flattened behind. It lies in the median line of the body, enters the chest through the upper thoracic opening, and ends by dividing into the two bronchi opposite the disc between the fourth and fifth thoracic vertebræ. It lies upon the esophagus.

PHYSIOLOGY.

1. The lymphatic system consists of: lymphatic glands, lymph vessels, perivascular lymph spaces, the lymph canalicular system, the pericardial, pleural, peritoneal, and synovial cavities, and the lacteals.

The lymphatic circulation is, strictly speaking, not a circulation at all, since the lymph flows only in one direction, namely, toward the heart. The lymph capillaries take up any excess of the blood plasma which is not required for the nutrition of the tissues. These capillaries consist of a single layer of epithelium, and empty themselves into vessels very like the veins. The lymph vessels are well provided with valves, which are so closely approximated as to give the vessels a beaded appearance. All the lymphatic vessels, except those of the right upper half of the body, empty into the thoracic duct, which terminates in the left subclavian vein, where the left internal jugular vein also enters. Those from the right upper half of the body discharge into the right lymphatic duct, which, in turn, empties into the right subclavian vein at its junction with the right internal jugular vein.

The forces concerned in the circulation of the lymph are: (1) The pressure of the blood in the blood-vessels; (2) thoracic aspiration; (3) muscular contractions of the voluntary muscles; (4) contractions of the intestine; (5) the action of the valves in the lacteals and lymphatics.

The *function of the lymphatic system* is to provide the tissues with material necessary to their functional activity, growth, and repair; to receive from the tissues their waste products; and to convey the products of digestion and absorption to the blood-current.

The lymph capillaries differ from the blood-capillaries, chiefly, in their larger and very variable caliber and also in their numerous communications with the lymph spaces. The lymph vessels in several have thinner coats than the blood-vessels; and the valves in the lymph vessels are much more abundant than in the veins.

2. The cerebellum is the center for the control of coordination of muscular action. "Though it is not known how the cerebellum selects and coordinates groups of muscles for the performance of any complex movement, it is known that its activity is largely reflex in origin and excited by impulses reflected to it from peripheral organs. In this as in other forms of reflex activity the mechanism involves (1) afferent nerves, *e. g.*, cutaneous, muscle, optic, and vestibular, and their related end-organs, tactile corpuscles, muscle spindles, retina, and semicircular canals, all indirectly connected with (2) the cerebellar centers; (3) efferent nerves indirectly connected with (4) the general musculature of the body. Both station and progression are directly dependent on the development and transmission of afferent impulses from the previously mentioned peripheral sense-organs to the cerebellum. Tactile, muscle, visual, aand labyrinthine impressions and sensations not only cooperate in the development and organization of the motor adjustments necessary to the maintenance of the equilibrium and locomotive coordination, but even after their organization they are necessary to the excitation of cere-

bellar activity. The manner in which they lead to the development of this capability on the part of the cerebellum is conjectural."—(Brubaker's *Physiology.*)

3. *Bread* consists of proteid, fat, carbohydrate, salts, and water. *Butter* consists of fat, a little proteid, and water. In the *mouth*, the ptyalin of the saliva changes starch into dextrin and sugar; in the *stomach*, the proteids are changed by the pepsin into proteoses and peptones; in the *small intestine*, the proteids are further changed by the trypsin into proteoses and peptones aand afterwards into polypeptides and amino-acids; starches are converted by the amylopsin into maltose; fats are emulsified and saponified.

4. "The *neurogenic theory of heart beat* supposes that the internal stimulus to the heart beat arises within the nerve cells which are present at the venous end of the heart, and that the excitatory wave is conducted by nerves."

"The *myogenic theory* supposes that the heart muscle itself possesses the property of automatic rhythmicality, and that this property is most marked at the venous end of the heart, and at the sinu-auricular and auriculo-ventricular junctions. The contraction wave is generated at the venous end of the heart in the muscle, and, in virtue of the conductivity of cardiac muscle, spreads over the muscle tissue of the auricles, and thence over the ventricles. In other words, the contraction wave commences in muscle and is conducted by muscle. The muscular continuity of the auricles and ventricles is brought about by the auriculo-ventricular bundle of His."—(Lyle's *Physiology.*)

"*Automaticity.*—Inasmuch as the heart continues to contract in a perfectly rhythmic manner after removal from the body and apparently without the aid of an external stimulus, it is said that the heart-muscle is automatic or spontaneous in action. Strictly speaking, however, this is not the case, for the reason that all movement, that of the heart included, is the resultant of the action of natural causes, though their true nature may be beyond the reach of present methods of investigation."—(Brubaker's *Physiology.*)

5. "The maximum pressure caused by the systole of the heart, the apex of the pulse wave, is spoken of as *systolic pressure;* the minimum pressure in the artery —that is the pressure at the end of the diastole of the heart, or the bottom of the pulse wave, is known as the *diastolic pressure.* . . . In speaking of the pressure in the blood-vessels we refer usually to what is called the *mean pressure.* It is obvious that, so far as the larger arteries are concerned, the *mean pressure* is only a convenient expression for the average pressure during a certain period. If we know at any moment the systolic and the diastolic pressure in an artery we can estimate the mean pressure with approximate accuracy by taking the arithmetical mean of the two figures."—(Howell.)

6. *Reflex actions* are involuntary or unconscious movements, due to suitable stimuli. They depend upon the integrity of the *reflex arc*, which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding to the impulse conveyed by the efferent nerve.

Example: The patellar reflex consists of a contraction of the extensor muscles of the leg and a movement of the foot forward when the ligamentum patellæ is struck; the quadriceps extensor must first be slightly stretched by putting one knee over the other. Its integrity depends upon a healthy condition of the entire reflex arc, consisting of tendon, afferent or sensory nerve, posterior roots, and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself.

7. The eye is made up of the following membranes, arranged in a concentric manner, from without inward: The sclerotic and cornea; the choroid and iris, and the retina. Within these are enclosed the refracting media: The aqueous humor, the crystalline lens, and the vitreous humor; the cornea is also a refracting medium. These media "have different refractive indices, which, when acting together, refract all rays of light in such a manner that they come to a focus on the retina, and so prevent chromatic aberration. In the emmetropic or normal eye adequate refraction is secured by the mechanism of accommodation, as follows: (*a*) Rays of light which fall on the lens in parallel lines are refracted in such a way that they are brought to a focus in the retina. These rays come from a point infinitely far away. (*b*) If the rays of light come from a near point they diverge as they pass to the lens, and if the lens retained its shape they would be brought to a focus behind the retina. But as the eyes converge to look upon the near object, a stimulus passes up from some unknown stimulated point to the nucleus of origin of the third cranial nerve, and is reflected back along the third cranial nerve to the ciliary muscle which contracts. This pulls forward the choroid, to which is attached the hyaloid membrane, which becomes continuous with the capsule of the lens. The lens capsule thus becomes slacker, and therefore the lens, in virtue of its elasticity, bulges chiefly forward. Hence its anterior surface becomes more convex, *i.e.* capable of refracting the divergent rays in such a manner as to bring them to a focus on the retina."—(Lack's *Introduction to Physiology.*)

8. *Four excretory organs of the body:*—Lungs, skin, kidneys, and large intestines.

Functions of lungs:—To take in oxygen, and to excrete carbon dioxide and water.

Functions of the skin:—To eliminate water, carbon dioxide, urea, salts; protection; secretion; absorption; sensation; special sense of touch; and regulation of body temperature.

Functions of kidneys:—To eliminate water, urea, nitrogenous matter, inorganic salts (and, generally, the secretion of urine).

Functions of large intestines:—To eliminate the indigestible and unabsorbed substances from the food, with secretions from liver and pancreas.

9. The *functions of the medulla oblongata:* (1) It is a conductor of nervous impulses or impressions from the cord to the cerebrum, from the brain to the spinal cord, also of coordinating impulses from the cerebellum to the cord; (2) it contains collections of gray matter which serve as special nerve centers for the following functions or actions: respiration, salivary secretion, mastication, sucking, deglutition, vomiting, voice, facial expression; it also contains the cardiac and vasomotor centers.

10. *The mode of secretion of saliva.*—"The secretion of saliva is a complex act and involves the cooperation of gland cells, blood vessels, efferent and afferent nerves contained in different cranial nerves, and a central mechanism by which they are excited to and coordinated in activity. The central mechanism is located in the medulla oblongata in the gray matter beneath the floor of the fourth ventricle and subject to cerebral and surface stimulation. During the intervals of mouth digestion the glands are practically at rest as far as the discharge of saliva is concerned. The cells, however, are actively engaged in absorbing from the surrounding lymph spaces materials derived from the blood, out of which they construct their characteristic constituents. The blood vessels possess that degree of dilatation necessary for nutritive purposes. With the development of the sensation of hunger, the sight and the odor of agreeable foods develop visual and olfactory sensations, which give rise to psychic states more or less agreeable. With their development the entire mechanism is excited to activity and a more or less abundant discharge of saliva into the mouth frequently takes place. This is, therefore, known as a psychic secretion. The fluid thus secreted has given rise to the expression "watering of the mouth." With the introduction of food into the mouth and the stimulation of afferent nerves (nerves of general sensibility and nerves of taste) and the onset of mastication, the blood vessels suddenly dilate, the blood supply is increased, and the gland cells begin to discharge water, inorganic salts, and their organic constituents into the lumen of the acinus, materials that collectively constitute the saliva characteristic of any one of the glands. This continues until mastication ceases, when all the structures return to their former condition of relative inactivity. . . . The *afferent* nerves are the lingual and buccal branches of the trigeminal nerve; taste fibres in the chorda tympani; and taste fibres in the glossopharyngeal. The *efferent* nerves are the chorda tympani and its post-ganglionic continuations for the submaxillary and sublingual glands; the glossopharyngeal

nerve and its post-ganglionic continuations contained in the auriculotemporal branch of the trigeminal nerve for the parotid gland. The sympathetic nerve, both pre- and post-ganglionic fibres, for all the glands."—(From Brubaker's *Physiology.*)

CHEMISTRY.

1. *Chemistry* is that branch of science which deals with the composition of substances, their changes in composition, and the laws governing such changes.

There is no recognized division; the following are the chief branches:

Inorganic chemistry is the chemistry of such elements and compounds as do not contain carbon.

Organic chemistry is the chemistry of the carbon compounds.

Physiological chemistry is the chemistry of the living organism and its various processes.

Synthetic chemistry is that branch of chemistry which is concerned with the building up of compounds out of simpler compounds or elements.

Analytical chemistry deals with the determination of the constituents of a chemical compound or of a mixture of compounds. When only the names of the constituents are sought, the determination is called *qualitative;* and *quantitative* when the amount present is also ascertained.

2. *Atomic weight* is the weight of an atom of an element as compared with the weight of an atom of hydrogen.

Atomic volume is the space occupied by the quantity of an element as compared with its atomic weight; it is the specific gravity of the element divided by its atomic weight.

Molecular weight is the weight of a molecule of a substance as compared with the weight of an atom of hydrogen; it is the sum of the atomic weights.

Molecular volume is the volume occupied by one gram-molecule of a gas or liquid under normal conditions.

3. *Hydro-* denotes the presence of water, or of hydrogen; or it indicates a hydracid.

Hypo- denotes an acid or a salt with the smallest number of oxygen atoms.

Hyper- denotes an acid or a salt with the greatest number of oxygen atoms.

Sub- denotes a basic salt, or a salt in which only part of the replaceable hydrogen of the acid has been eliminated.

Bi- denotes two atoms or a double quantity of an element.

Nitro- denotes combination with the radical NO_2.

-ous indicates an acid containing a smaller amount of oxygen than is found in the -ic acid; also a compound in which an element has the lower of two possible valencies.

-ic denotes an acid containing more oxygen than is found in the -ous acid; also a compound in which an element has the higher of two possible valencies.

-ite denotes a salt derived from an -ous acid.

-ate denotes a salt derived from an -ic acid.

-ide denotes a binary compound; also a salt derived from a hydracid.

4. In *distillation* the water is boiled and the steam is then condensed.

In *filtration* the water is passed through a porous material and the suspended impurities are thus more or less completely removed.

In *precipitation,* alum or a ferric salt is added to the water; this forms a gelatinous precipitate with many of the impurities and carries them down with it, mechanically; after a time the water above the precipitate is drawn off for use.

5. DISINFECTANTS: (1) *Formaldehyde,* due to the facility with which it parts with its oxygen. (2) *Potassium permanganate,* due to the large amount of oxygen which it contains ($KMnO_4$), and the readiness with which it parts with the same. (3) *Phenol* is a germicide; so, too, is (4) *bichloride of mercury.*

According to Rosenau, disinfectants destroy bacteria in four ways: (1) Destruction by oxidation, as ozone, chlorinated lime, potassium permanganate and the halogens. (2) Destruction by ionic poison with coagulation, as the metallic salts. (3) Destruction by coagulation and poisoning not ionic in character, as carbolic acid and phenol derivatives. (4) Destruction by emulsoid action, that is, through Brownian movement and absorption.

6. *Hemoglobin* is the name given to the pigment found in the red blood corpuscles; it is a crystalline substance, and consists of the elements carbon, hydrogen, oxygen, nitrogen and sulphur and iron; the molecule is complex and heavy. When pure, it is a crystalline solid, more or less soluble in water, soluble in dilute alcohol, red or purple in color. It takes up oxygen from the air in the lungs and is then called oxyhemoglobin; it carries the oxygen to the tissues, where it parts with it, and becomes reduced hemoglobin. It forms a very stable compound with carbon monoxide. On hydrolysis it yields a simple protein and hemochromogen which latter contains iron and is readily oxidized to hematin.

7. The *urinometer* is a hydrometer used for obtaining the specific gravity of the urine. Normally the specific gravity of the twenty-four hours' urine is about from 1015 to 1025. Marked deviations from these figures denote something abnormal or pathological. The total solids in the urine may be roughly calculated by multiplying the last two figures of the specific gravity by two; this gives the number of grams of solids in one liter of urine. As a rule, a high specific gravity denotes diabetes mellitus, fever, hemorrhages, severe diarrhea, profuse perspiration; a low specific gravity is found in albuminuria, chronic interstitial nephritis, hysteria, and diabetes insipidus.

If the quantity of urine available is not sufficient to float the urinometer it may be diluted with an equal volume of water; the specific gravity is then taken and the last two figures are multiplied by two, to get the true specific gravity.

8. *The following chemical changes take place as a result of muscular action:* (1) Oxygen is used up; (2) carbon dioxide is produced; (3) sarcolactic acid is developed; (4) the reaction becomes acid; (5) the amount of glycogen is reduced.

9. *Pepsin* is a proteolytic extract obtained from the mucous membrane of the stomach of the pig; it is capable of digesting no less than 3000 parts of coagulated egg-albumen. It is sold in the form of white or yellowish scales or powder; it has an acid reaction, and a very slight taste and odor; it is nearly insoluble in alcohol, and dissolves in about fifty parts of water. It is most active in an acid medium.

10. *Fats* are mixtures of the esters of glycerol and a fatty acid. *Three fats:* Tripalmitin, $C_3H_5(O.C_{16}H_{31}O)_3$; Tristearin, $C_3H_5(O.C_{18}H_{35}O)_3$; Triolein, $C_3H_5(O.C_{18}H_{33}O)_3$.

(*To be continued.*)

Books Received.

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MANUAL OF OTOLOGY. By GORHAM BACON, A.B., M.D., F.A.C.S., 583 pages. Illustrated. Published by Lea & Febiger, New York and Philadelphia.

BOTULISM. By ERNEST C. DICKSON, M.D. Monograph of The Rockefeller Institute for Medical Research. 117 pages. Illustrated. Published by The Rockefeller Institute for Medical Research, New York.

THE MEDICAL CLINICS OF NORTH AMERICA, May, 1918, issue. 1681 pages. Illustrated. Price, $10 per year. Published bi-monthly by W. B. Saunders Co., Philadelphia and London.

MEMORANDA ON ARMY GENERAL HOSPITAL ADMINISTRATION. By various authors. Edited by P. MITCHELL, M.D. 109 pages. Illustrated. Price, $2.25. Published by Paul B. Hoeber, New York.

THE COMPOSITION OF CERTAIN PATENT AND PROPRIETARY MEDICINES. Compiled by JOHN PHILLIPS STREET. 274 pages. Price, $1.25. Published by American Medical Association, Chicago, Ill.

NAVAL HYGIENE. By JAMES CHAMBERS PRYOR, A.M., M.D. 507 pages. Illustrated. Price, $3. Published by P. Blakiston's Sons & Co., Philadelphia.

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Original Articles.

TREATMENT OF INOPERABLE CANCER OF THE BREAST BY CHEMICAL EXTIRPATION.*

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IN my choice of a subject tonight I am keenly aware that it may elicit much adverse criticism. That it should arouse discussion is of course as it should be, and I may state frankly that I shall be disappointed if criticism be not forthcoming, but not of course perfunctory registration of merely adverse opinion.

Naturally, I hope and expect to demonstrate that my method is impregnable to fair-minded and sincere assaults; but if there is any feature of it that is susceptible of betterment, and especially if my arguments have any basis of fallacy, I hope I shall

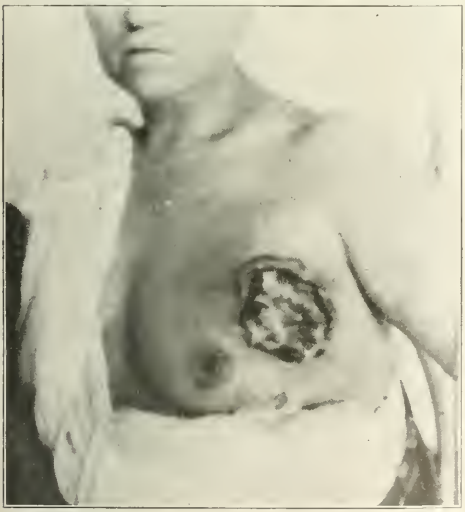

FIG. 1.—Novak. Inoperable medullary carcinoma of the left breast.

be prompt to profit by the remarks of my colleagues to that effect.

My chemical operation is an example of the evolution of scientific therapeutics from an empirical substratum. The use of caustics in cancer is as old as the use of the knife, and the two were for many centuries active competitors. This truth holds good in fact up to the middle of the nineteenth

FIG. 2.—Morey. Inoperable scirrhus cancer of the right breast.

century. Did the use of caustics then fall off from any inferiority of the method as compared with the knife? No. This change came about purely as a result of the introduction into surgery of the use of ether and chloroform anesthesia, which gave the knife an apparent advantage. The use of caustics then remained in the hands of the charlatans for decades, with the exception of the limited utilization of caustic applications like Marsden's paste. In the meantime knife technic has reached a high degree of development, and if every cancer of the breast could be seen and excised at the earliest moment there might be but a very limited field for non-cutting methods. We know, however, that thousands of cases never come to the knife for one or another reason, and that local recurrence in well established cases is the rule even with the most skilful and experienced operators, to say nothing of axillary and internal metastases, coincident thereto.

Let us now glance for a moment at the caustic extirpation of the cancerous breast as it was early in the nineteenth century. The technical defects of the caustic method of that period were both numer-

*Read at a meeting of the Surgical Section of the New York Academy of Medicine, May 3, 1918.

ous and obvious, yet no one seems to have sought to remove them or to keep abreast of the advance in knife technic. Even after the work of Canquoin (1838), who applied zinc chloride in his cases at intervals over a period of four or five months, and did not undertake to proceed against the axillary glands, the method continued to be tedious, painful, and generally imperfect. It was, however, asserted that caustics gave better end results than cutting, which seems easy to understand since some of the greatest surgeons of the time frankly admitted that they never obtain or saw a cure of cancer by the knife, and even in our own time the difficulties of obtaining operative cures in cancer of the breast were voiced by the late Dr. Murphy, who proclaimed that cancer of the breast in a woman in the prime of life was little short of a death warrant.

If the application of the caustic can be deprived of pain; if the lower axillary regional metastases

Fig. 3.—Hutter. Inoperable scirrhus carcinoma of right breast shows grafted surface, following the chemical operation.

can also be successfully and safely removed by caustics, should not this method be considered worthy of an extended trial? If it can be applied equally well to that class of breast cancers called inoperable; if it can be resorted to with safety at any age or stage; if it is known that local recurrence is far less frequent than after the knife; if the resulting operative field is more free from scars and skin tension; if the method is free from the objection of mechanical dissemination; if as a result of its use there would be far less probability of inoculation metastasis, the intrinsic value of the method would, I think, be readily conceded.

If the writer did not believe that he had overcome all these technical difficulties of the chemical operation, he would not feel justified in bringing the subject before your attention. Thus far the operation has been employed almost entirely in the inoperable conditions. A direct result of the caustic is the production of a severe inflammatory reaction followed by a profuse leucocytosis in the tissues underlying and adjacent to the devitalized parts in the floor of the wound, and *in these phenomena resides the intrinsic value of the method, since these processes are theoretically destructive of cancer cells not to be reached by the knife.*

From the year 1867 when Moore suggested the removal by the knife of the axillary lymphatics in operations for cancer of the breast, until the author devised his operation, no one within the profession so far as known has ever given serious thought or scientific effort to the use of caustic for this purpose. The removal, by the use of caustics, of enlarged axillary lymphatics is, however, an established fact, as will be demonstrated.

The disposal of the skin in the cutting operation has always been a problem for the surgeon because of the likelihood of scar recurrence, and it will be recalled that Gross frequently sacrificed the integument outright and allowed the operation wound to heal by granulation. The modernized chemical or caustic operation of the author invariable sacrifices the integument outright, and eventually covers the operated area with skin grafts.

This operation is claimed to be painless, thorough, and safe, in any condition or stage, and gives ideal functional results.

The theoretical value of the method lies in the fact that mechanical dissemination of the disease is rendered improbable. The practical value of the procedure lies in the safe, rapid, and thorough removal of hemorrhagic, necrotic, and generally septic masses, from the pressure and absorption of which these patients suffer. There seems to be no other equally adequate resource.

The operation is and will be increasingly popular with women, the majority of whom would choose this more attractive and safer way; which is also equally expeditious with the standard surgical procedures. With scarcely an exception in the class of cases thus far treated by the author not even a palliative knife operation would have been considered.

Regarding statistics of end results in surgery of the cancerous breast, it should not be necessary to insist on the fact that those obtained at the Mayo Clinic, Johns Hospital, etc., are not representative of the results of the men who must treat the majority of these cases. The old three-year cure criterion has ben abandoned because so many recurrences occur in the fourth and fifth years, and a distinguished operator, Dr. Bloodgood, has moved that the test interval be increased to eight years.

But few trustworthy five-year figures are available. Deaver, in his recent work on "Tumors of the Breast," quotes but four sets, including his own. The others are from the Mayo and Johns Hopkins Clinics and the Prague University Clinic. The five-year survivals in the latter were but 21 per cent. The figures at the Mayo Clinic are slightly less than 30 per cent. Deaver's figures are still better, as 34.6 per cent. were free from recurrence after five years. At Johns Hopkins Hospital (Halsted's Clinic) the percentage of five-year survivors has been slowly increasing from 27.27 to 34.48. Willy Meyer's figures are also slightly below 30 per cent. But many able and conscientious oper-

ators cannot show such figures, and Murphy placed the absolute survival as not over 10 per cent., *i.e.* nine out of ten women would eventually die of the disease if they lived long enough.

The unknown quantity in cancer of the breast is

FIG. 4.—Henville. Inoperable scirrhus cancer of the left breast.

metastasis. If not discovered until after operation it naturally injures the operator's statistics. Dr. Murphy's pessimistic attitude was probably due in part to the number of early bone and other metastases encountered by him. We really know very little about the laws of metastasis.

In conclusion I wish to report four cases treated at the New York Skin and Cancer Hospital.

CASE I.—Novak, Austrian, aged 64 years. Admitted to the New York Skin and Cancer Hospital December 4, 1917. Medullary cancer of left breast. First sign 2½ years ago. One year ago ulceration began with discharge of pus and blood. Ulceration extended rapidly, pain and foul discharge becoming more and more intolerable. Arm became swollen and motion limited.

Tumor size of man's fist in the left breast, with a craterous ulcer undermining the entire breast. Large mass of lymph nodes in axilla. *X*-ray shows metastatic lymph nodes in hyla of lungs. Operation December 5, 1917. Axilla uncovered in the general denudation to give access to axillary nodes. Breast and nodes removed and surface ready for grafting three weeks later when erysipelas broke out in the ward. Mrs. N. was the third victim, the disease attacking the axillary border and sweeping all over the body. She was sent to Bellevue Hospital. On her return several weeks later, the wound had mostly closed by cicatrization and the process was allowed to go on, the condition being unfavorable for grafting. The woman is quite well, cicatrization being almost completed, and her arm motion is gradually returning. On Bulkley diet.

CASE II.—Morey, widow, age 67, multipara, weight 185 lbs. Admitted to New York Skin and Cancer Hospital December 10, 1917. First noticed lump the size of a hazelnut in upper outer quadrant of the right breast just above the nipple. For three years it gradually increased to the size of a hen's egg. Four months ago the surface of the tumor began to ulcerate and to bleed easily upon slight exertion. The nipple had by this time begun to draw inward considerably and much uneasiness was felt in the breast, but nothing amounting to actual pain until recently. No loss of weight noted.

Both breasts are large. The left breast is perfectly normal, sloping gradually downward, as in elderly people, its greatest bulk resting over the twelfth rib.

The right breast is well rounded and protuberant, its nipple line being at least 2½ inches higher than that of its mate on the left, this being due to retraction of the entire gland to the chest wall. The surface of the breast is of an angry bluish red color, shading into the black of incrusted blood, over the ulcerated area. The nipple structures are deeply retracted, forming part of the tumor mass.

The breast is generally hard and brawny, yet soft at its periphery. In the upper part is a hard, irregular tumor the size of a hen's egg, which is firmly fixed to the skin and to the chest wall beneath. The skin over this tumor is ulcerated. The axillary glands are slightly enlarged and somewhat tender to pressure, no palpable nodes in either the supra or infra spaces.

Clinical diagnosis: Inoperable Scirrhus Carcinoma of the right breast. Radiograph of chest showed no metastases.

Operation December 11 at 4 P. M. One hour and fifteen minutes before operation an HMC Abbott No. 2 tablet was administered hypodermically. A second tablet was given an hour later and half of a third tablet at one hour and fifteen minutes. The process of denudation was immediately begun without sign of pain by the patient, by painting the condemned area with pure phenol. KOH was then used throughout the remainder of the process, which consisted in removing all the skin layers, nipple structures, and superficial fascia, leaving exposed the large fat lobules enclosing the several sections of the mammary gland. This proceeding occupied forty-five minutes, a gain of fifteen or twenty minutes over previous similar denudations, due to the use of C. P. phenol, which almost instantly destroyed the otherwise resistant cuticle. This process of denudation with KOH would cause most excruciating pain without narcosis, of course, and it is intensely gratifying to witness the perfect repose of a properly conducted twilight sleep; and not only this, but to note how restfully and peacefully the patient sleeps on for hours after the operation without the terrors of after ether and without the shock so trying to the vital organs. This patient slept all night, awoke refreshed

FIG. 5.—Henville. Present condition following chemical removal and skin grafting. Grafted surface level with chest.

and hungry the next morning, and remembered absolutely nothing of what she had passed through except the pinch of the first hypodermic the night before. Also throughout the zinc chloride treatment, or after it, the patient never complained of pain nor took any morphine or other anodyne. From this time on daily

applications of zinc cloride compound and daily removal of the devitalized plaque were continued until the sixth day when the pectoral muscle was reached. An application was made to this surface for 24 hours and this case left to nature to remove this last layer.

At the end of the second week, while the exfoliation

FIG. 6.—Schneider. Inoperable cancer of the breast. Perfectly well three years after the chemical operation.

of the terminal devitalized plaque was progressing most favorably, the patient developed erysipelas of the face from contact with an erysipelatous case discovered in and removed from the ward to Bellevue Hospital a week prior to her attack. Consequently this

FIG. 7.—Knowles. Kodak view of breast before the chemical operation. Inoperable scirrhus carcinoma. It is now one year and four months since the chemical operation and patient is well.

patient was also immediately sent to Bellevue, as infectious diseases are not allowed at the New York Skin and Cancer Hospital. The face became normal in about one week, but at the same time the disease appeared in the right knee and leg. The disease then swept over her back, where its violence was spent. She was returned to the Skin and Cancer Hospital with a great necrotic sloughing ulcer over the sacrum and two abscesses of the right leg; of these complications she finally died, the immediate cause being metastatic pulmonary thrombosis. At no time was the healing of the breast wound interfered with, the breast wound to the last remaining unaffected.

CASE III.—Hutter, German, aged 64 years. Admitted to the New York Skin and Cancer Hospital January 5, 1918. Two years ago she noticed a lump the size of a cherry in the right breast. At a later period other growths appeared, and the nipple became retracted.

The right breast was retracted to a high level. In the upper outer quadrant was an oblong indurated, nodular, irregular, adherent, ulcerated mass the size of a hen's egg. The axilla contained two sensitive nodes the size of almonds. Radiograph of chest was negative.

The chemical operation was begun January 8, 1918. In two and one-half weeks the breast was ready for skin grafting. Patient wishing to postpone this process, it was not done until two weeks later. Patient feels fine and is apparently perfectly well. Placed on Bulkley diet indefinitely as prophylactic. We show this patient fourteen weeks after the operation.

CASE IV.—J. H., aged 45 years, West Indian negress, single. Admitted to the New York Skin and Cancer Hospital March 19, 1918. Had always been well and hard-working. Some years ago she had received a blow on

FIG. 8.—Galloway. Right breast—Alveolar carcinoma. Left breast—Recurrent scirrhus.

the left breast. Tumor first noticed three years ago. Ulceration one year later.

Examination on admission showed the left breast retracted at a much higher level than the right and containing irregular, hard, insensitive tumor masses which were firmly adherent to the chest wall and superjacent skin. The upper outer quadrant was the seat of a chronic open ulcer, involving the entire nipple structures, which were all firmly adherent, fissured, and characteristically painful, with occasional bleeding. In the axilla were two or three hardly perceptible lymph nodes, slightly sensitive to pressure. An *x*-ray picture by Shank showed probable cancerous involvement of the first rib. Diagnosis (clinical): Scirrhus.

The chemical operation was completed in two weeks and the chest wall was clear. Sufficient time was allowed for the wound to cleanse itself, at the end of which period, one week, the operated area was covered with skin graft taken from the thigh of the corresponding side. All the grafts were successful. Axillary lymph nodes not now palpable Dismissed from hospital April 26, 1918.

We show this patient six weeks after the chemical operation was done and three weeks after the skin grafting. The grafts have all taken and healing is completed, but the surface is still somewhat rough and some of the silver leaf used in the dressings is still adherent. This patient is perfectly well.

And now, Mr. Chairman, I beg your further indulgence and that of the section, while I present four cases that have already been reported in a previous communication, but which I trust will prove of sufficient interest from the prognostic standpoint to warrant their intrusion at this particular time. I present these cases because of their absolutely inoperable condition at the time of admission to the hospital, and because of their wonderful survival and present generally healthy condition. Two of the cases were operated upon at the West Side Dispensary Hospital.

CASE V.—Schneider, German, aged 64 years. Admitted June 5, 1915. Examination showed a large indurated, irregular, adherent mass in right breast, the size of a man's fist, with retracted nipple and tense, shining, adherent skin. Large axillary and pectoral nodes. Pathological examination by Ewing showed adenocarcinoma. Operation June 5, 1915. Axilla exposed at the same time of breast denudation with KOH, under morphine hyoscine narcosis. In the course of the following week, while the breast was being removed, the axillary glands were also removed with KOH. Skin grafting followed and Mrs. Schneider made a rapid recovery. There is no evidence of a return and the patient works actively every day. It is now two years and eleven months since the operation. Axilla clear, arm motion perfect, and skin over site of wound freely movable, soft and white.

CASE VI.—Mrs. Knowles, U. S., aged 78 years, admitted to the West Side Dispensary Hospital January 25, 1917. Scirrhus of the left breast for four years. Had been pronounced inoperable two and one-half years before admission and again one year later. The patient had severe characteristic pains and hemorrhages. There was a growth in the upper outer quadrant of the left breast, the size and thickness of the palm of the hand. It was thick, irregular, firmly adherent to the chest wall, ulcerated, and fissured. There were two metastatic nodes, one the size of an English walnut and the other that of a medium pecan nut, one in the axilla. There were no palpable nodes about the clavicle. The operation was completed in two and one half weeks;

FIG. 9.—Memorial Case No. 2, Tricot. Inoperable medullary carcinoma operated by the chemical operation.

skin grafting not successful on account of unruly patient. Wound was allowed to cicatrize. It is now one year and three months since the operation was done and the patient reports herself perfectly well. On account of the difficulty of grafting and the healing in by cicatrization the resulting surface is more distorted, but none the less healthful, as will be seen upon examination.

The remaining two cases were treated at the Memorial Hospital, and also reported in the MEDICAL RECORD of date Aug. 12, 1916.

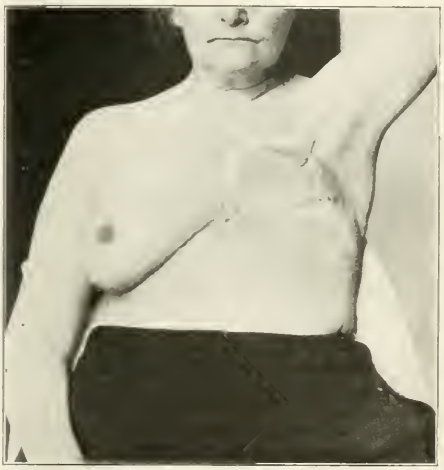

FIG. 10.—Tricot. Two years and eight months after the operation.

CASE VII.—Galloway, Irish, aged 57 years, multipara, admitted August 17, 1915. Bleeding, ulcerative, and suppurating mass, size of hen's egg, in the right breast, and several small recurrent scirrhus nodules in the left breast, following excision two years before. No axillary or enlarged clavicular glands. Pathological diagnosis (Ewing): Alveolar carcinoma; the *x*-ray shows metastasis in the chest (Holding). Operation August 17, 1915. Removed both breasts by chemical method and covered surfaces with skin grafts. Is now perfectly well and robust. We show this patient two years and seven months after the operation. The grafted skin is white, soft, freely movable, and pliable over both breasts. Arm motion is perfect. No axillary nodes to be felt, and *x*-ray picture of chest now shows no change when compared with that taken at the time of operation.

CASE VIII.—October 22, 1915. Mrs Tricot, Irish aged 47 years, multipara. Left breast an immense ulcerating, necrotic, sloughing, and bleeding new growth, with greatly enlarged axillary and supraclavicular nodes. Patient septic and in extremis. Pathological diagnosis by Ewing: Alveolar carcinoma. The *x*-ray showed metastasis in the chest (Holding). Chemical operation October 24, 1915. Axillary nodes cleaned out with KOH. Breast removed in four weeks. Skin graft done later. Convalescence slow. Now seems in robust health. Marched in Liberty Parade down Fifth Avenue one week ago. Breast, axilla, and mediostinum seem free from any sign of the disease.

17 EAST THIRTY-EIGHTH STREET.

Aspects of Life in Germany.—In Bavaria the medical men ask to be consulted in the fixation of rations. According to Professor Oppenheimer, the men of Munich average a loss of 15 per cent. of weight and the women 10 per cent. Contrasted with these figures, the country people lose only 2 to 4 per cent. of weight. While moral factors are in part to blame, there is insufficient carbohydrate, and Oppenheimer wishes more beets grown. Oil is now obtained from the seeds of the linden tree by extraction with benzine. The yield is 11 per cent. Oil is also extracted from the dried hop plant, which also furnishes albumin and aromatic vinegar. Neat's foot oil is restricted for use as torpedo oil, other uses being prohibited.—*La Presse Médicale.*

COMMON DEFORMITIES AND DISABILITIES OF THE FOOT.

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A LARGE number of the deformities and disabilities of the foot are usually the result of wearing poorly fitting foot wear. The shoes are not made to fit the feet, but the feet, in the vast majority of instances, are made to fit the shoes. The result of this mistake is soon evident. The toes become cramped and displaced, the anterior metatarsal arch becomes depressed, crops of corns and callosities appear, the various bursæ and tendon sheaths become inflamed, and finally as a result of weakening of the muscular and ligamentous support of the forepart of the foot, the longitudinal arch becomes relaxed. One rarely sees these conditions in the foot of the laborer. This is so because he wears a broad-toed, commonsense shoe. Women, on the other hand, suffer more often because of the very narrow and pointed shoes that they wear.

For practical purposes the foot can be divided into two parts, the back part, that part behind the mediotarsal joint, and the forepart, that part in front of the mediotarsal joint. The back part is formed by the astragalus and the os calcis and the forepart is formed by the three cuneiform, the cuboid, the scaphoid, and the metatarsus, and the phalanges. While standing the body weight is carried by the back part of the foot; this is more firmly fixed than the forepart. The forepart of the foot is more mobile and gives the spring to the foot in walking. Any abnormality in the structures of the forepart of the foot would result in an interference with the springiness of the foot and subsequent impairment in walking. The most common causes are defects found in the small muscles of the foot, the transverse or longitudinal arches, and the mobility of the toes. Tight, pointed, and narrow shoes weaken the small muscles of the foot, interfere with mobility of the toes, depress the anterior and longitudinal arches; this continued abnormal posture eventually produces disabilities of the foot.

As a base of support the foot is a tripod resting at the center of the heel behind and the heads of the first and fourth and fifth metatarsals in front. The sides forming this triangle are arched. The arches most commonly the seat of trouble are the inner or longitudinal and the anterior or metatarsal arches. The inner or longitudinal arch is high, the height varies in different individuals. It is very susceptible to strain and is often the cause of weak feet. The anterior border of this triangle forms the transverse or metatarsal arch of the foot. Should any of the mechanical elements of the foot be deranged disabilities usually result. The resulting disabilities depend upon the strain about the various joints in the forepart of the foot. The ones that are common are hallux valgus, hallux rigidus, hammer toes, metatarsalgia, and weak feet.

In the hindpart of the foot, the disabilities met with are those resulting from pathological conditions in the bursæ, tendon sheaths, or periosteum. Among the common ailments are tenosynovitis of the Achilles tendon sheath, periostitis of the os calcis, bursitis in the bursæ beneath the tendo Achilles, and spurs on the os calcis.

Hallux valgus is a deformity of the first metatarsophalangeal joint characterized by an outward deflection of the big toe, with, in many instances, an enlargement of the bursal sac forming a bunion. The degree of deflection varies; in some instances it is very mild and is often overlooked; in other instances it is so marked that the big toe lies over or under the second toe.

Hallux valgus results, in the majority of instances, from poorly fitting shoes. In the normal foot the toes are straight, lie flat, and are capable of plantar flexion at the metatarsophalangeal joints. The inner side of the heel, the inner side of the first metatarsophalangeal articulation, and the inner side of the distal end of the great toe lie in a straight line so that in a normal foot a ruler applied to the first two points should come into contact with the inner side of the great toe at its distal end. The conventional shoe is not made to allow this relationship to exist. The inner border of the conventional shoe is not straight as it should be were it made to fit the normal foot properly. It is straight up to a point just behind the metatarsophalangeal joint of the big toe, beyond which it converges abruptly to meet the outer border of the shoe. A normal foot pressed into a shoe of this type will soon assume the same shape as the shoe, with a consequent outward deflection of the first metatarsophalangeal joint of the big toe and an inward deflection of the little toe.

The head of the metatarsal and the base of the proximal phalanx form an angulation, the degree of which varies. In a number of cases the angulation is slight; in others, especially in extreme types, the angular prominence is very marked. The skin overlying the prominence is not affected in the early cases; in the later and more deformed cases the skin becomes inflamed and in some instances the seat of an infection. As a result of the constant irritation and friction by the shoe, a bursa enlarges over the inner part of the capsule of the joint, forming a bunion. Occasionally this bursa communicates with the joint cavity. This bursa or bunion is often the seat of inflammation and in some instances of infection.

The symptomatology is the result of any of the following, either individually or in combination: (*a*) Bursitis, inflammation of the bursa or bunion. (*b*) Traumatic arthritis of the metatarsophalangeal joint of the big toe. (*c*) Tenderness, localized to the area supplied by the digital nerves and resulting from pressure upon these nerves.

The severity of the pain present depends upon the severity of any of the aforementioned processes. Where these are well-marked total disability may result.

In bursitis there are redness, local heat, swelling, and marked tenderness. Occasionally infection occurs and results in a septic bursitis, which may spread to the joint; in such instances the result is a septic arthritis.

Arthritis of the metatarsophalangeal joint manifests itself in pain whenever the joint is moved. The gentlest passive rotation of the toe gives rise to excruciating pain.

Prophylaxis.—Hallux valgus is a preventable de-

formity. People should be educated to wear anatomically correct shoes. They should be impressed with the dangers that may arise from forcing their feet into shoes that are too narrow for them. The writer has observed by actual measurements that

FIG. 1.—Rigid weak foot, right, of gonorrheal origin.

the average foot is one inch wider than the shoe worn by the individual; these shoes are not only too narrow but are one to two sizes too long. These are the reasons that new conventional shoes have to be worn for a while before they are comfortable. During this "breaking-in" period the foot is being forced to assume the shape of the shoe with subsequent cramping and displacement of the toes. Shoes which are anatomically correct are comfortable from the very beginning. They do not require "breaking in," the term commonly used by the patients. A good shoe should have a straight inner border and plenty of toe room so as to allow free action of the small muscles of the forepart of the foot; cramping and displacement of the toes are in this way avoided.

Treatment.—In mild cases, a proper shoe will prevent further deformity. Exercises of the toes may be helpful. In some instances, felt wedges placed between the first and the second toes have proven of some value.

When inflammation is present, the application of ichthyol ointment for a number of days will usually overcome it. During this stage it is well to pad the inflamed area with a piece of felt having a hole in it large enough to surround the bunion. This will protect the sore spot from further irritation of the shoe.

Strapping the toe in such a manner as to straighten it has proven of value in mild cases. A strip of adhesive plaster about one-half an inch wide is placed about the distal end of the toe so that it encircles it about two-thirds of the way, and is carried along the inner border to the dorsum of the foot where it is fastened to the foot by narrower strips of plaster. A second plaster strip can be employed in the same manner so as to reinforce the first one.

In well-marked cases operative interference is indicated. The operation should not be performed while there is any inflammation of the bursa or of the surrounding tissues. It should aim not only to correct the deviation but also to secure free dorsiflexion of the great toe, otherwise the patient will be left with all the disability of hallux rigidus.

In early cases in which there is deformity, but not considerable enlargement, of the head of the metatarsal bone, osteotomy of the head should be performed. In the later stages, where there is marked rotation of the head of the first metatarsal bone, resection of the head preserving the lower or weight-bearing portion should be the operation of choice.

The after care of this condition is important. The splint recommended by Jones is very efficient. It is made of very thin metal. The hole in the splint fits over the inner side of the head of the bone and prevents pressure from occurring at this prominent point. The base of the splint is strapped or bandaged to the inner side of the foot. The toe is then drawn inward and secured to the narrow end of the splint, care being taken that the alignment is correct. Three weeks after the operation the patient may walk, provided he wears a proper shoe. A special bunion shoe, having no seams on the inner side of the last, and made of very soft leather, is best. A metatarsal lift, and a lift of a quarter of an inch on the inner side of the soles and heels, should be inserted. The inner border of the shoe must be straight so as to allow the toe to assume a normal position; abnormal pressure of the shoe on this point tends to reproduce a valgus deformity. The operative area is too tender to permit wearing a shoe until two or three weeks have elapsed. During this time it is best to have the patient reclining, because proper shoes are necessary for obtaining a successful issue.

FIG. 2.—Same case as shown in Fig. 1; the mediotarsal joint in the right foot is ankylosed.

When the wound has healed and the tenderness has subsided the patient, with proper shoes, may then be permitted to walk.

Hammer Toe.—Hammer toe is a deformity of the toe—usually the second, occasionally several—

Fig. 3.—Spastic weak foot; note the eversion of the heels and heel cords.

characterized by flexion of the proximal interphalangeal joint and dorsiflexion of the metatarsophalangeal joint. The prominent knuckle is formed by the interphalangeal joint, and usually is the site of painful corns, the result of friction from the shoe. Corns also develop on the distal end of the last phalanx, the result of friction between the toe and the sole of the shoe.

Hammer toe may be a congenital deformity. These cases are in the minority. The common cause is poorly fitting and tight shoes. Hence it is often associated with hallux valgus and metatarsalgia.

As a rule, the patient seeks relief of the pain resulting from the corns. Occasionally he will seek relief for cosmetic purposes. Total disability is not rare.

Treatment.—The treatment is distinctly operative. The operation of choice, and the one which gives the quickest relief, is one in which a wedge-shaped piece of the interphalangeal joint is removed. A transverse skin incision over the interphalangeal joint is made, and after an oval piece of the skin, including the corn, is removed, a wedge, base upward, including the articular cartilage on both sides of the joint, is removed. Tenotomy of the flexor tendon is then performed. The toe is straightened and the skin is stitched. The toe is fixed to a splint by means of adhesive plaster. The patient is then permitted to get about, wearing the splint in the shoe. The splint is retained for three weeks, when it can be discarded.

Metatarsalgia is a painful disability of the foot due to a flattening of the anterior arch. Pain is characteristic, and is usually localized in the fourth metatarsophalangeal joint, occasionally in the third, and infrequently in the second.

Pain, localized in the fourth metatarsophalangeal joint, and usually of a stabbing or burning character, is the common complaint. When there is a callus on the sole of the foot, pain and a burning sensation are referred to that area. Disability as a result of the deformity is not uncommon.

Tenderness elicited by pressing the offending joint between the finger and the thumb, flattening of the anterior arch, and corns on the sole of the foot, are the characteristic objective symptoms.

Prophylaxis. As this condition is commonly the result of wearing poor shoes, proper shoes, prescribed early, will usually eliminate future metatarsalgia. When there is a tendency to a flattening of the anterior arch, a metatarsal lift of a quarter of an inch should be built in the sole of the shoe. By means of this lift the heads of the metatarsal bones are retained in their proper position.

Exercises properly and conscientiously performed will strengthen the small muscles of the fore part of the foot, and in that way protect it from a metatarsal flattening. The exercises which have proved efficient are: first, grasping motions of the toes, *i.e.* flexion, extension, and spreading of the toes; secondly, lifting objects, such as small marbles, from the floor with the toes; and thirdly, tip-toe exercises.

Treatment.—In mild cases, the treatment outlined above usually gives relief. Occasionally we must resort to pads, in addition. The pads are made of felt, and are applied so that the heads of the affected metatarsal bones are supported in their proper position. They are applied as follows: An oblong piece of felt about a half inch wide and two inches long is placed on the sole of the foot, over the heads or immediately in front of the heads of the metatarsal bones, and retained there by narrow strips of adhesive plaster so placed that they encircle the foot. This pad should be changed twice a week, and continued until relief from the pain has been obtained.

In severer cases, especially where the relief obtained by means of the above measures is partial, a metal support will become necessary. The support which has proved very efficient is the Whitman

Fig. 4.—Same case as shown in Fig. 3.

combination brace. This brace is made upon a model of the foot, made of plaster of Paris. The method of obtaining the plaster cast of the foot is as follows: A towel upon which talcum powder has been dusted is placed upon the floor; the foot

of the patient is well powdered; plaster cream is now prepared and placed upon the towel. The patient then places one foot into the plaster cream, and holds it there while the surgeon molds the cream about the foot. The molded plaster is permitted to set, when the foot is removed. The mold is then well powdered, and filled with plaster cream. When this plaster cream has set the mold is removed, and the cast of the sole of the foot remains. The cast is then properly carved and marked and sent to the brace maker. The metal support is usually constructed of light steel. The anterior extremity of the brace is made nearly as wide as the foot, and extends forward slightly beyond the metatarsophalangeal articulations. The brace also supports the longitudinal arch.

More drastic measures are required in a number of cases, in which, in spite of the above measures, relief cannot be obtained. Operative interference then becomes necessary. Removal of the heads of the offending metatarsals, osteotomy of the second, third, and fourth metatarsals, with correction of the deformity, have been recommended. This should only be done after failure to obtain relief from continued conservative measures.

Fig. 5.—Pes cavus on the right side, weak foot on the left; note the hammer toe (fifth) on the right foot.

Weak Foot.—This condition is a very common one. It has been erroneously called flat foot. There are variations in the types of weak feet, beginning with a slight strain of the ligaments and tendons and terminating with a complete descent of the arch, with osseous deformity. The common picture in the deformity is the abduction and eversion of the fore part of the foot. In early acute cases there usually is tenderness in the region of the inferior calcaneoscaphoid ligament just below the tubercle of the scaphoid, resulting from a strain of this ligament. In these cases, flattening of the arch is never present. It is common in people with high arches. As the strain continues, other ligaments and muscles become stretched, and the tarsus descends, finally terminating in a pes planus. During these stages the pain may be referred to the dorsum of the foot and outer side of the os calcis just below the tip of the external malleolus.

Weak foot is very commonly found in childhood and adolescence. It occurs more often in women than in men. The onset may be acute or gradual, extending over a long period of time. The acute cases may be the result of an inflammatory process, viz., gonorrhea, rheumatism; an injury such as a Potts fracture, or fracture of the tarsus, or the injury caused by a wagon wheel passing over the foot. Most of the cases, however, are of the chronic type. These occur in weakly individuals, and may follow a prolonged attack of an infectious disease, such as grippe, typhoid fever, diphtheria, or pneumonia. Overstrain from prolonged standing or walking will often produce weak feet. Occupation, such as that of policemen, waiters, salespeople, letter carriers, or barkeepers. Finally, obesity and pregnancy associated with overweight may be predisposing factors. The large majority of cases of weak feet are the result of poor footwear. Narrow, pointed shoes with high heels tend to disturb the normal balance, cramp the feet, interfere with the normal action of the muscles and ligaments, and pave the way for weak feet. Any factor which leads to the eversion of the feet throws the body weight on the inner border of the feet and favors the production of weak feet.

For practical purposes, weak feet can be divided into four types, viz.: first, second, and third degree, and rigid weak feet. The early and moderately advanced cases of types 1 and 2 usually show eversion of the heels and heel cords and abduction of the fore part of the foot, with a lowering of the arch as a whole. In the advanced or third type the head of the astragalus becomes partially dislocated inward and downward from the scaphoid, and at times articulates with the latter only at the extreme outer part of the head; in consequence, the cartilage disappears from the portion of the bone that is thus exposed, and the head forms a marked prominence beneath the skin on the inner border of the foot. The arch of the foot gradually diminishes until finally the sole is applied flat to the ground. In well-marked cases the anterior border of the foot becomes abducted, and in very severe cases the inner border of the foot may be convex and the outer concave, so that the patient walks more on the inner side of the foot than on the outer. In very severe cases the peronei tendons may be dislocated from their groove and lie upon or anterior to the external malleolus. In cases of long standing, marked changes also occur in the bones; the uncovered portion of the head of the astragalus becomes enlarged, so that it cannot be replaced in position. Sometimes actual bony ankylosis may take place. There may be effusion in the sheaths behind the tendons and in the tarsal joints.

The symptoms of weak feet rarely depend upon the amount of deformity present; patients with a slight eversion of the heels and heel cords may suffer severely, while on the other hand those with a severe pes planus may suffer very little.

Subjective Symptoms.—(*a*) Pain, present in the majority of cases, usually varies from a severe, cramplike shooting pain to a dull ache. In a number of cases the pain is referred to the back, hip, thighs and calves; it may be unilateral or bilateral; some cases, where both feet are weak, patients may complain of unilateral pain. This symptom is usually more marked late in the day, after the patient has been on his feet; it disappears at rest, and reappears when walking or standing again. At times one sees cases where the pain is usually local-

ized to the outer side of the ankle; this can be accounted for by the pressure of the os calcis against the external malleolus, which occurs from the repeated eversion of the foot, resulting in a localized periostitis.

(*b*) Another symptom which occurs quite frequently is weakness, with discomfort and a tired sensation, present after prolonged standing or walking, usually the result of muscle strain.

(*c*) Many patients complain of numbness and coldness in the feet. This can be accounted for by the impairment of the circulation, which is commonly associated with weak feet.

(*d*) Limp or staggering gait, or stiffness of the knees, especially noticed after sitting, or on rising in the morning, is an occasional complaint.

(*e*) As a result of these symptoms there may be mental depression and nervous manifestations.

Objective Symptoms.—(*a*) The most constant, one can almost say the diagnostic sign of weak foot, is eversion of the heels and heel cords. This varies from a very slight to a very marked degree. The only cases which fail to show this sign are those so-called foot strains. These can practically be disregarded, as they are of infrequent occurrence. To determine the amount of eversion present the patient should stand with his back to the surgeon, who detects the deviation of the heels and heel cords away from the midline of the body. Another method is to recognize the degree of displacement of the anterior tibial line to the inside of its normal position.

(*b*) Some cases are accompanied by a swelling at the outer side of the ankle, in the region of the external malleolus. This is especially evident in fleshy individuals.

(*c*) Muscular spasm or rigidity is very common in the advanced cases. The spasm is the result of shortened and contracted muscles on the outer and upper surface of the feet, due to the persistent attitude of valgus.

(*d*) Limitation of the range of motion is one of the earliest signs of weak feet. The range of motion varies normally, being greater in childhood than in adults, greater in the slender than in the fleshy foot, and greater in the foot used properly than in the one that is not. Normally, the foot can be flexed from 10° to 20° less than the right angle, and can be extended from 40° to 50° beyond the right angle, the range of motion being from 50° to 60°. Passively, the range of dorsiflexion is about 5° to 10° beyond that of active flexion; extension is about the same as active extension; adduction is considerably beyond that of active adduction. Feet which cannot be moved within these limits are said to have limitation of their range of motion. The limitation is caused by the changes in the structure in accommodation to functional use. These changes are at first evident in the muscles and ligaments and later in the articular surfaces of the bone.

In considering the therapy of weak feet we usually group the cases into acute and chronic.

Treatment of Acute Cases.—(1) We attempt to arrest the inflammatory condition which is the primary cause of the affection. In the gonorrheal cases, treatment of the urethra should be instituted. This usually consists of local irrigations and vaccine therapy. One must always bear in mind the great tendency to the occurrence of ankylosis after gonorrheal arthritis, hence immobilization should be employed with caution and for short periods only. Massage and passive movements should be instituted as soon as the inflammatory process subsides. Adhesions in and about the tarsal joints must be broken down as a preliminary measure.

In articular rheumatism a thorough course in salicylates should be administered. Locally, hot fomentations usually offer relief.

In traumatic weak feet, proper correction of the deformity and retention with the feet in marked varus will usually overcome any subsequent valgus deformity.

(2) Rest in bed, with the knee bent and the leg resting upon the outer side, are absolutely essential for the comfort of these patients. Standing and weight bearing should be absolutely prohibited.

As soon as the pain subsides the patient, with proper supports, can leave his bed. The subsequent treatment of these cases is similar to that employed in the early cases of the chronic type.

Treatment of Chronic Cases.—In these patients the onset is gradual, and the symptoms usually are present for a long time. We observe four types of these cases, first, second, third degrees, and the rigid type.

1. The first, second, and third degrees may either be non-spastic or spastic. In the former, passive motion is painless, and free to the normal limit. The treatment of these patients consists of exercises which tend to improve the muscle strength. The following exercises have proved very efficient:

(*a*) Tiptoe exercise: The patient places the limbs in the attitude of moderate inward rotation, raises the body on the toes to the extreme limit, the limbs being fully extended at the knees, then sinks slowly, resting the weight on the outer borders of the feet in marked varus. This should be repeated about twenty or thirty times.

(*b*) Knees extended, the lower extremities should be alternately rotated inward and outward. In this exercise the knees should be held rigid, all the movement occurring at the hips. The object is to strengthen the internal rotators of the hips.

(*c*) Bicycling is an excellent exercise, and should be highly recommended for weak feet.

These exercises should be practised twice daily, and should not be carried to the extent of tiring the patient.

Proper Footwear. To obtain a successful issue in these conditions great stress should be made upon the selection of proper orthopedic footwear. Proper shoes relieve the strain and allow free muscle action. A good shoe should have a broad sole, square low heel, a rounded toe, a straight last, and a lift of a quarter or an eighth of an inch on the inner side of the soles and the heels.

As a rule, this treatment is all that is required in this group of cases. Where the patient is unable to prevent deformity voluntarily a support is necessary to hold the foot in proper position and to relieve the discomfort. In selecting a support for weak feet one should remember the nature of the deformity; that is, acquired weak foot is not a direct breaking down of the arch, but a lateral deviation and sinking. Thus a support, to be efficient,

must hold the foot laterally as well as support the arch. The support which has proved to be very efficient is the Whitman brace. This brace should never be applied to a deformed foot or a foot which is rigid, because the foot cannot adapt itself to the support; spasm and rigidity should first be relieved.

The brace is modeled upon a plaster cast of the foot taken while the foot is held in the fully corrected position. It fits the arch of the foot accurately, extending forward almost to the balls of the toes, outward around the outer border of the foot, and backward to just in front of the tuberosity of the os calcis. On the inner side it is enlarged upward, and extends well on the inner side of the foot. With a properly made support the weight of the foot is not borne upon the apparatus until the arch begins to sink; the foot rests on its normal bases of support, namely, the under surfaces of the heads of the metatarsal bones and the tuberosities of the os calcis. The braces should be accurately fitted and each should be especially made for the individual who has to wear it.

We have at our disposal two methods of taking the cast of the foot. One is taken as follows: The patient is seated in a chair; in front of him is placed another one, somewhat less in height, on which is placed a thick pad of cotton batting or a pillow. This batting or pillow is covered with a towel on which talcum powder has been sprinkled, and the foot of the patient is also dusted with talcum powder. A quart of cold water is then placed in a basin, and plaster of Paris is sprinkled on its surface until it does not sink to the bottom; then it is stirred. When the mixture is of the consistency of very thick cream it is poured upon the towel. The patient's knee is then flexed and the outer side of the foot is allowed to sink into the plaster, the borders of the towel being raised, while the plaster is pressed against the foot until more than half is covered. The foot should be at a right angle to the leg, corresponding to its usual position in the shoe; that is, slightly plantar flexed, and the sole should be in the plane perpendicular to the seat of the chair. As soon as the plaster is hard the upper surface is sprinkled with talcum powder and the remainder of the foot is covered with plaster. The two halves are then removed, dusted with powder, bound together and filled with plaster cream. A little later the outer shell may be removed, and one has a reproduction of the foot. If properly made, this reproduction should stand upright without inclination to one side or the other. If the outer border of the cast is flattened by pressure a little plaster should be added to approximate the normal rounded contour of the foot.

The second method is as follows: The patient sits upon a chair, with his foot upon a second chair of the same height. On this chair is placed a small cushion, with a towel on which talcum powder has been sprinkled. Plaster of Paris is then mixed with water to form a thick cream; a piece of gauze is steeped in the plaster cream and laid upon the towel, underneath the foot, so that the outer border of the sole rests upon it along a line about an inch from the edge. The foot rests on its outer border, and is held at right angles to the leg. The gauze is then wrapped around the foot, covering in the heel behind and extending as far forward as the cleft between the toes; it should reach up just above the internal malleolus, but should not overlap the dorsal surface to any extent. This covering is allowed to set, and when the plaster is hard there is no difficulty in removing the foot from it. A fresh plaster cream is now made, the mold is well powdered, and the plaster cream is poured in it and arranged so that it fills the mold but does not project beyond it in any direction. When the plaster has set, the sides of the mold are forced out and the cast is removed, and marked for the instrument maker.

The brace is made of thin steel or aluminum alloy, and should extend forward to the line of the metatarsophalangeal joint of the great toe and backward to the center of the heel; on the inner side of the foot it extends upward to one-half inch below the internal malleolus, and on the outer side it grasps the foot behind the prominence formed by the fifth metatarsal bone. It should be made to fit the cast accurately, except over the heel, where it should be slightly flattened so as to make it steadier.

A poorly fitting apparatus extends either too far forward or too far backward, and causes much pain, so that the patient is unable to wear it; where it fits properly, however, the patient soon becomes accustomed to it and cannot do without it. It should be worn for short periods at first, the length of time being gradually increased as tolerance is established.

The length of time the support is necessary varies with the condition of the patient and the strain to which the feet are subjected. The brace should be corrected from time to time so as to conform with the changes taking place under its use.

An erroneous idea prevails that wearing of the braces results in an atrophy of the muscles of the foot in consequence of the prolonged pressure. We have failed to find this atrophy in patients that have been under our observation.

Where there is muscular spasm or slight rigidity, where passive motion is painful, and not free to the normal limit, the employment of (1) stretching, either manually or by means of machinery, and (2) strapping usually offers a good deal of relief, and assists in overcoming the spasticity. Stretching should be practised gradually and not too vigorously at first.

Strapping is of special service where the symptoms are acute. The following method has proved to be very efficient: One end of a strip of adhesive plaster about twelve inches long and two inches wide is applied to the outer side of the ankle, just below the external malleolus; the foot is then adducted as far as possible and the plaster is drawn tightly beneath the sole up the inner side of the arch and the leg; it is retained in this position by one or two plaster strips about the calf. Narrow strips are then applied about the arch and ankle in a figure-of-eight manner. Strapping should be done twice a week and continued until the spasm and slight rigidity have been overcome. When this has been accomplished the brace and proper shoes should be recommended.

Treatment of Rigid Weak Foot.—Where there is marked rigidity and deformity, forcible overcorrection under anesthesia is the best method of treatment at our disposal. In this type of weak

foot the foot is held rigidly in the deformed position by muscular spasm and by secondary changes in its structure. The deformity is usually one in which there is a dislocation of the astragalus downward and inward into a position of valgus, the remainder of the foot being turned outward.

The patient should be placed under an anesthetic; the foot is then manipulated in all directions so as to break down any adhesions that may be present. The inner side of the foot should be fixed, and the abduction of the front half of the foot forcibly corrected. This often calls for exercise of considerable force. After this has been done the foot should be put up in plaster of Paris bandages, with the deformity overcorrected. It is well to renew the plaster of Paris bandages every ten days, as they are apt to become loose. In these intervals massage and passive movements in all directions should be practised. The plaster bandages should be retained for about four weeks, when they are to be removed and measurements for a pair of braces taken. The bandages should be reapplied until the braces are ready, when they can be dispensed with. Systematic manipulation should then follow until passive motion is free and painless. This is usually accomplished within a month.

When the parts cannot be brought into position by forcible manipulation, when the bony deformity is extreme, and pain and disability severe, some form of operative procedure becomes necessary. The common operations performed are:

(*a*) Excision of the head of the astragalus. This has proved satisfactory in some cases.

(*b*) The production of bony ankylosis between the scaphoid and the astragalus improves the condition of some patients.

(*c*) The removal of a wedge-shaped portion of the tarsus, the base of the wedge being on the inner side of the foot and the apex at the outer, has proved useful in some cases.

(*d*) Achillotomy, followed by proper after measures, has been done in those cases in which the tendo Achillis was found to be contracted.

Painful Conditions about the Heel.—The common conditions about the heels are tenosynovitis of the various muscles, bursitis, periostitis, and ostetis of the os calcis, the result of injury or inflammation.

Tenosynovitis.—The tendo Achillis is commonly involved, although not infrequently tenosynovitis of the tibialis anticus and posticus is encountered. Pain is marked, and localized in the back of the heel in the former and in the inner side and behind in the latter. The pain is relieved by rest and aggravated by exercise and walking. Swelling due to the effusion in the tendon sheath is both visible and palpable.

The treatment of this condition is primarily rest. Firm bandaging by means of flannel bandages or adhesive plaster, with recumbency during the acute stage, usually suffice in alleviating the pain. After the acute stage has subsided the patient may be permitted to walk, provided the heel of the shoe on the affected side is raised about one-half an inch; this relaxes the tendon and diminishes the strain on it.

Bursitis.—The bursa commonly involved is the one located under the insertion of the tendo Achillis into the os calcis. The pain and swelling are localized to the area of the bursa. The treatment does not differ materially from that of tenosynovitis, hence repetition is unnecessary.

Spurs on the Under Surface of the Os Calcis.—Normally, in *x*-ray pictures, spurs of bone may be seen on the under surface of the os calcis running forward into the plantar fascia or small muscles of the sole. In the majority of individuals they produce no symptoms. Occasionally, especially when injured, a periostitis or adventitious bursitis may result. In consequence of this a painful heel develops, especially evident when walking is attempted.

The treatment at first consists of protecting the heel with a felt heel pad having a hole cut out in the center. When this does not suffice operative interference becomes necessary. The incision should be along the side of the foot and the spur, the tissue around it, and any inflamed periosteum should be gouged away.

Summary and Conclusions.—1. Poorly fitting, conventional shoes produce the majority of acquired foot deformities.

2. Preventive measures will in a large number of instances obviate permanent crippling and suffering. Good orthopedic shoes will usually accomplish this.

3. Early recognition of hallux valgus, metatarsalgia, and weak foot will often shorten the period of treatment and simplify the method used.

4. Conservative measures should at first be instituted before adopting the radical operative measures.

5. Were the medical profession at large to pay more attention to these chronic foot ailments and disabilities, fewer patients would be forced to seek advice from chiropodists and others for conditions which require medical attention.

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THE RESULTS OF THE SCHICK TEST FOR DIPHTHERIA SUSCEPTIBILITY ON FIVE HUNDRED SELECTED CASES.*

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This test has come into prominence again quite recently, on account of epidemics of diphtheria among soldiers at the various cantonments in the

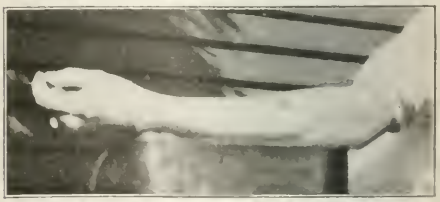

Fig. 1.—A pseudo reaction after 12 hours which disappeared at end of 36 hours in a patient that had received 30,000 units of antitoxin within the week preceding the test

United States, and as those which I made a year ago were on individuals both normal and with in-

*Presented before Los Angeles County Medical Society May 16, 1918.

fectious diseases, I am taking this opportunity to report my findings.

It might be well at the outset to mention the technique of this test as applied at the present time. The diphtheria toxin is used by injecting

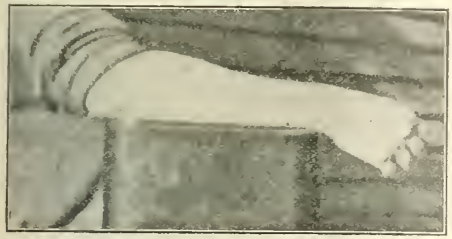

Fig. 2.—No reaction after 24 hours, which became positive after 72 hours, as illustrated in Fig. 3.

intradermically, the dose being one-fiftieth of a minimal lethal dose. For the control the other arm should be used with 50 per cent. more of the diphtheria toxin, which has been heated to 75 deg. in order to kill the thermolabile qualities of the substance. This toxin can be secured from any of the reliable biological chemistry firms.

We will consider the cases for the test under four headings: (1) Those cases which have never had diphtheria, nor have taken prophylactic doses of diphtheria antitoxin. (2) Those cases that have had diphtheria or those which have had immunizing doses of the antitoxin, three or more years previous. (3) Those cases which present symptoms of the disease at the time of the test, or having taken 1000 to 30,000 units of antitoxin within two weeks of the test. (4) Those cases over the age of 21 years which have not had immunizing doses of the antitoxin, and are more or less in danger from exposure.

1. Taking up the cases which have never had treatment or the disease, we shall find that a large percentage will give a positive reaction and very likely at the end of twelve to twenty-four hours. This reaction appears as a reddish area varying in size from a split pea to a dime, or even becomes the size of the palm of the hand within the next forty-eight hours; at the end of seventy-two hours after the injection, the reaction begins to subside,

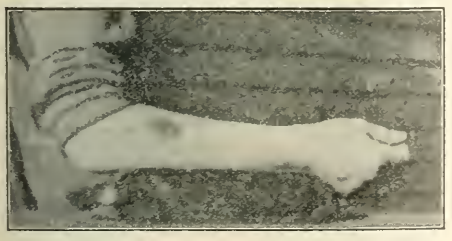

Fig. 3.—Positive reaction after 72 hours.

and, as a rule, the redness will have disappeared at the end of the tenth day, leaving a brown or dark gray color at the site of injection. The control arm of these individuals will frequently show a pseudoreaction. By a pseudoreaction I mean one which appears at the end of twelve hours as a small red area surrounded by a white halo and this incased in a pale pink band. This reaction will quickly disappear and will be entirely gone at the end of thirty-six hours. This must be taken into consideration on reading the test, as individuals who are not susceptible to the disease will frequently show this reaction on both arms. Thus the reason for using both and destroying the thermolabile substance for the control arm.

Table I—Results in 91 Persons Under 21 Years of Age, Not Having Had Diphtheria Nor any Antitoxin.

Age.	Cases.	Pos.	Neg.	Pseudo-Reaction	Per Cent. Pos
Under 6 mo.	3	2	1		$66\frac{2}{3}$
6 mos.-1 yr., inc.	6	5	1		$83\frac{1}{3}$
1 yr.-2 yr., inc.	6	3 *2 †1	3		50
2 yr.-4 yr., inc.	3	2 †1	1	..	$66\frac{2}{3}$
4 yr.-6 yr., inc.	6	4 †1	2	..	$66\frac{2}{3}$
6 yr.-8 yr., inc.	10	4 *1 †1	6 *1	..	40
8 yr.-12 yr., inc	13	4 *1 †1	9 *1	..	30
12 yr.-21 yr., inc	47	12	33 *5	2	26
Total.	94	36 4 5	56 7	2	..

*Eleven cases having scarlet fever at the time the test was applied.
†Five cases all in the same family.

2. The second class of cases includes those which have had the disease, or have had immunizing doses of antitoxin three or more years previously. In this class one quite frequently obtains a reaction on the

Fig. 4.—Positive reaction evidenced at end of 24 hours.

test arm and a pseudoreaction on the control arm. If the individual has within his tissues an immune substance to diphtheria, having been developed during his infection, then both the test and the control will rapidly disappear, and quite frequently show the pseudoreaction that we very often get on the control arm of individuals susceptible to the disease.

The question as to how long an immunity will last in an individual can thus be ascertained, and will vary from two weeks to a lifetime.

Table II—Test Applied to 11 Individuals Having Had Diphtheria or Antitoxin Three or More Years Previous.

Age.	Cases.	Pos.	Neg.	Pseudo-Reactioo	Per Cent. Pos.
8-12 yrs., incl.	2	1*	1	.	50
12-21 yrs., inc.	9	4	4	1	$44\frac{2}{5}$
Total.	11	5	5	1	..

*One case scarlet fever at the time the test was applied.

3. Those cases having the disease or having had antitoxin within two weeks of the test. Under this division we have the means of ascertaining whether our dose of antitoxin has been great enough to produce antibodies in sufficient quantities to overcome the infection or to prevent the disease.

This division will give us the index for those individuals who carry the Klebs-Loeffler bacilli in their throat, but present no symptoms and clear up with local treatment, thus showing that they are immune to the disease and it will not be necessary

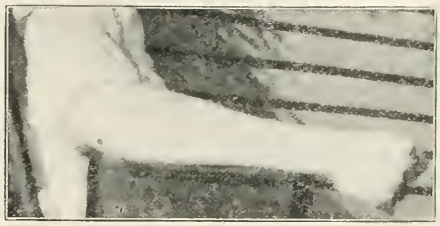

Fig. 5.—Positive after 72 hours.

to administer an antitoxin. And, by applying this test, the problem will be solved why one patient recovers without antitoxin while the next, apparently an exact counterpart, dies in spite of the use of antitoxin.

Table III—28 Individuals Having the Disease or Having Taken Antitoxin Within Two Weeks of the Test; the Amount of Antitoxin Varying from 1,000 to 30,000 Units.

Age.	Cases.	Pos.	Neg.	Pseudo-Reaction	Per Cent Pos.
2-4 yrs., inc....	4		4	..	...
4-8 yrs., inc.....	1		1	..	.
8-12 yrs., inc....	17	1*	15	1	5
12-21 yrs., inc....	6	1**	5	.	$16\frac{2}{3}$
Total.....	28	2	25	1	..

*One case scarlet fever.
**Diphtheria 7 months ago.

4. This class of individuals embraces those who are subject to exposure to diphtheria, such as doctors, nurses, and fellow associates.

This fourth division is probably the most valuable from an economic standpoint, as has been shown by Dr. Abraham Zingler of the M.R.C., who has tested out over 2500 men in the National Army with the result of an average of about 18 per cent. positives. His observations would prove that it is unnecessary to give prophylactic doses to all members of a cantonment in case of a diphtheria epidemic, thus saving the government many thousand

Fig. 6.—The greatest reaction 1 obtained, after 96 hours. Blebs present.

dollars for antitoxin, as well as avoiding much needless pain and annoyance to patients, and the possibility of anaphylactic shock is greatly minimized.

Dr. A. J. M. Treacy of Philadelphia gives the following points for every physician to bear in mind about anaphylaxis: (1) Individuals without any reason to suspect it, may have a hypersensitiveness to antitoxin. (2) Anaphylaxis may appear after an amount of antitoxin given either for immunization or curative effect. (3) It is very likely to happen when a person is given an immunizing dose, then later develops diphtheria and is given more antitoxing. (4) Persons who are of asthmatic tendency or in whom other pulmonary conditions exist, are prone to develop anaphylaxis. (5) All persons who are associated with cattle or horses, as stablemen, farmers, etc., are very liable to show anaphylaxis.

As the tables in this article will indicate, the persons most susceptible to diphtheria and who, therefore, will give a positive Schick reaction, are those between the ages of one to six years, Table 1.

It is a striking peculiarity that members of the same family under 12 will likely give a similar reaction to this test; that is, if a child of two gives a positive reaction, several brothers and sisters in the same family will probably give the same reaction if they have not had the disease or any immunizing doses. This is illustrated in Table No. 1,

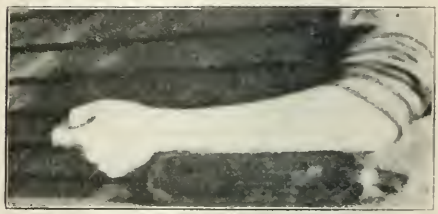

Fig. 7.—A pseudo reaction on an individual that had never had diphtheria nor any antitoxin.

showing a family of five children all under the age of twelve.

Table IV.—Test Applied to 367 Individuals, Such as Doctors, Nurses, and Hospital Employees, Without the History of Having Had Diphtheria.

Age.	Cases.	Pos.	Neg.	Pseudo-Reaction	Per Cent Pos.
Over 12 years.....	367	44	264	59	12

I have been unable to secure any data with reference to children under the age of six months, but in reviewing the literature I find that children not susceptible at the time of birth become so later. The mortality from diphtheria greatly increases at the age of six to nine months, being greatest at nine months; from this age up to the second year, laryngeal diphtheria is especially frequent, and all children suspected of this disease should be given antitoxin at once, and not wait for the application of the test under discussion.

The Interpretation.—A positive reaction, which indicates the absence of antitoxin in the blood, appears in about twenty-four hours after the injection, as a circumscribed redness and slight swelling at the point of application. It continues for a week or more and leaves a brownish pigmentation with superficial scaling for some time after this.

In a small percentage of older children and adults there is a pseudoreaction, even when large amounts of antitoxin are present in the individual.

and these must be carefully distinguished from the true reactions. These are characterized by appearing earlier, being less sharply defined, having greater infiltration, disappearing earlier, and leaving no scale. The question of sensitive skins is shown in Table 1, of scarlet fever.

Referring to Table No. 3, we find that about 22 per cent. give a positive reaction, which gives us an index to individuals who are under treatment but are not entirely immunized, thus informing us that more antitoxin is necessary to protect them from further infection.

Conclusion.—1. This test will tell us definitely who are susceptible to diphtheria, and when an epidemic is threatening we will need to immunize those and those only, disregarding entirely the ones who give a negative reaction.

2. It will be of great economic value to institutions and to nations in time of mobilization of armies.

3. It will greatly reduce the danger of anaphylaxis.

4. As is shown in Table No. 3, the test will be of great advantage in determining the efficiency of immunization by antitoxin, as well as the natural immunity existing in many persons, or the immunity produced after an attack of diphtheria.

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THE CONTROL OF HEMORRHAGE IN VAGINAL HYSTERECTOMY.

By HOWARD CRUTCHER, M.D.,

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Free access to the broad ligaments having been obtained through preliminary incision and dissection, the great variations in these structures, not only as to mechanical dimensions but as to their essential character, must be borne well in mind. A broad ligament comparatively thin and reasonably elastic is dealt with along the simplest lines, whereas a thickened ligament of unyielding tissues presents a far graver problem to the operator.

It may be affirmed as fundamental that the

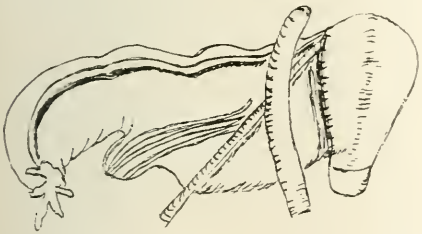

Fig. 1.—Illustrating the complete inclusion of all the tissues of the broad ligament, but not the nearness or remoteness of the blades or the clamp to the walls of the uterus itself. Note how completely the tip of the clamp overlaps all tissues.

nearer the operator clings to the muscular coat of the uterus the less bleeding he will provoke. The uterus may, indeed, be removed under certain highly favorable conditions without the application of either clamps or ligatures, with slight capillary bleeding, but such an operation has nothing whatever to commend it in preference to others in which the broad ligaments are secured through the everyday familiar methods. The uterine artery does not normally penetrate the

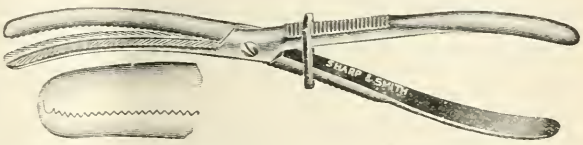

Fig. 2—Hysterectomy clamp.

uterus at any point, but its course is subject to wide variations due to obvious causes, and no cautious operator is ever unprepared to deal promptly with such deviations as he may find in his way.

The fundus of the uterus having been drawn well forward until it is really almost a part of the outer world, the lower blade of a long, strong, thoroughly dependable clamp is pressed below and behind the womb until its point is in evidence at a safe distance beyond the cornu of the organ. All interfering tissues having been cautiously examined and driven from the field, the opposing blade is now pressed evenly and firmly toward its fellow until the operator is certain that the broad ligament, and the broad ligament only, is within the grasp of his instrument. The idea I mean to convey to the reader is very well illustrated in the accompanying illustration (Fig. 1). Just how close to the uterus the clamp shall be applied must depend upon the judgment of the operator, but the immense shrinkage following the division of all large pedicles must be borne well in mind. In a thickened ligament the clamp should be applied so as to insure a very large margin of safety after the uterus has been cut away. The object of the operator in applying the clamp being to compress every blood vessel beyond all possibility of bleeding, the non-vascular tissues of the ligament must be looked upon as so much padding, the presence of which must be provided for as in all other cases of the kind.

In a second illustration (Fig. 2) I present a suggestion for a clamp that appears to me to be almost ideal in its qualities. The blades of the clamp must be long, broad, somewhat elastic, and of strength many times beyond what may be supposed to be the actual necessities of the case. In no case of the kind is it possible to devote too much time and thought to even the minutest detail of the operative work. The blades of the clamp must be long enough to overlap the broad ligament at one grasp; broad, that the tissues may not be cut by its application; and elastic, that no subsequent slipping may be possible through shrinkage of the pedicle. The principle of the tongue-and-groove I believe to be an excellent one in all cases of broad ligament compression, but especially desirable in cases where the tissues are thick and unyielding. I may add that I find no more difficulty in removing them than I have had with other less dependable blades. In all cases of vaginal hysterectomy in which I have applied clamps to the broad ligaments, it has been my invariable rule to remove the instruments after

forty-eight hours, first releasing the locks for a few hours, then withdrawing the blades gently, and in no case have I a secondary hemorrhage to record. In saying this I hope not to be understood as advocating any hard and fast rules for the removal of clamps from the broad ligaments. I have known operators of high skill and excellent reputation to remove their clamps within a much shorter period, but in my own case I have never felt justified in following their practice in this respect. There is of course no fixed rule to guide us in such matters, but so far as my own practice is concerned I would rather leave my clamps more than forty-eight hours than remove them before the expiration of that period. The post-operative complications of vaginal hysterectomy need not be considered here at this time, but it may be stated that they are as a general rule neither numerous or serious.

THE SEWAGE DISPOSAL PROBLEM OF NEW YORK CITY.

A REPORT BY THE PUBLIC HEALTH COMMITTEE OF THE NEW YORK ACADEMY OF MEDICINE.*

MANHATTAN ISLAND has been called a body of land entirely surrounded by sewage. The condition of the waters, polluted by sewage discharged into them has been a matter of serious concern to the city. In the course of the various studies made of the situation it has been ascertained that some parts of the East and Harlem Rivers become very heavily polluted. At times there is a complete absence of free oxygen in the Harlem River, a condition which is to be observed particularly during or just following the hot summer months. Considerations of public health, navigation, and decency demand a proper solution of the problem.

The main body of water of the New York harbor is the Upper Bay, which has a surface of 20.74 square miles, and the average depth of the channel is from 40 to 50 feet. This body of water acts as a huge equalizing reservoir for the upland and tidal flows. The upland flow entering from the Hudson River averages about 2,220 million cubic feet per day, and according to the United States Coast and Geodetic Survey that from Newark Bay averages about 203.5 million cubic feet per day. The tidal flow every day brings in about 7 billion cubic feet of water through the East River and Long Island Sound, and 23 billion cubic feet through the Narrows from the lower bay and ocean. The water in the East River oscillates back and forth, due to the differences in elevation between the waters in the bay and in Long Island Sound. Similarly, there is no continuous flow in the Hudson River. Here also the water oscillates back and forth under tidal influence, but unlike the East River there is a marked preponderance toward the ocean due to the fresh water coming down from the north. At times sea water flows up the Hudson almost to Poughkeepsie. This constant oscillation of the water is an element of importance in connection with the digestive capacity of the harbor.

The condition of the harbor due to the existing methods of sewage disposal is very bad at certain points. The United States Government, having oversight of navigation, is constantly calling the attention of the city authorities to the large amount of floating sewage. At times of low tide the conditions are shocking in some parts of the harbor, particularly in the lower East River and the Harlem River where there are a number of sewer outlets discharging into a comparatively small body of water. The water which normally holds in solution free oxygen to the extent of 7 to 10 cubic centimeters per litre, digests a large amount of the sewage, but its assimilative capacity is, of course, limited. At times when the lack of free oxygen makes aerobic action impossible, the anaerobic process sets in and the water turns black and foul odors are emitted. The Passaic River at Newark, the Gowanus Canal in Brooklyn, and the Harlem River at times reach this stage of complete absorption of all free oxygen. Tests made of the water in the Harlem River and East River through a series of years show how rapidly the assimilative oxydizing capacity of these rivers is diminishing:

MINIMUM OBSERVED PERCENTAGES OF SATURATION.

	Harlem River at Morris Heights	East River at 42nd Street
1906	..	95
1909	46	57
1911	40	51
1912	33	59
1913	11	53
1914	6	26
1915	8	25
1916	0	4

Similarly low figures of the oxygen content of these waters have been obtained at other points in the two rivers.

The amount of sewage produced in a city is roughly equal to the consumption of water for all purposes, plus the rain water which finds its way into the sewers. Accordingly it is larger in an industrial than in a rural community. On this basis estimates have been made that a daily average of over 100 gallons of sewage per capita is produced in New York. The city now produces about 600 million gallons of sewage daily and as it continues to grow the amount of sewage will increase at a corresponding, if not at a faster, rate, as the general experience has been that as cities grow the amount of waste per capita increases.

Organic matter in New York City sewage varies greatly. It constitutes from 0.4 to 1.0 per cent. of the sewage effluent and is derived in about equal proportions from animal and vegetable refuse. A part of the organic solids of sewage, when reaching the harbor, sinks to the bottom, a part stays suspended in the water and a part floats on the surface.

*The report was prepared by E. H. Lewinski-Corwin, Ph.D., and approved by the Public Health Committee, the membership of which is as follows: Charles L. Dana, M.D., chairman; James Alexander Miller, M.D., secretary; John S. Billings, M.D., Nathan E. Brill, M.D., Robert J. Carlisle, M.D., Floyd M. Crandall, M.D., Lewis Fox Frissell, M.D., Arpad G. Gerster, M.D., John A. Hartwell, M.D., Thomas W. Hastings, M.D., L. Emmett Holt, M.D., Abraham Jacobi, M.D., Howard Lilienthal, M.D., Walter L. Niles, M.D., Bernard Sachs, M.D., Thomas W. Salmon, M.D., Frederic E. Sondern, M.D., W. Gilman Thompson, M.D., Frederick Tilney, M.D., Philip Van Ingen, M.D., Karl M. Vogel, M.D., George B. Wallace, M.D., Herbert B. Wilcox, M.D.; E. H. Lewinski-Corwin, Ph.D., executive secretary.

There are several ways of preventing harbor pollution by gross organic matter. The sewage can be made to pass through screen chambers at the sewer outfalls and the gross material removed, or the effluent can be put through sedimentation tanks.

It is estimated that a screen plant for 25 million gallons daily will accumulate 12 cubic yards of organic matter a day if the sewage is passed through a fine screen (1 16 inch to 1 8 inch). Sedimentation tanks constitute probaly a more efficient means of sewage purification but require relatively large areas along the water fronts.

In New York, where sewage is discharged without treatment of any kind and where accumulations of sludge are considerable, periodic dredging of the harbor is urged by some as a means of cleaning the harbor, pending the installation of treatment works.

Account of Commissions.—The serious conditions of pollution existing in the harbor have been recognized by the city for a long time and two commissions were appointed, one almost immediately succeeding the other, to study the problem and devise means for meeting it adequately.

The New York Bay Pollution Commission, appointed by the Governor, made its report on March 31, 1905, on the condition of the waters, which was followed by another report made on May 3, 1906. This report brought out several points with regard to the pollution of the harbor waters: First, that there is not a proper dispersion and diffusion of the sewage and that in many instances the sewer outlets produce local nuisances, particularly when the sewage is emptied at the bulkhead rather than at the pierhead lines; second, that if a better method of disposal and treatment of sewage could be provided there is enough free oxygen in the waters to digest it without the production of local nuisances or offensive odors, and third, that the whole subject requires a very thorough study. The Commission recommended that a new commission with ample powers and funds be created in order to make such an intensive study.

Following the exposition of the conditions by the Bay Pollution Commission and its recommendation that some comprehensive method of dealing with the situation be devised, in 1906 the Legislature appointed the Metropolitan Sewerage Commission which, after eight years of study of the problem, submitted its final report in 1914.

Main Recommendation of the Metropolitan Sewerage Commission.—The system recommended was characterized by the Commission in one of its reports as consisting "largely of intercepting conduits to collect the sewage from the local sewerage systems to a number of centrally situated disposal plants where sufficient of the impurities can be removed to permit the effluent to be discharged into the harbor waters without danger or offense. No interference is proposed in regard to the local sewerage systems. The main drainage system would take the sewage from the local sewers and carry it to suitable points for treatment and disposal and would thus relieve the harbor from its present excessive contamination." The system of main drainage which the Commission recommended was presented for adoption by the city both as a plan and a policy for future construction, to be carried out in successive steps and not as one undertaking.

The metropolitan plan provided for intercepting sewers along the upper part of Manhattan and the Harlem shores of the Bronx, leading to a disposal plant on Ward's Island, to have been finished in 1916. Areas tributary to the lower East River in Manhattan and in the congested section of Brooklyn were to have delivered their sewage to independent treatment plants along the waterfront. By 1920 the Harlem and Bronx sewers were to have been extended. In northern Queens intercepting sewers were to have been extended, leading to treatment plants near College Point for Flushing and Cryder's Point for Douglaston, and the Jamaica Bay and Rockaway sewers were to have been well under way. In 1925 the eastern Bronx intercepting sewer was to have been completed, discharging after treatment at Hunt's Point. In that year the connecting up of the sewers of the east side of Manhattan below Twenty-sixth Street and a part of the Brooklyn waterfront from Newtown Creek to about Fulton Street with Ocean Island was to have taken place. In 1930 all of the planned intercepting sewers were to have been finished and several sewers in Richmond were also to have been completed. The total cost of the whole undertaking was to have amounted to $51,469,400.

Criticisms of the Metropolitan Project by the City's Engineers.—The Sewer Plan Commission was appointed by the Board of Estimate and Apportionment and consisted of the consulting engineers of the five boroughs and of the chief engineer of the Board of Estimate and Apportionment. In 1915 its name was changed to the Bureau of Sewer Plan. On January 1, 1916, it was merged with the Bureau of Public Improvements, under the general direction of the chief engineer of the Board of Estimate and Apportionment.

The following are the several points on which the Commission and the city's engineers are in substantial agreement:

1. That the digestive capacity of the harbor for sewage should be utilized as far as is consistent with due regard to public health and welfare.

2. That the system of main drainage and disposal should be built progressively.

3. That the schemes for the disposal of sewage by (*a*) collection at one central location for treatment, (*b*) by treatment upon farming land, (*c*) by disposal at sea at one point, and (*d*) by the establishment of filtration plants within built-up portions of the city, should not be considered.

4. That the sewage which enters the North (Hudson) River from Manhattan and Bronx can be properly treated by screening. Where the Commission and the city engineers disagree concerning this point is as to the type and location of screens.

5. That a rational scheme for sewage disposal in certain parts of the harbor must include intercepting sewers, but they disagree as to the locations indicated by the Metropolitan Commission along the Harlem and lower East Rivers. The ob-

jection to this is that it would cause the discharge of a very large amount of sewage at one point.

The disagreement between the Metropolitan Commission and the city's engineers is of a fundamental nature as it refers to the following five principal matters:

1. Standards of cleanness.
2. The ocean island.
3. The Ward's Island project and the alleged failure of the metropolitan plan to make the maximum use of the digestive capacity of the harbor by more uniform diffusion and distribution of the sewage.
4. The use of fine screens instead of Imhoff sedimentation tanks along the lower East River, and
5. Administration.

1. *Standards of Cleanness.*—In 1912, after having obtained expert advice from specialists in this country and abroad, the Metropolitan Commission adopted for its guidance the following five standards of cleanness which were the "result of much thought, many investigations, and the best expert advice procurable":

(*a*) Garbage, offal, or solid matter recognizable as of sewage origin shall not be visible in any of the harbor waters.

(*b*) Marked discoloration or turbidity, due to sewage or trade wastes, effervescence, oily sleek, odor, or deposits shall not occur except perhaps in the immediate vicinity of sewer outfalls, and then only to such an extent and in such places as may be permitted by the authority having jurisdiction over the sanitary conditions of the harbor.

(*c*) The discharge of sewage shall not materially contribute to the formation of deposits injurious to navigation.

(*d*) Except in the immediate vicinity of docks and piers and sewer outfalls, the dissolved oxygen in the water shall not fall below 3.0 cubic centimeters per litre of water. (With 60 per cent. of sea water and 40 per cent. of land water and at the extreme summer temperature of 80 degrees F., 3.0 cubic centimeters of oxygen per litre corresponds to 58 per cent. of saturation.) Near docks and piers there should always be sufficient oxygen in the water to prevent nuisance from odors.

(*e*) The quality of the water at points suitable for bathing and oyster culture should conform substantially as to bacterial purity to a drinking water standard. It is not practicable to maintain so high a standard in any part of the harbor north of the Narrows, or in the Arthur Kill. In the Lower Bay and elsewhere bathing and the taking of shellfish cannot be considered free from danger of disease within a mile of a sewer outfall.

The city's engineers criticized some of the standards. Standard 2 was criticized because it is not sufficiently definite and because it leaves the determination of what constitutes a nuisance to individual judgment.

Standard 4 was criticized because it required a very high percentage of free oxygen. There exists a great deal of difference of opinion among experts on the subject and it was thought that the percentage of free oxygen required was too high. The city's engineers believe that the dissolved oxygen in some parts of the inner harbor may with safety be allowed to fall at times even below 20 per cent. of saturation. However, they expressed themselves in favor of the dissolved oxygen content test as a part of a standard of cleanness, because they considered it as one of the best known chemical measures of the approach of undesirable conditions. The Metropolitan Commission, despite the fact that at first it formulated the very high oxygen content standard and allowed such a standard to be its guide in formulating sewerage plans, later entirely abandoned this oxygen content part of the standard of cleanness because they believed that the other recommendations, if carried out, would insure the necessary degree of saturation of the water with oxygen. The city's engineers criticiszed this abondonment.

The city's engineers also criticized the fifth standard, considering it unwise to maintain the waters of the harbor in a condition suitable for major fish life. They contend that to maintain the water at such a high level of purity would be undesirable and economically too costly.

2. *The Ocean Island.*—The criticisms against the ocean island are (*a*) that it is very costly and that it may possibly lead in the future to the duplication of the tunnel and island to take care of the sewage from Ward's Island; (*b*) that making proper use of the assimilative capacity of the harbor waters by providing outlets at most suitable places will take care of the sewage without building this costly enterprise; (*c*) that by adopting the ocean island plan the conditions in certain parts of the harbor will be rendered worse than they are at the present time, pending the final construction of the trunk tunnel, for it is planned as a step toward the realization of the ocean island idea that intercepting sewers and enormous screening plants be built on each side of the lower East River and the sewers would discharge in the neighborhood of Corlear's Hook and South Fifth Street, which is one of the most thickly populated portions of the waterfront and where the tidal action as shown by observation of floats is very sluggish.

3. *The Ward's Island Project.*—The building of large treatment works at Ward's Island, whither sewage from a very large area will be brought, is considered a violation of the fundamental principles of sewage disposal, for it does not recognize the advantages of diffusion of sewage throughout the harbor, but concentrates it in a very narrow arm of water which is, in the larger part of it, very shallow and where the tidal action is oscillating. The selection of the place is considered very bad as it is at a maximum distance from any source of clean water. The building of a treatment plant on Ward's Island places it very near to a thickly inhabited portion of the city. This plant would be separated by only 1,500 feet of open space from the population of the neighborhood.

4. *Sedimentation Tanks.*—Without going into a very technical discussion of the advantages and disadvantages of the various forms of screening plants, it may be stated that the city's engineers favor the sedimentation tanks which were spe-

cifically rejected by the Metropolitan Commission. The city's engineers recommend the construction of sedimentation basins underneath marginal streets along the East River where they will not interfere with other structures nor be in too close proximity to dwellings. They believe that the basins can be so designed that they will be unobjectionable and assert that there are large sites available for such sedimentation basins along the lower East River. They stated that there is a good precedent in Germany for constructing such tanks in populous districts without any offense.

5. *Administration.*—The Metropolitan Commission recommended the appointment of a permanent commission to control the construction and administration of the sewerage system of the city. The city's engineers take exception to this recommendation as "there is nothing connected with the construction of the works proposed by the Metropolitan Commission nor in the suggested modifications of them which is so new or strange that it cannot be successfully tried out by the borough authorities who are already engaged in designing and building works of a similar character and in some cases of equal magnitude and difficulty under the direction of the Board of Estimate and Apportionment."

Proposals for Immediate Relief by the Bureau of Public Improvements.—The plan proposed by Mr. Lewis and his bureau for the immediate relief of the harbor consists of three major parts, all of which aim chiefly at cleaning up the Harlem River and parts of the East River. The first part of the plan contemplates the interception of all the sewage now entering the Harlem River from the Bronx at and north of Fordham Road. It is proposed to treat the sewage and to discharge it into the Hudson at a point north of the Spuyten Duyvil Bridge. The point of disposal is claimed to be particularly well suited for the purpose as it affords ample dilution in relatively unpolluted water and it affords available land for sedimentation or screening. The volume which would be discharged there by 1940 is estimated at 22½ million gallons daily.

The second part of the plan provides for the discharge of sewage now tributary to the Harlem River from the Bronx, between New York University (Cedar Avenue) and Park Avenue. The plan is to collect this sewage at Jerome Avenue and to carry it under the Harlem River by an inverted siphon to East 156th Street, and thence combined with the Manhattan sewage entering the Harlem River, between East 190th Street and East 132d Street, through a tunnel under 155th Street to the Hudson River. The sewage now tributary to the Hudson River, between West 145th Street and 162d Street will here combine with the other sewage and the whole will be pumped after treatment through several submerged outlets at points as remote from the pierhead line as practicable. It is proposed that the outlets will discharge about 1,000 feet from shore, where the water has a depth of about 43 feet at low tide. It is estimated that the amount of sewage from the Bronx alone so diverted to the Hudson River will be 40½ million gallons daily in 1940. The cost of carrying out this project, including the tunnel under 155th Street, was estimated at $3,106,000, and the annual cost of upkeep, including interest and depreciation charges, was estimated at $284,000.

It will be observed that these two parts of the plan provide for the transfer of sewage from the East and Harlem rivers to the Hudson River. The chief engineer of the Board of Estimate and Apportionment is of the opinion that, if the sewage is properly screened and if the effluents are discharged from submerged outlets in the channel it will not appreciably pollute the Hudson except perhaps to render the water a little more turbid. The volume of water in the river is very large and the flow toward the sea is more marked than in the other sections of the harbor. On this point, however, there is a difference of opinion. Some of the experts consulted fear that the large sewage discharge might eventually result in overtaxing the digestive capacity of the Hudson, rendering the waterfront unfit for some of the uses to which it is now put. It is claimed that the submerged outfalls will not prevent the occurrence of certain nuisances objectionable to sight, as grease and other substances will come to the surface. It may also detract from the high character of the residential section along the river front.

The fear has also been expressed by some that the precedent thus established by New York City of adding vast amounts of pollution to the Hudson may lead to the abandonment on the part of some of the up-river cities of any restraints they might have adopted in discharging sewage and other refuse into the River. It will also weaken the objections which have been raised by New York to the pollution of the river and harbor by the communities on the New Jersey coast.

The third part of the chief engineer's plan provides for a temporary screening or sedimentation plant at the end of 132nd Street, which will collect the sewage from the southern and eastern parts of the Bronx, now entering the Harlem River, Bronx Kills, and East River, between Third Avenue and Cabot Street. This sewage is now discharged into the harbor under most unfavorable conditions from the Third and Brook Avenue sewers. Eventually it is planned to convey the sewage by a tunnel to a treatment plant on either Ward's or Riker's Islands, or possibly to Sunken Meadow, or to distribute the volume between the two islands. It is estimated that the amount of sewage from this area will be 43 million gallons daily in 1940.

It is further proposed to alleviate the pollution of the lower East River by building a number of tank treatment plants along the waterfront on the Manhattan side in places where the pollution is heaviest. It is claimed that such treatment plants can be operated without offense to the immediate vicinity. Practically all of the sewage entering the East River from Brooklyn will, under the proposed plan, be intercepted and carried to the upper bay. It is also proposed to protect the Hudson shore of the Borough of Manhattan by fine-screening the sewage.

Summary—The present method of sewage disposal

in New York City is inadequate in that: (*a*) The amount of sewage discharged is unrelated to the digestive capacity of the several waterways surrounding the city; (*b*) The sewage is discharged in to the harbor waters without preliminary treatment; (*c*) The sewage is, in many instances, discharged at the bulkhead line instead of further out in the channel where it could be better digested and carried away at a more rapid rate. (*d*) It has made unsafe the utilization of the shore waters for bathing purposes.

II. The excessive sewage pollution of the East River and particularly the Harlem River has made necessary the application of immediate measures of relief. During and following the hot months the available supply of free oxygen in these two branches of the harbor waters may become entirely exhausted and the anaerobic action of the bacteria may create a serious and offensive nuisance. Should this come to pass, it will result in a detriment to the welfare of the immediate neighborhoods and a depreciation in the real estate values with a resultant loss of revenue to the city.

III. The grave condition of the harbor due to sewage pollution has been a subject of official inquiry since 1905, first by the New York Bay Pollution Commission and then by the Metropolitan Sewerage Commission. Exhaustive reports on existing conditions have been prepared and plans for a comprehensive solution of the problem have been worked out.

The plans recommended by the Metropolitan Sewerage Commission, involving the outlay of over $50,000,000 have been criticized by the city's engineers and other experts and plans have been designed by the chief engineer of the Board of Estimate and Apportionment to relieve the pollution where it is heaviest. The value of the substitute plan lies chiefly in the fact that it can be put into operation without unduly straining the financial resources of the municipality, as the city is already within $5,000,000 of its debt limit. Moreover, the plans of the chief engineer of the Board of Estimate and Apportionment constitute a part of a more comprehensive scheme which can be extended should future conditions so require.

Conclusions and Recommendations.—The Public Health Committee has devoted a great deal of time and study to the problem of sewage pollution of the waters around New York City and has held numerous conferences with experts on the subject.

While the Public Health Committee is in favor of having the city deal with the problem in a comprehensive manner, yet we are assured that financial consideration would indefinitely postpone the undertaking of an enterprise involving the expenditure of a vast sum. Moreover, the progressive nature of the science of sanitary engineering and the recent advances made in methods of sewage treatment make it perhaps undesirable to commit the city to any one project, the realization of which is bound to take more than a decade at best.

In view of the fact that the conditions existing in the East and Harlem rivers are such as to require immediate action on the part of New York City, the Public Health Committee recommend that the Board of Estimate and Apportionment adopt, as soon as possible, plans designed to relieve the serious pollution prevailing in these two branches of the harbor waters and make the appropriation of the funds needed for carrying out such plans.

Medicolegal Notes.

Sunstroke, Disease or Violent Personal Injury?—An accident insurance policy provided, "If sunstroke, freezing, or hydrophobia, due in either case to external, violent, or accidental means, shall result, independently of all other causes, in the death of the insured within ninety days from the date of the exposure or infection, the company will pay said principal sum as indemnity for loss of life." The Oklahoma Supreme Court holds that "accidental means" is used to denote "accidental cause," and in case of sunstroke, if the same was suffered while the insured was engaged in his usual avocation or going about his affairs in an ordinary manner as any other person might have been under like or similar circumstances, and did not intentionally and voluntarily subject himself to an intense heat calculated to produce sunstroke, with the knowledge that it would probably occur, then the sunstroke was suffered from "accidental means" or "accidental cause" within the meaning of the policy; that is to say, that "sunstroke," as used in the policy and as understood by the insured, was treated in the nature more of an accident than as a disease. The court said: "While the decisions generally, with a few exceptions, hold that sunstroke is a disease, it is not regarded as a disease in the popular mind. In the common understanding of the insuring public it is accounted a kind of violent personal injury, from the very idea of sudden and external force carried by the word. If classed by medical authorities as technically a disease, to none but an expert medical mind would the provisions of this policy have carried this significance. Particularly is this true, when read in connection with the other two conditions, freezing and hydrophobia, provided for in the same clause of the contract."—Continental Casualty Co. v. Clark, Oklahoma Supreme Court, 173 Pac. 453.

Evidence as to Testamentary Capacity.—In a will contest where one count of the complaint asserted testamentary incapacity there was abundant evidence that at the time of making the will the testatrix was of a sound and disposing mind and memory. It was held that any previous disturbed mental condition shown to have existed some four days earlier as testified by a witness was not evidence contradicting the testimony bearing upon the mental condition of the testatrix at the time of the execution and publication of the will. Such former mental condition was a circumstance which, when supported by other circumstances, might properly be admitted as evidence, but, standing alone, was insufficient to justify an inference that such mental condition continued until the time of making the will, when positive testimony in abundance was to the contrary. —Morrison v. Castillo, Arizona Supreme Court, 173 Pac. 417.

Proof of Medical Services in Personal Injury Actions. —The Illinois Appellate Court holds that as medical services are capable of definite proof, if recovery is sought therefor in an action for damages for personal injuries, such proof must be made, and the jury have no right to assess such damages simply from their own knowledge, observation and experience in the affairs of life.—Harrold v. Clinton Gas & Electric Co., 205 Ill. App. 12.

Expert Opinion as to "Reasonable Probability" of Future Suffering.—The Washington Supreme Court holds that the admission of expert testimony that the plaintiff in an action for personal injuries would suffer specified ailments in the future as a result of her injuries with "reasonable probability" was held proper upon the question of the amount of damages; "reasonable probability" not differing materially from "reasonable certainty."—Holt v. School Dist., Washington Supreme Court, 173 Pac. 335.

Military Medicine.

PATHOGENESIS OF WOUNDS OF THE EXTERNAL GENITALS IN WARFARE.

WHAT strikes one in looking over the records of these injuries is the difference offered by the lesions relative to their manner of production, their site, and the lesions which accompany them. Although there are cases where the scrotum alone was involved, these injuries are more often combined with more or less severe disorders of some neighboring organ. Given the great variety of modern missiles the resulting injuries are likewise varied, but the most important factor is unquestionably the momentum and shape of the vulnerating agent. For the same reason there is no need of making a difference between wounds resulting from an exploding shell and those due to bullets.

During the first six months or so of the war bullet wounds were very common, and in May, 1915, Cathelin in his report on the Urological Center at Orleans, noted that a great number of wounds that were being treated there dated back to the battles in Belgium and the Marne, and he explained this by the fact that in the early part of the war the Germans aimed low. There are two other reasons of this frequency, the first being the greater penetrating force of modern missiles whether bullets or bits of shell. From their anatomical situation, the scrotum and testicles are fairly well protected from external violence, above by the pubis, on the sides by the upper part of the thighs, and they are only directly accessible to missiles when these strike from in front or when they strike tangentally on the perineum. Then again, the mobility of these organs often saves them from traumatism, so that it can be readily conceived that modern missiles, endowed with a very considerable penetrating force, may involve the scrotum and its contents after having passed through a thick muscular mass. The second reason which may also explain the relative frequency of wounds of the external genitals in the present war resides in the multiplicity of the bits of metal derived from an exploding modern shell.

The proportion of wounds in remote regions from the genitalia (head, thorax, upper limbs) is in point of fact large because in the report referred to Cathelin found 16 instances of wounds in these regions out of a total of 32 cases of injury to the scrotum and testicle. And if we take into consideration the lesions of organs near to the external urogenital area, this same report informs us that the proportion is still greater. In these 32 cases of wounds of the genitalia the thigh was also injured in 27, the gluteal muscles in 2, while in 3 cases both thighs had been touched by the missile. From all this it may be concluded that all wounds from bullets or exploding shell, of the external genitalia, including the perineum, are more often than not accompanied by wounds of one or both thighs, usually on their internal aspect.

As to the frequency of scrototesticular lesions as compared to traumatism of the external genito-urinary areas, it may be said that here again statistics show the very great gravity of these wounds. In only 50 per cent. of the cases has the testicle been found intact. In the remaining 50 per cent. 9 times the testicle had been lost, either destroyed by the missile or removed surgically on account of its injury; in 5 cases the gland was atrophied, in 2 there was hernia of the testicle, and in 2 an abscess of the organ. Finally there was one case of traumatic orchitis, three cases of hydrocele, and two with a fibrous nodule in the epididymis.

As to the nature of the wounding agent itself there is nothing definite regarding the relative importance to be attributed to the various kinds of missiles. According to statistics of 24 cases given by Latarjet, 4 resulted from bullets, 15 from bursting shell, and 5 from exploding bombs.

Referring to Cathelin's report of December, 1915, he points out the great frequency of lesions from exploding shell. Of a total of 12 cases there were only 3 wounds from bullets as against 6 from exploding shell, 1 from shrapnel, 1 from grenade, and 1 from a torpedo. But it is to be remarked that these were all wounds observed under special conditions, while Latarjet's statistics refer to an offensive intermediary between trench and open warfare. Now, it is evident that the proportion may be singularly different according to circumstances. Without doubt the number of bullet wounds should be much larger in open warfare, for in trench fighting the greater part of the body is sheltered from bullets.

No matter what may be the nature of the missile, rifle or pistol bullet wounds are usually of the contused type. Certain smooth, sharp bits of shell act in just the same way as a bullet, but generally speaking a bullet will make a seton or linear wound, while bits of shell will cause extensive destruction or combine in their effect laceration, contusion and attrition of the structures involved. The damage alone varies. Sometimes it can be readily repaired, at others it will be serious, according to whether the scrotum alone is involved or whether the injury has compromised the vitality of the testicle.

Reeducation and Employment of the Blind.—Sir Arthur Pearson, himself blind and the head of St. Dunstan's College for the Blind, points out some essentials regarding reeducation of the blind. In answer to the question how his institution could teach in seven or eight months what it took others four or five years to teach, he said that if one tells a man he is afflicted, he becomes afflicted mentally and physically, but tell him he is handicapped and show him how to get over it, he becomes interested, his spirits rise, and he tastes the joy of achievement. Another potent factor is the blind teacher. It is intensely encouraging for the blind man to realize he is being taught by one who is blind. A third point is short hours. At Pearson's institution they work only two hours and a half in the morning and two hours in the afternoon. The newly blinded become brain weary if they stick too long at their work. It is difficult for people having their sight to understand this. The mental application needed is intense and unaccustomed. Progress is made only when the blind man has his mind tuned to a high pitch. Thus in seven or eight months the brighter class of men learn some trade, such as poultry farming, carpentering, book re-

pairing, mat or basket making, and they also learn to typewrite. Masseurs take longer, an average of twelve months. Pearson points out that those who are completely blind make far better progress than those who possess a little sight. It is important to teach the blind man not only to work but also to play. For the blind, adequate exercise is a problem. The four recommended are walking, rowing, swimming, and tandem-bicycling.

Gunshot Wounds of the Chest.—C. H. Fragge, writing in the *Guy's Hospital Gazette* for June, 1918, points out that until the end of 1916 physicians held that a chest should not be aspirated until three days had elapsed after the infliction of the wound. He thinks, however, that there is no evidence that if chests are aspirated within twenty-four hours of the infliction of the wound, which is about as early as a medical man makes up his mind as to treatment, there is an increased chance of recurrent bleeding. A large number of such wounds become septic and a very fatal complication after chest wounds is bronchopneumonia. Physicians have written much about contralateral collapse, which means collapse of the base of the lungs, but those who have operated upon these cases seem to know very little regarding it. From this one's own deductions may be drawn. It is possible that the physicians who write concerning contralateral collapse are influenced more by post mortem appearances than by what Moynihan calls "the pathology of the living." With respect to the form of anesthesia best adapted to the treatment of chest wounds Fragge states that so far as he could tell in comparing one casualty clearing station, where he was doing all the chest cases under local anesthesia with another where he was doing some of the urgent chest cases under general anesthesia, better results were obtained by the former method. A mixture of novocain and sulphate of magnesium with adrenalin was used. In Fragge's opinion, when general anesthesia is necessary, there is no anesthetic which can be given which compares with open ether, in spite of the disadvantage of occasional post anesthetic bronchitis. If the patient was given morphine ¼ grain one-half hour previous to operation, and if necessary another ¼ grain when he came on the table and then the novocain mixture was freely injected, and if before resecting the ribs the intercostal nerves were blocked by injecting the intercostal spaces with a long needle, getting as far back as possible, it was usually a complete success. The parietal pleura, which gets its nerve supply from the same intercostal nerves, can be anesthetized at the same time. There is evidence that the parietal pleura is sensitive, but there is no evidence that the lung is. Local analgesia allows of free manipulation of the chest wall and lining. If the hole in the chest is sufficiently large after resection of one or more damaged ribs, it is easy to introduce the hand, and if the foreign body has been localized by the *x*-rays it can often be removed, because if a foreign body goes into the lung it usually goes through it; therefore, as a rule, the foreign body will lie near the surface. This does not, of course, apply when there is a foreign body in the mediastinum. Local anesthesia is no bar to a complete operation, which is concluded as all operations on the chest should be by closure of the chest wounds. Fragge thinks there is no exception to this rule, unless the contents of the chest are found to be gangrenous. He never met with those cases in which there was sepsis of a gross kind in the lung; they were all early mild infections and there was no bar to closure of the pleural cavity. If the lung and pleura are infected with gas organisms they must be drained; if the chest wall is infected the deep parts of the pleural cavity should be, if possible, closed; the superficial part being left open. All these procedures are perfectly possible with a minimum of experience under a local anesthetic and without distressing the patient.

The Need for Discipline in Hospital Life.—While the same type of discipline found in an active, hardworking battalion cannot be demanded in the hospital, yet it is of vital importance that as high a state of discipline as is possible be maintained in order that habits of slackness, indolence, carelessness, and lessening of self respect may not develop. If the soldier is permitted to slacken physically and mentally, arduous work and effort are required when he rejoins his unit. Should he be discharged from the army in such a state of mental and physical slackness, he is then unsteady in principle, lacking in character, careless in habit, and therefore undisciplined, and as a result unfitted for the discipline of social and industrial life. He must soon become a part of the flotsam and jetsam of society and a non-producer. He joins the army of the idle and the indolent and drifts to the lower strata of society and is a burden to himself and a danger to the community. It therefore behooves society, the friends, the sisters, brothers, and sweethearts to do their share in helping to keep up a high state of discipline among the returned wounded heroes. This they can do by refraining from criticising or questioning the rules and regulations governing the conduct of the convalescent soldier which compel him to be in his bed at 9.30 P. M., to care for his personal appearance in every way, and to comply with all regulations laid down by those in charge of convalescent hospitals, which regulations cannot always be freely explained.

Government Entomologists Study Body Louse.—The Department of Agriculture, under the direction of the Council of Research of the Council of National Defense, is endeavoring to find preventives and exterminators for the "cooties" that not only annoy and irritate the soldiers but that spread trench fever and possibly other diseases among them. In the prosecution of these investigations a man who formerly served the city of Chicago in a public capacity is acting as host for body lice. Valuable data with regard to the control of the "cootie" have been obtained from the parasites living on his body and moving pictures of them have been taken through the microscope. The moving pictures are to be part of a campaign against these pests and show how the louse comes into existence, how it passes through the several stages of development and propagates its species. They will also show lesions caused by the bites

and how to find the eggs and the insects themselves in the folds of clothing. These will be added to films to be taken under the direction of the War Department which will show a delousing station, the devices used, and a company of men ridding themselves of their unwelcome visitors. One of the scientists of the Bureau of Entomology of the Department of Agriculture is also serving as a host for the parasites, but in a more restricted sense than the Chicago man. His "cooties" are confined under the glass top of a wristlet, much like a wrist watch, and pass their existence there. Through the glass cover the entomologist watches the "cooties" pass through all the stages of their life cycle. Efforts to devise ways and means of overcoming the parasites are being made by practically every country that has armies in the field. Thus far the body louse has not appeared in numbers in the camps of this country, but if it should do so the military authorities hope to be prepared to deal with it.

Less Illness in Training Camps.—For the week ended September 6 a general improvement in health conditions at the training camps in this country is noted. Ninety-five deaths were reported, compared with 117 the week before.

Influenza in the Army and Navy.—The epidemic of influenza in the first naval district, at Boston, which began several weeks ago has continued to spread. Up to September 16 more than 1,700 cases had occurred since the disease first made its appearance and 47 deaths had resulted. The Federal quarantine station in the harbor has been taken over by naval officers and 200 patients will be cared for there. A more recent report states that 8,000 cases of influenza have developed among the soldiers of Camp Devens, near Ayer, Mass. A request has been made to the Surgeon General's office to detail ten additional medical officers and forty nurses to the camp. Thus far there has been but one death from pneumonia resulting from influenza in the camp. The appearance of an acute respiratory affection similar to influenza is also reported from Camp Lee, which has led to an order prohibiting any gatherings in the camp. There are over a hundred cases of influenza among the naval forces stationed at New London, Conn. The naval men in this district have been forbidden to go out of New London for the present. At Camp Upton, among the 45,000 officers and men, 170 cases had been reported up to September 16 and the Camp has been quarantined.

Battle Creek Sanitarium Offers War Course.—The Normal School of Physical Education, which is affiliated with the Battle Creek Sanitarium, has inaugurated a course in Physiotherapy which meets the requirements of the War Department. The medical profession are asked to direct the attention of young women who are planning to engage in war work to this unusual opportunity. Four-month courses will begin October 1 and February 1. The curriculum consists of Anatomy, Physiology, Bandaging, Active and Passive Movements, Hydrotherapy, Massage, Electrotherapy, and Clinics. Further information may be obtained from Dr. Frank J. Born, director of the school.

Campaign for Nurses' Home in San Francisco.—The American Women's League, a nurses' aid of the San Francisco Chapter of the Red Cross, student nurses from local hospitals, and soldiers and sailors are conducting a campaign to raise $60,000 to equip a suitable home for San Francisco nurses who return from the battlefields of Europe exhausted from war work and who have no homes of their own.

Red Cross Head Goes to Europe.—Henry P. Davison, chairman of the American Red Cross, has gone to Europe to confer with those in charge of the field of American Red Cross activities in allied countries, so that no step may be overlooked in endeavoring to meet the increasing requirements of the American Expeditionary Forces. Mr. Davison will report and act upon all problems of relief that confront the American Red Cross overseas.

Major General William C. Gorgas, Surgeon General, U. S. A., accompanied Secretary Baker on his recent trip to France, arriving safely in that country on September 8.

Deaths in the Service.—Lieut. JOHN EDWARD WILLIAMS, a recent graduate of the College of Physicians and Surgeons, New York, and a member of the Roosevelt Hospital Unit, died recently in France from paratyphoid fever.

Dr. HAROLD G. PORTER of Syracuse, N. Y., attached to the naval hospital at Chelsea, Mass., died following an attack of influenza on September 11.

Review Women's Motor Corps.—The Women's Motor Corps of the New York Chapter of the Red Cross which is in charge of forty ambulances, recently went through a stretcher drill and unit formation in Central Park which was reviewed by army surgeons. Army officers commended the work of these volunteers.

Aid for Captured Nurses.—The American Red Cross announces that American nurses captured by the enemy will be supported during captivity by the Red Cross. This step has been taken to meet the situation created by the announcement of the War Department that under the law, army nurses, if captured, could not be paid, since technically they were not on military duty.

Army Still Needs More Nurses.—Acting Surgeon General Richards issued a statement on September 14 for the purpose of setting aright a misconception as to the need of the army for nurses. General Richards states that only 16,000 of the necessary 25,000 nurses are enrolled and available for active service. Before July 1, 1919, no less than 50,000 nurses will be needed; thus in less than a year more than 34,000 additional nurses will be required.

Medical Women Made Officers in French Army.—Dr. Caroline S. Finley, Dr. Anna I. Von Sholly, and Dr. Mary Lee Edward of New York, who are connected with the Women's Overseas Hospitals, have been decorated by the French Government and commissioned lieutenants in the Medical Corps of the French Army, the commissions having been bestowed for excellent surgical work and treatment of the wounded under heavy bombardment in a hospital at the French front.

MEDICAL RECORD.

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INFLUENZA.

THE epidemic of influenza, which was here in mild degree in the early spring, has made the round of Europe and has returned to us in apparently somewhat aggravated form. There can be little doubt that it is genuine pandemic influenza, the same disease that prevailed so extensively in 1889 and subsequent years. Numerous reports have been given out that investigators had failed to find Pfeiffer's bacillus, but others again have found it. In Switzerland, which was sorely afflicted during the past summer, Professor Staehelin of Basle asserts that a study of the cases seen at the City Hospital there (*Correspondenz-Blatt für Schweizer Aerzte*, August 10, 1908) showed beyond doubt that the disease was true influenza, due to Pfeiffer's bacillus. The latter was found in the sputum and cultivated from the blood, just as it was 26 years ago. The clinical course was precisely the same, but instead of being milder than the ancient epidemic it was decidedly more malignant. The mortality was relatively high, for 50 per cent. of the populace were attacked and the total mortality during the epidemic was one per cent., due largely to pneumonia of influenzal origin.

There was a high morbidity from pneumonia among young adults which was less in evidence in the former visitation. Naturally in the great majority of cases the symptoms were those of uncomplicated influenza, chiefly fever, and the number of hospital admissions was very small, the patients being seen only when pneumonia had developed. The nervous and gastroenteric forms have been inconspicuous. Between June 16 and July 28 no less than 309 cases of pneumonia were admitted to the City Hospital, and of this number 46 died—about 15 per cent. As a rule the pneumonic complication set in slowly, heralded by a further rise of temperature, or, in other cases, by a peculiar cyanosis. The rusty sputum was absent and replaced by purulent matter, and autopsies showed that the condition was not typical lobar pneumonia, but lobular or pseudolobar in character. The pleura was usually involved to some extent. The dangerous feature in these cases was the bilateral location, although in many patients the spread of the disease in the lungs was very limited. The fatal element was bound up directly with the amount of lung tissue involved. Very significant in this epidemic was the presence of an undoubted leucopenia which has a prognostic value.

But little comfort is held out by the author on the score of treatment, for he says the passage of a quarter of a century has brought no new remedy to light, and salvarsan, quinine synthetics, and collargol were without influence on the disease. The most effective treatment, recalling the experience of the 1889-92 epidemic, consists in confinement to the house—to the bed if fever is present or the heart shows signs of weakness, a restricted but nourishing diet, and the administration of large doses of some salicylic preparation, preferably salicin. In the nineteenth century epidemic much harm was done with the indiscriminate use of antipyrine in overlarge doses, though an occasional dose of that, of phenacetin, or of salipyrine, may be called for.

GASTRIC PNEUMATOSIS.

THIS condition is a familiar one in civil practice, but occurring in the robust soldier in relatively good condition it presents numerous points of novelty. Professor Ceconi, who is consulting physician to the Second Territorial Army, contributes a monographic article in *Il Policlinico* for May 1 on palpitation, dyspnea, etc., which prove to be dependent on gastric distention. The malady is not, strictly speaking, a military one, but manifests itself in a certain type of soldier as a result of prebellum conditions. The age is around the 35 to 40 period, the subjects are inclined to stoutness; their occupations before the war were mostly sedentary.

The chief complaint is of dyspnea without any suggestion of cyanosis; respiration is rapid and superficial. The leading symptom referable to the heart is palpitation, usually associated with tachycardia. These symptoms may appear in crises and persist for from two to four hours; and at such times there are complaints of headache, vertigo, faintness, nausea, flushed face, cold extremities, etc. Associated with dyspnea and palpitation is a slight retrosternal oppression, and in certain cases the picture approximates that of angina pectoris.

These attacks tend to follow eating. The men are hearty eaters, and the meals are followed by an increase in abdominal tension. The interval after meals is one to two hours, and the picture develops rapidly. If the subject limits his meals the accesses are less pronounced. Belching and vomiting give relief, but the men are not inclined to spontaneous eructation, and induced belching is difficult. Some do not belch at all. There is usually a history of symptoms extending back to the age period 28 to 30. Most of the patients are nervous, and a certain number of them are true neurasthenics.

There is an appearance of illness in the facial expression, with pallor, prostration, moist skin, and

cold extremities. Respiration is usually between 30 and 40, with occasional deep inspirations. The breathing is eminently costal and Litten's shadow is absent. The condition is not a mere tachypnea but a true dyspnea. The area of cardiac dullness may be increased with the apex beat outside the nipple line. The pulse may reach 110, 130, or higher. The systolic pressure varies from 120-150. The *x*-ray shows that at the acme of digestion the diaphragm is in the high position, especially on the left side, where it is pushed up by the distended stomach. The latter is also responsible, in part at least, for the apparent enlargement of the heart, which is really displaced. If radioscopy is practised with the stomach empty, the diaphragm is seen in its normal position and in normal excursion, while the heart and aorta are also in the accustomed position. In a few cases in which the stomach contents were examined the gastric chemistry was approximately normal. In one the tube evacuated much gas.

It is by no means easy in these cases to exclude the presence of cardiac disease. True cardiacs often first consult the medical men for indigestion, and themselves suffer much from flatulence. Well marked cardiac neuroses of a permanent type appear to be gastrogenic at times. A short period of study and radiographic control ought to clear up all doubts. In the affection under consideration the disturbances occur only during digestion, and may subside even during this period if the gastric tension can be relieved. The nature of the pneumatosis is unknown, and the causation may be diverse. There may be a component of air-swallowing, or one of fermentation, or the mechanism may be vagotonic. Attempts have been made to show that negative intrathoracic pressure can exert a suction within the stomach. It has also been claimed that an abnormal mobility of the heart is the weakest link in the chain. One must always think of the possibility of hysteria, and, among soldiers, of simulation. But whatever be the nature, pneumatosis is the actual condition present. The diaphragm is also somewhat hypotonic. Finally a distinct predisposition is present, the patients having a short, capacious thorax and a tendency to corpulence.

"BACILLARY IMPREGNATION."

Often in the French medical literature the words bacillary, bacillosis, etc., refer in the absence of mention of other germs to the tubercle bacillus, especially in inoculation and septic states in which the role of the bacillus is well defined. Such a cycle is readily followed up in animal experiment—a primary lesion, general infection, and metastases. Ordinary apex tuberculosis would not belong here, for its mechanism is not clearly understood. In bacillary infection in the narrower sense the disease may first appear in the bronchial or mediastinal glands without a primary lesion. In other cases the latter may be in evidence. An old focus of tubercle may readily give rise to a bacillary case.

In an article by Ribadeau-Dumas and Brissaud (*Journal de médecine et de chirurgie pratiques*) the authors seek to show that certain cases of narrow chest, drop heart, etc., may be the result and not a cause of tuberculosis. An old tuberculous lesion, supposedly latent and harmless, dating from childhood, may actually interfere with normal development and cause a "cardiothoracic atrophy." In 375 cases tested 254 subjects were actually tuberculous, while the remainder seemed healthy, but clinical and radiographic tests showed evidences of ancient foci in the lungs (calcified spots). Small heart and drop heart were represented in a large percentage of cases.

The term "bacillary impregnation" thus becomes clear, for the germ has so impregnated the organism that a peculiar inferiority of development is the result. This means that the individual is first infected in early childhood—say between 2 and 8 years of age—and less frequently at a much earlier period, even as a nursling. Marfan has shown that these early cases may present no febrile reaction. Tuberculous infection early in life may appear under disguises which are not unmasked until a meningitis or acute miliary tuberculosis ends the subject's life. There is micropolyadenopathy; there are so-called tuberculides; there are peculiar forms of osteitis of the flat bones of the skull. In any obscure affection of childhood an *x*-ray picture of the lungs may reveal the underlying motive of disease. Individual case histories are often extremely illuminating. In one of these a child aged two years had a severe congestion of the lungs which lasted 6 months. At the age of 15 he presented cervical lymphademitis. Death was due to acute miliary tuberculosis, and at autopsy there was found a small calcified nodule in the base of the right lung (visible in the radiograph) with a caseous bronchopneumonia of the right apex and diffuse miliary tubercles. In bacillary impregnation we find clinically severe dyspeptic troubles, nervousness, effort dyspnea, cardiac fatigue, and tachycardia.

WOMEN WORKERS AND NATIONAL HEALTH.

It is obvious that the health of a nation very largely depends upon the health of its women. This is to say, that if women are not in sound health they cannot bear many or healthy children. It is equally obvious that never in the history of the world has there been a time when numerous and healthy children were so essential. In view therefore of the fact that women in Europe are engaged in toilsome labor of every description and also in view of the fact that similar conditions are likely to occur in this country, it is timely to consider the probable effect that such work may have upon the health of the workers.

While, perhaps, few will go so far as Sir Almroth Wright, who stated that women were physiologically unfit for work of an arduous character, at the same time it cannot be denied that the statement contains a considerable amount of truth. The physical make-up of women renders them less able

to undergo severe exertion than men, and if they do undergo such exertion for a prolonged period, their physical and nervous powers are drained to so great an extent that they are unable to produce many or virile children. In industrial countries this point has been demonstrated. The children of women factory workers are puny, undersized specimens of humanity, and this result is greatly due to the strain of long hours of labor, accentuated doubtless by the lack of mother's care that these children suffer. There are two outstanding reasons then why the children of women who work away from home are handicapped. First, because the woman worker is, as a rule, not in the physical condition necessary for the bearing of healthy offspring, and second, because she is not able to rear the infant as it should be reared, by feeding it at the breast. The war has turned everything upside down, and the labor of women is indispensable. It is only because women are able to take men's places as workers that victory is possible. But while the main object is to win the war, every effort should be made to conserve the health of the women workers. If this be not done, the future of the race is jeopardized. In the first place the pay should be fully adequate and in the second place the hours should be short, as it has been proved that really better work can be done by women in six than in ten hours and their health is not menaced. Good pay, which should be synonymous with plenty of good nourishing food, short hours, which should signify lack of fatigue, and working under first class sanitary conditions ought to be the normal state of affairs for women employed during these abnormal times.

The Preoperative Purge.

Some medical fashions change very slowly and one of these that has persisted for a time whereof the memory of man runneth not to the contrary is the custom of emptying the bowel by a brisk purgation preparatory to a surgical operation. The administration of a purge before an operation is, or was until very recently, a matter of routine in most, if not all, hospitals, and the interne or the nurse who had failed in that duty would be liable to a more or less gentle admonition from his attending surgeon if the delinquency happened to come to light. Of recent years, however, a warning here and there has been uttered regarding the possible evils of that practice. Five years ago Dr. Douglas H. Stewart of this city, writing in the *American Practitioner*, called attention to the evident ill effects of this procedure. Taking post-anesthetic vomiting as an index, he showed, in a series of 26 cases, that vomiting occurred twice when a purge had been given 72 hours before operation; it occurred three times when the purge was given 48 hours before; four times when given 24 hours before; and when the patient was purged 12 hours before operation vomiting occurred on the average four times the first day and twice the second; when a simple enema was given there might be slight vomiting, often but regurgitation of saliva, once or twice after the withdrawal of the anesthetic. A somewhat similar observation is reported by Dr. L. E. Emge, writing in the *Journal of the Americal Medical Association* of September 14, who remarks on the occurrence of gas pains in two series of 50 cases each, one series with pre-operative purgation, the other with none. Among the purged cases there were 37 patients who suffered from more or less severe gas pains; in those without purgation 17 only had "cramps" or pronounced gas gains. Emge comes to the same conclusion as Stewart, that an enema will clear the bowel sufficiently and that purgation is unnecessary and in a way harmful.

Italian Priority Claimed for "Bipp."

An Italian practitioner, Dr. Eduardo Calendra, writes to *Il Policlinico* of August 11 that he devised the familiar bismuth-idoform-paraffin paste as far back as 1908 and published a full account of it four years later in the sanitary periodical, *L'Ospedale di Palermo*, January-February, 1912. He understands that Mr. R. Morison did not publish his account of this preparation until 1917 and wonders whether his own description could have influenced the British surgeon in any way to devise a similar formula. His mixture was as follows: bismuth subnitrate 10 parts, paraffin 10 parts, idoform 4 parts, and olive oil 15 parts, which differs notably from the Morison formula. The latter contains no oil and a far greater proportion of iodoform. The Italian author devised his formula to fill up pathological cavities in bone and he seems never to have used it for any other purpose. He mentions Beck, the deviser of the bismuth paste for sinuses, but does not admit that this preparation influenced him in any way in the evolution of his own formula. "Bipp" was introduced into war surgery as a vulnerary, and in any case the genesis of a formula with only two active ingredients—for the paraffin and the oil are clearly meant only for excipients—might well come about independently in the practice of any surgeon.

News of the Week.

Surgeon-General Blue Issues Bulletin on Influenza.—According to statements given to the Associated Press, Surgeon-General Blue has made a telegraphic survey to determine the extent of influenza in the United States. He has found that there was a sharp outbreak at Fort Morgan, near Mobile, Ala., in August, and at about the same time a tramp ship arrived at Newport News with almost the entire crew prostrated. Philadelphia reported a few cases some weeks ago and a few have been reported from New York. An outbreak was reported in Boston on September 11. Since then the epidemic has appeared in New London, and a few cases have been reported from New Orleans. Because the last pandemic of influenza occurred more than twenty-five years ago, physicians who have begun to practise medicine since 1892 have not had personal experience in handling such a situation as is now spreading through a considerable part of the foreign world and has already appeared in this country, and for this reason Surgeon-General Blue has issued a special bulletin for physicians describing the disease and

the method of handling it. He also advises the public in regard to the early symptoms of the disease and the importance of seeking medical attention.

The Fourth National Exposition of Chemical Industries is to be held in Grand Central Palace during the week beginning September 23. More than 350 exhibits will be displayed and practically every phase of chemistry will be presented. The Federal Government was to have taken over the Grand Central Palace within a few days for use as a general hospital during the period of the war, but owing to the importance of this exposition has agreed to defer taking possession until October 1.

Jefferson Medical College.—The introductory address to the ninety-fourth annual session of the Jefferson Medical College, Philadelphia, will be delivered on Monday evening, September 23, by Dr. Jay Frank Schamberg. The title of the address will be: "Medicine—Then and Now."

Dr. Arnold Sturmdorf has been appointed Consulting Gynecologist to the Manhattan State Hospital, New York City.

Medical Society Dissolves.—The American Association of Medical Jurisprudence has been dissolved by order of the Supreme Court in compliance with an application for dissolution made by a majority of its directors. The association has no creditors and no obligations.

Red Cross to Collect Fruit Pits.—Since charcoal made from cocoanut shells, date seeds, the pits of peaches, apricots, cherries, prunes, plums, and olives, and the shells of all varieties of nuts is essential in the manufacture of gas masks, the American Red Cross has begun a nation-wide campaign to collect these materials which are usually wasted. Every Red Cross chapter in the United States will take charge of local collections and send the shells to the various collection centers. Special effort is being made to enlist school children and boy scouts in the campaign.

Deaths of Prominent Foreign Medical Men.—The editor of *El Siglo Medico*, calling attention to the loss to the medical profession in the deaths of Forlanini in Italy and Pozzi and Grasset in France, gives obituaries of three recently deceased Spanish medical men of eminence. The first mentioned is Eduardo Gereda, who was noted as a sanitarian and medical economist and publicist. His writings appeared in a publication in which he was a collaborator—*Semana Medica*. His name had been proposed for one of the most esteemed honors of his country, La Gran Cruz de Beneficencia, and he enjoyed the friendship of the King. A second prominent man to receive mention is Hipolito Fairen, dean of the Medical Faculty of Zaragoza, and a third, Juan Iranzo, professor of Clinical Medicine in the same institution. The former is regarded as the creator of the modern University of Zaragoza and a monument to his memory will be erected in the gardens of the hospital. Dr. Iranzo, in addition to his medical eminence, was elected Alcalde in 1909 and took part in numerous civic and other reforms. He was a member of distinguished foreign medical societies.

The death of Dr. Oscar Wyss of Switzerland was reported recently. He was born in 1840, was graduated in medicine in Breslau in 1862, and was at once offered the post of assistant to Lebert, the pathologist. When the war with Austria broke out in 1866, he went to the front and was placed in charge of a hospital for sick and wounded Austrians. After time spent at Prague and Vienna after the war he returned to Zurich and became a member of the medical faculty of the university. In 1874 he was placed in charge of the new Children's Hospital. In 1883 he was made professor of hygiene and director of the new Hygienic Institute. Eventually he became both Dean and Rector of the university. He was identified at various times with pathology, clinical medicine, pediatrics, hygiene, and toxicology, and was a recognized authority in all of these spheres of activity. He inspired over 200 graduation theses during his teaching career. In his thirty-six years as director of the Children's Hospital he made a majority of the autopsies with his own hands.

Dr. Sape Talma, the well-known clinician of Holland, died last June as a result of prostatic disease. Like the majority of medical men who gain fame in small countries his activities were numerous, both within and outside the profession. He was born in 1847 and matriculated at Utrecht in 1866. In 1876 he was made professor of pathological anatomy in the University. He was no less interested in physiology and experimental medicine. At a later period he received the chair of internal medicine. He was quite an exception to the rule that men who become prominent in after life must study abroad and neither before nor after his graduation are any journeys to foreign schools of learning mentioned. His biographer emphasizes the fact that he was an autodidact. The well-known operation of Talma for the relief of cirrhosis of the liver has given rise to the impression that he was an operating surgeon. Talma was highly valued as a teacher and his forty years of activity coincide accurately with the development of modern clinical medicine in his native land.

Obituary Notes.—Dr. Daniel Worrell Jefferis died at Chester, Pa., on September 1 at the age of 80 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1865. He was a member of the Delaware County Medical Society (at one time its president), of the Medical Society of the State of Pennsylvania, and of the American Medical Association. He was a physician to the Chester Hospital and president of the Medical Advisory Board of the Selective Draft. He had been coroner of Chester, for many years president of the Board of Education, for several terms president of the Select Council, and also Mayor of Chester.

Dr. William Francis Waugh of Chicago died on September 5, at the age of 69 years. He was graduated from the Jefferson Medical College in 1871 and was for a time in the Medical Corps of the U. S. Navy. After leaving the Navy he practised for several years in Philadelphia, and in 1890 removed to Chicago. He was professor of medicine in the Illinois College from 1894 to 1904, and in 1909 was appointed dean and professor of tropical medicine in the Bennett Medical College.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE MENACE OF MEASLES—PUBLIC HEALTH AND POLITICAL PROGRESS.

London, August 21, 1918.

Nothing is more interesting in the natural history of epidemiology than the manner in which the different infections change their measure of virulence from time to time, so that an ailment whose mortality has hitherto been negligible becomes a scourge of the community, while a pest that once was held in general awe loses its terrors for the public. The case mortality of infectious disease in London as revealed by the just published annual report of the Metropolitan Asylums Board illustrates this position very well. The Metropolitan Asylums Board is the controlling authority of the fever hospitals of the metropolis, and to these hospitals are sent such cases of notifiable infectious disease as for various reasons cannot receive treatment within their own homes. As might be expected, the statistics of such institutions deal particularly with scarlet fever and diphtheria, and in these respects the death-rates for 1917 are found not to have altered materially from a decennial average. The case mortality of diphtheria, which fell rapidly some 20 years ago after the introduction of antitoxic treatment, remains for 1917 practically what it was for 1916, viz., 6.7. The case mortality of scarlet fever, which is only 1.9, is also greatly lower than it was at the end of the nineteenth century, and here no obvious reason exists for the change. It can be fairly attributed however, to two things—improvement in public sanitation, so that the environment of the patient at the time of attack is not prejudicial, and improvement in the standard of medical equipment, so that earlier diagnoses are made and the patient comes more quickly under intelligent treatment. The report of the Metropolitan Asylums Board for 1917, as far as scarlet fever and diphtheria are concerned, is very cheerful reading; nor do we want to postulate some change in type of the actual infecting germ to understand the amelioration in public health which has taken place. But when we turn to measles the report tells a totally different story. Nearly 3,000 cases of measles were admitted during 1917 to the hospitals of the Board, and of these 11.7 per cent died, the death-rate being higher than any figure since 1911, and by that time measles had begun to take the place in medical opinion which scarlet fever had previously occupied—the place, namely, of being the most dangerous infectious disease to which childhood is subject. No reason on the surface exists for the increased virulence of measles such as exists for the lessened virulence of diphtheria, and there is evidently room here for a valuable research. One other disease has lately become more serious in type in this country, and the figures of the Metropolitan Asylums Board indicate as far as they go the increased measure of risk. Of 391 cases of whooping-cough in the medical hospitals of the Board 13.4 per cent. died, the death-rate being the highest on record. It must be remembered here, and to some extent the remark holds good for measles also, that the death-rate in he hospitals of the Board does not reveal the average case mortality outside, because it is only the cases with serious complications, such as bronchopneumonia which are admitted. None the less the figures prove what medical men have recently come to regard as a fact, that measles and whooping-cough are the two most dangerous threats to child life in urban conditions.

The position of Ireland is for obvious reasons an extremely embarrassing one, not only for Great Britain but for all the nations fighting for the Allied cause against the Central European Empires, and especially for the United States of America, where Irish national aspirations have received such generous support. Fortunately—for the task would be indeed a difficult one—there is no onus in a medical paper to discuss the underlying political questions which have led to the existing situation. No attempt need be made to evaluate how far bad government by Great Britain, religious prejudices and antiquarian sentiment in Ireland, manufacturing greed, agrarian ignorance, and treacherous interference by Germany with Irish politics, have played a part in the confusion which exists; but one factor in that confusion has a distinctly medical significance, and plays a great part in every issue—that factor being the abominable condition of public health in Ireland and the inadequate nature of the public medical service of the island. The rural districts of Ireland are cared for medically by the officers of the Irish Poor-law Medical Service. These doctors, too often placed in their posts for other than medical reasons, are overworked, ill-paid, and unsupplied with material assistance in such matters as hospial and laboratory accommodation, or expert and consultant opinion. They are unable to afford to the districts in which they practise any standardized sort of medical care comparable to what might be expected in an integral part of the British Empire in the twentieth century. Ireland is a sparsely populated island, at any rate to-day, and in spite of its enormous potential wealth, notably in the direction of agricultural and fishing industries, the population is a poor one, the significance of this being that the officers of the Irish Poor-law Medical Service cannot expect any addition to their official salaries from the fees of private patients. Here, however, it may be said that Ireland is not much worse off than many parts of Scotland and some of the more sequestered districts of England; general public health organization and administration may be more behindhand, but this obviously matters the less when the population is small. To reduce this point to absurdity there is no central drainage or water scheme in the Sahara Desert, and the number of persons who would benefit by the innovation is not large enough to warrant the expenditure. But in England and Scotland the persons below a certain income level come within the scope of the Medical Benefits Clauses of the National Insurance Act, which clauses do not run in Ireland. Also the public health in Ireland is not seen to be so bad in those sparsely populated rural districts. Ireland is at fault in public health administration in its great cities, and this has a most serious ef-

fect on the birth-rate, sick-rate and death-rate of the country, and may well be playing a serious part in promoting political unrest. While, for example, the death-rate of London, with a population of over four millions, was, in the first week in August, only 11 per cent., that in Belfast was 15 and in Dublin nearly 16. In both these great cities the expectation of life at all ages is 40 per cent. below what it should be, while the infantile mortality is correspondingly heavy. From every point of view it stands to reason that if these two cities, which comprise within themselves two-thirds of the urban population and in which are concentrated two representative classes of political thought, enjoyed a higher standard of public health, political questions would be approached in a far more wholesome manner. And this is why the inauguration of a comprehensive housing scheme for Dublin is an important event. Dublin is a great medical center, and the medical men in Dublin have enjoyed for many generations high prestige as exponents of their profession in every division and speciality. Yet the public health of their city has been their despair, for it is impossible to keep down the ravages of such diseases, for example, as tuberculosis and infantile diarrhea when the population live in a perpetual environment favorable to the incubation and spread of pathological conditions. Dublin medical men therefore, and for the reasons set out above all thinking people must share the feeling, are delighted to read that the Engineering Inspector of the Irish Local Government Board, Mr. P. C. Cowan, has submitted to the chief secretary in Ireland a plan for dealing with the rehousing question in Dublin, which will be really drastic and made possible by a lavish use of money. The scheme entails an expenditure of from eight to nine millions of state money. Mr. Cowan sets out the necessities of the case as follows:

"Sixteen thousand new self-contained houses to prevent overcrowding and to permit the separation of the sexes; the improvement by remodeling of 3,803 first and second class tenement houses, in which 18,991 families now live, so that the total number of remodeled houses may afford suitable accomodation in tenements of from one to four rooms for 13,000 families. Sixteen thousand is estimated as the number of new houses required. These houses, if built in continuous rows on each side of a street, would be 25 miles long, and it is suggested that they should be erected by a board representing the Government, the city of Dublin, the urban districts, and the Dublin County Council."

Mr. Cowan estimates the expenditure which will have to be faced under two headings of rebuilding and reconstruction, and for the 16,000 new houses at £400, asks for £6,400,000. The acquisition and reconstruction of 3800 old tenements, he believes, would cost £2,040,000. Those who do not know what a beautiful city Dublin is may be surprised at the possibility of acquiring such a large number of old houses which could possibly be adapted by reconstruction to the purposes of a central sanitary scheme. Dublin, as a matter of fact, is full of magnificent houses quite capable of intelligent alteration. Neglect, unrest, and lack of money have made Dublin shabby, while the city bears the scars of the recent *émeute;* but nothing can take away from it the character of a historic capital. But for the month of July last the death-rate of Dublin was 30 per mille! And the total of death exceeds the total of births, showing that the efforts of sanitation are ineffective. The rehousing scheme is fraught with happy possibilities, medical and political.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

BOOKS FOR THE SOLDIERS—FINDING AMERICAN WOUNDED IN FRENCH HOSPITALS—THE SPANISH INFLUENZA—ROSA BONHEUR'S CHÂTEAU—ANNA MORGAN COMMITTEE LOSE MILLIONS—RED CROSS OBLIGED TO FLEE FROM GERMANS—HOSPITALS AT NICE.

PARIS, August 6, 1918.

THE work of the American Library Association in France is developing rapidly. Within the past three weeks about half the districts in which the A. E. F. is located have been covered with at least a sprinkling of books, and within a few weeks every district will have received its first quota. During April, 55,000 books were shipped, so that the total will be well above the 100,000 mark. As to the future supply, the nation-wide campaign conducted by the American Library Association has netted more than 3,000,000 volumes, and it will be continued to the end of the war. These donations are largely of up-to-date fiction. Supplementing this, the A. L. A., from its war fund, has purchased nearly half a million special technical and reference books, which are being shipped to special units. Over each collection will be posted this placard:

These books are for your use without charge.
They belong in this building and are to be returned to it within the time prescribed.
To borrow a book, fill up the card found inside the back cover and hand it to the librarian.
When you return the volume, see that the record against you is cancelled.
These books are loaned on the honor system. If you fail, it fails.
America is far away, tonnage scarce, and books precious. Play square with the other fellow; he has played square with you.

And in facsimile will be this pithy statement, signed by the commander-in-chief himself: "These books come to us overseas from home. To read them is a privilege: to return them promptly, unabused, a duty.—John J. Pershing."

In the last week, the workers of the American Fund for French Wounded located 103 Americans in various hospitals and delivered their names and reports of their condition to the Home Communication Service of the Red Cross, which then took the cases in hand. The A. F. F. W. workers often find boys awaiting evacuation in French Hospitals where scarcely a word of English is spoken. The joy of the boy who finds some one "from home" sitting by his bedside ready to hear his story and see that some special want is filled can be imagined. The following extract from a letter from one of the workers is interesting to Americans: "Yesterday we made our first call at the ——— Hospital, and visited all the American men. One poor lad had been trepanned, one lieutenant had lost a leg, many were suffering from gas, but all with the most

wonderful spirit, and all wanting to get back into the lines. They gave us such a welcome, saying we were the first American women they had seen; were we here to remain, and would we come again? We found some of our own marines, and I do wish you could have seen their faces when they recognized us."

Madrid is very much alarmed by the strange sickness which is now epidemic. Though it is mild in character, none of the cases having proved fatal so far, it causes much anxiety because the doctors declare it to be an unknown malady, and it spreads rapidly. There is hardly a house without one person sick. In the theaters, programs have to be altered daily on account of artists suddenly falling ill. The newspaper staffs have been very much depleted. In Government offices the same state of affairs exists. At the chief post office forty employees were taken yesterday to the hospital, the total number of the sick being already 115. At the barracks there are large numbers of sick soldiers. One regiment has 300 men in bed. A military band could not attend a ceremony because half of the musicians were ill. Physicians are bewildered. They cannot attend to all the calls upon their services, and confess they do not know what the trouble is.

According to *La Accion*, the symptoms—vomiting, fever, diarrhea, and acute pains throughout the body—correspond to those of influenza. This newspaper states that the epidemic is due to the turning up of the earth during excavation work for the underground railway, sewage schemes, etc. The same thing occurred at Caracas, in Venezuela, when such underground works commenced. The United States Government sent a commission to study the epidemic, and the report concluded that the digging operations unloosed microbes such as played havoc in the times of the Spanish conquest.

The château of Rosa Bonheur, the animal painter, near Fontainebleau, has been converted into a hospital for French wounded, as previously reported. The room Rosa Bonheur used to like the most is kept in the same state as when she died, with flowers in a vase and her gloves in the same place, all showing the devotion of her friend, Miss Anna Klumpke, the American artist, who is the owner of the property. Miss Anna Klumpke and her mother are doing heroic work for the French, giving up their entire time to the wounded who are sent to the hospital. Miss Klumpke said in reply to questions: "The wounded we are caring for are paralyzed by enemy shells. We have a group of fifteen men at a time, and our staff is made up of twenty-four people in all. It is our mission to instill confidence into the hearts of these poor fellows in order that the mutilated ones may learn a trade and become useful units in society. You must have heard of the fine work of the Union des Colonies Etrangères for the mutilated of the war. Workshops have been opened, in this connection, at the Grand Palais. Our small formation has become an annex of this union. Every day, except Thursdays, from one to four o'clock in the afternoon, the men sit or stand around a large table, and, under the direction of a monitor, who, by the way, is also wounded, these poor fellows work at making cardboard boxes or at bookbinding. When they become sufficiently skillful they receive payment for their work. We encourage them to sing and whistle during their hours of work so as to forget as much as possible the horrors through which they have gone."

Millions of dollars' worth of property which was being used by Miss Anne Morgan's committee for the reconstruction of towns destroyed by the Germans in the early months of the war was captured by the Prussians. When the extent of the devastation wrought by the Germans in their first dash into France was learned, Miss Anne Morgan organized a committee and raised a fund of millions of dollars to help the French peasants rebuild their ruined homes. The work was heralded as splendid in character, and was regarded by the French people as most commendable. Forty-three villages were to be rebuilt. Some of them were almost complete ruins. Millions of dollars' worth of building material was imported from America and a vast supply was purchased in France. For two years Miss Morgan and her associates had been engaged upon the task, and many of the ruined places had been completely restored, to the joy of the peasants, who in many instances had been rendered not only homeless, but penniless as well. When the renewed German offensive started it was realized that some of the property might be endangered, and it was hurried south. The great bulk of it, however, remained, and has been destroyed by the enemy.

It is as evident in the center of France, far back of the lines, as it is in the very thick of the fight, that the young American Army has swung into line with full force. All is activity at the supply depots. Those that have been in construction for the last six months are now well organized and working as if they had been a part of the war since 1914. The canteens are feeding thousands of soldiers on their way to and from the front, and the big hospitals are filling rapidly. At this particular center is one of the large base hospitals that came to France last July. The personnel is the Harper unit from Detroit, and the entire organization is almost an exact reproduction of the Detroit Hospital. It comprises 1,200 beds, and now has 1,000 patients who have been recently wounded at the front. All of the wounded are in excellent spirits, and their one thought is to get well enough to go back to the front.

The Red Cross Canteen, which is entirely in charge of American women, has been doing excellent work. During the last few days the military trains have been passing one after the other in rapid succession, and the canteen workers have been kept busy day and night. Huge baskets of good American bread, chocolate, and cigarettes, are always ready to be distributed for each train, and there is always a supply of lemonade and cookies and plenty of hot coffee at all hours. Everything runs so smoothly that 600 men are served in fifteen minutes with no difficulty whatever, and each soldier is made happy by having his pockets filled with good things to eat by an American woman. Adjoining the canteen is an infirmary and rest station with twenty baths and shower baths.

The work among the refugees is an important feature at this moment. There is scarcely a village from Paris to a distance of 200 miles south that is not filled with refugees, and every vehicle from a

wheelbarrow to a hay wagon has been put in use. While the famous war relief organizations are looking after thousands of refugees there are still hundreds along the roadside, wandering about with their packs on their backs, searching for a place where they can find rest.

In the drive last spring and early summer the Red Cross personnel at the front have often been in places of danger, but so far only one member has been slightly wounded, and all are now in comparative safety. There has been no serious loss of supplies, even the wheelbarrows stored in Soissons having been used by the refugees to carry away effects. Canteens at the front, Nos. 2, 4, 5, and 7, between Soissons and Rheims, were captured by the Germans in their drive toward Paris, but all the men were able to make good their escape ahead of the rapidly advancing enemy. Convoyers to start three new Franco-American canteens at the front were sent out early this week. This brings the total number of these canteens up to fifteen. The sixteenth will soon be established.

Many of the wounded American soldiers who are being tended at the American Hospital at Nice, in company with French wounded, are from the States of Washington, New York, and Massachusetts. Maj. Kent Monnet is the doctor at the hospital. The Americans have been fifteen months in France, and for the most part are unacquainted with the language. Nearly all of them belong to storming units employed in the front line, and have come from Champagne, where they have rendered yeoman service. There is one sergeant among them, all the others being privates, who are suffering from rheumatism or wounded. Their condition is not serious, and they are not forced to remain in bed. They follow the same régime and are fed and treated in every way like the French patients. There are twelve Americans, a British officer, a Canadian non-commissioned officer, a Senegalese, and thirty-five Poilus now under treatment at the hospital. The morale of the Americans is excellent. Although they are delighted with their surroundings, they are anxious to get back to the front. They arrived at Nice in company with French and British wounded. The latter are being cared for at the Victoria Hospital, the Grand Hotel, and at Les Palmiers.

A hospital where none but British wounded will be received is being organized at Nice. The Americans will probably remain about three or four weeks there. The *Eclireur de Nice* reports an incident which demonstrates the Franco-American brotherhood of arms. Some American officers, ill or convalescent, encountered by chance two or three French officers and soldiers in one of the big hotels here. Among the latter was a Poilu with his arm in a sling and wearing among other decorations the Croix de Guerre with palms, and decorated with the Legion of Honor. One of the Americans, who has but a slight knowledge of the French tongue, took an English interpreter aside and said: "I am a lieutenant. I shall be promoted captain as soon as I return to the front. Tell this French soldier that I lay down my own rank to salute him respectfully." It is easy to understand the emotion that was felt by all present.

146, Avenue des Champs Elysées.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

September 5, 1918.

1. Diagnosis of Fracture of Hip. George W. Gay.
2. Obstruction of the Small Intestine. John T. Bottomley.
3. Is Is Worth While for the Man of Fifty to Get Into Physical Condition? Conservation of Man Power at or Beyond Full Maturity. J. Madison Taylor.
4. The Prostatic—How Shall He Be Managed? Frederick B. Sweet.
5. The Radical Cure of Hernia Under Local Anesthesia; Combined with Scopolamine and Morphia. John H. Cunningham, Jr.

3. **Is It Worth While for the Man of Fifty to Get Into Physical Condition? Conservation of Man Power at or Beyond Full Maturity.**—J. Madison Taylor discusses the question at some length, and decides that it is worth while. Nature demands personal co-operation, and this is particularly true when full maturity has been reached. Naturally judicious moderation must be exercised. From his experience—both personal and professional—Madison Taylor believes that systematic training always benefits unless there exists some latent defect, which should have been discovered and guarded against, and he points out that the problem of structures giving way to physical strains is one thing, and to the toxic biochemistry of the body-formed poisons (anaphylaxis) is another. Certain fundamental facts should be borne in mind by everyone: The motor impulses of childhood are divinely implanted instincts for the acquisition of symmetrical development, contributing to safety and efficiency as an animal and also to intellectualization. Unless habitual body use is encouraged, along with suitable opportunities for the play of spontaneity, full competency is never attained by the individual. It is possible, however, even in late life, to repair weak spots, and the author cites an instance of a man who from a state of feebleness at forty-five, through progressive outdoor activities became a man of splendid mental and physical capacity even at sixty-five. Another case cited is that of a business man of fifty-two years of age who suffered from digestive disturbances, irregularities of sleep, and of heart action, fatigue, susceptibility to cold, etc., and who at sixty-five is a model of vigor, endurance, and resistance to cold and disease, capable of accomplishing four times as much as before. His structures are all elastic, his muscles responsive, controllable and normal as those of a man of thirty. This was effected by gradually inuring the skin to exposure, and to frictions by brush and hands; exercising nearly nude, but securing elasticity by simple free movements followed by full relaxations; by systematic breathings and long walks; together with a modified diet along lacto-vegetarian lines. Contrary to the general opinion, little time and effort are required to get into condition. Vital processes are stimulated by renewals of any form of mental or physical activity. It is important to insist upon hygienic measures and educative exercises that will establish a due proportion between food intake and outgo of waste products, and between inherent powers of motion and such use of active parts as shall maintain mobility, elasticity, pliancy, hence motor competency not only for direct use but for supplementing the oxidation processes. This can be done by keeping in mind plain rules of posture and completeness of movements commonly employed. In addition to this, all that may be demanded is a few moments' daily of fundamental movements in normal directions; or if not daily, twice or thrice a week. By attention to diet and personal hygiene it is often possible not only to reacquire good health, but to develop unsuspected latent powers. The important question is not what one should eat, but rather how one eats and how much one eats. Underfeeding in certain states is a peril, but in a much larger group overfeeding is a direct, perhaps the sole cause for organic derangement and degeneration. An excess of protein food results in a large group of hurtful effects. Horace Fletcher has demonstrated the value of proper mastication of food, and for temporary purposes a reduction of diet to simplest articles and the smallest variety is of life-saving efficacy. When digestive processes or harmonies are in doubt, simply

omit one or more meals till equipoise returns. Much is to be said in favor of a diet of nuts, fruits, cereals, with or without milk and eggs. An excess of meat and sugars should be avoided; alcohol is objectionable. Few factors in personal hygiene are more important than the care of the skin. Friction, with the faithful use of the flesh brush, is superior to the careless bath. To avoid the evil effects of chill, of catarrhal states, and to keep the kidneys in good order, few measures are superior to salt friction baths. As a routine procedure Madison Taylor recommends the following: On rising throw off the clothing and rub the entire body briskly for five minutes; resume a covering and proceed with the toilet; or better, take a sponge bath, using a rag dipped in cool water on which is placed a small handful of salt. Rub this thoroughly all over the body, rinse off with cold water, and rub dry.

New York Medical Journal.

September 7, 1918.

1. Ovary: Corpus Luteum. Oliver T. Osborne.
2. The Modern Treatment of Syphilis. Philip Goldfader.
3. Visceroptosis: Its Diagnostic Importance. I. Russel Kuhn and Jacob Glass.
4. A New and Highly Efficient Dressing for Wounds. Alfred Kahn.
5. Clinical Congress Week. C. R. R. Hertzberg.
6. Retropharyngeal Abscess. John J. Levbarg.
7. Nasopharyngeal Polypi. Albert E. Pohly.
8. Mobilizing the Spas and Health Resorts of Our Nation. N. Philip Norman.
9. Medical Notes from the Front. Charles Greene Cumston.

4. A New and Highly Efficient Dressing for Wounds.—Alfred Kahn suggests the use of blotting paper as an internal dressing or drain, or an external absorptive dressing. He also suggests the use of punctured paper adhesive on one side as an external binder, to take the place of the cloth roll or bandage. This adhesive paper roll can be variously medicated and used in the same way as adhesive or mustard plaster; it is less expensive and can be more easily removed and destroyed. Kahn has employed such a dressing for surgical cases for some years, particularly in the packing of the mastoid cavity. In conjunction with syringing he often packs the paper, the material used being medicated with various antiseptics. He has obtained excellent results with blotting paper, either plain or medicated, used as a wet dressing over contused wounds and highly inflamed, irritated surfaces. In furunculosis of the external auditory canal, he has used it soaked in a solution of aluminum acetate. In furunculosis associated with diabetes, and for carbuncles, abscesses and furuncles of the neck, this dressing has proved excellent. In the treatment of deep lacerated wounds, as a cigarette drain wrapped in some stiff material such as rubber tissue, it has proved superior to a gauze drain.

Journal of the American Medical Association.

September 7, 1918.

1. Enterostomy and Enterocolostomy in the Treatment of Acute Intestinal Obstruction Following Pelvic Operations. Brooke M. Anspach.
2. Intraspinal Treatment of Cerebrospinal Syphilis: Later Results, Based on Five Years' Observation. Clyde L. Cummer and Richard Dexter.
3. Perforating Ulcer of the Hard Palate Resembling Tertiary Syphilis, but Due to a Fusospirillary Invasion (So-Called Vincent's Angina). Lewellys F. Barker and Sydney R. Miller.
4. Effect of Prolonged Bile Drainage in the Cure of Subacute and Chronic Pancreatitis. Edward Archibald.
5. Further Experiences with the Kondoléon Operation for Elephantiasis. W. E. Sistrunk.
6. Treatment of Vernal Conjunctivitis with Radium: Technic. William Allen Pusey.
7. Clinical Observations of Congenital Pyloric Stenosis: Report of Operations in One Hundred and One Cases. Alfred A. Strauss.
8. Hypertrophic Pyloric Stenosis in Infancy. William D. Haggard.

1. Enterostomy and Enteroculostomy in the Treatment of Acute Intestinal Obstruction Following Pelvic Operations.—Brooke M. Anspach. (See MEDICAL RECORD, June 22, p. 1108.)

2. Intraspinal Treatment of Cerebrospinal Syphilis; Later Results Based on Five Years' Observations.—Clyde L. Cummer and Richard Dexter. (See MEDICAL RECORD, July 6, p. 40.)

3. Perforating Ulcer of the Hard Palate Resembling Tertiary Syphilis, but Due to a Fusospirillary Invasion (so-called Vincent's Angina).—Lewellys F. Barker and Sydney R. Miller. (See MEDICAL RECORD, June 29, p. 1148.)

4. Effect of Prolonged Bile Drainage in the Case of Subacute and Chronic Pancreatitis.—Edward Archibald. (See MEDICAL RECORD, June 29, p. 1144.)

5. Further Experiences with the Kondoléon Operation for Elephantiasis.—W. E. Sistrunk. (See MEDICAL RECORD, June 29, p. 1146.)

7. Clinical Observation of Congenital Pyloric Stenosis: Report of Operations in One Hundred and One Cases.—Alfred A. Strauss. (See MEDICAL RECORD, June 22, p. 1108.)

8. Hypertrophic Pyloric Stenosis in Infancy.—William D. Haggard. (See MEDICAL RECORD, June 22, p. 1108.

The Lancet.

August 17, 1918.

1. The Lumleian Lectures on Celiac Disease. Lecture II. G. F. Still.
2. The Treatment of Cases of Shell Shock in an Advanced Neurological Center. William Brown.
3. On the Differential Diagnosis of the Dysenteries: The Diagnostic Value of the Cell Exudate in the Stools of Acute Amebic and Bacillary Dysentery. Captains J. Graham Willmore and Cyril H. Shearman.
4. Notes on Recent Epidemic of Smallpox in the Field. Lieut. G. H. Mead.

1. The Lumleian Lectures on Celiac Disease. Lecture II.—G. F. Still described in the first Lumleian lecture the clinical features of coeliac disease, assuming the condition to be a specific entity. In the second lecture he turns to a discussion of its pathology. Morbid anatomy has afforded no specific clue to the cause of this affection. Marked thickening of the wall of the bowel, however, has been noted, a feature which is not present in cases of gastroenteritis or ileocolitis, when the wall often appears thinner than normal. Inflammation involving the whole of the intestinal tract, obvious to the naked eye as well as to microscopic examination, was also noted in two cases. Whether these appearances are primary or secondary is not known. It is possible that they may be due to some specific bacterial agent; bacteriological examination, however, has failed to throw light upon the question. In six out of eleven of Still's cases, evidence of infection with a dysentery bacillus was found, and in some cases serum was found to agglutinate this organism. It is probable that in some of the cases, if not in all, there is a primary infective catarrh of the bowel, which is due, in some at least, to the dysentery bacillus. On the other hand, the *fons et origo* may be some profound digestive disturbance and not infective at all. One of the most characteristic clinical phenomena of the coeliac disease is the pale stool, with appearance and smell suggestive of excess of fat. Dr. Cammidge has estimated the fat in three of Professor Still's cases as 26.9, 73.1, and 42.5 per cent. Herter found there was a loss of 20.25 per cent. and even as much as 40 per cent. of the ingested fat in one of his cases, whereas the normal loss in health varies from 2 to 8 per cent. Failure to absorb fat may be due to various causes which fall into two categories: (1) lack of preparation of the fat for absorption through deficiency of the fat-splitting function of the bile or of the pancreatic secretion; (2) failure of the intestinal surface to absorb, in spite of the fat being sufficiently prepared by the fat-splitting processes and saponification. It would seem that in some cases at least, the biliary secretion is deficient; this was so in two of the author's cases, but in a third case there was no apparent diminution of stercobilin. As for pancreatic insufficiency, no direct evidence of this has been furnished either by clinical investigation or laboratory examination of the stools. It would appear, therefore, that, although in individual cases the biliary secretion may be found deficient, there is no interference with the fat splitting process which prepares fat for absorption. The fault, then, must lie in failure of the absorptive function of the intestinal mucosa. It is possible that this may be due to functional failure, but it is more probable that the first step in the disease may be a catarrhal condition of the mucosa

in the small intestine, where in health the absorption of fat occurs chiefly or entirely. If this is so, however, it is difficult to see why the failure of fat absorption should be so much more pronounced in coeliac than in other diarrheal conditions. Professor Still next considers congenital syphilis as a possible cause of the condition. The Wassermann test was performed in six cases, in three of which it was positive. There was no clinical evidence of syphilis in any of these cases and treatment with mercury was of no benefit; moreover, the parents and relatives who were tested gave a negative reaction. Commenting on this, Still states that these findings would seem to support the view that there are other conditions besides syphilis which may give a positive Wassermann. One of the most noticeable symptoms in coeliac disease is dropsy occurring in the distal parts of the limbs and in the face, and sometimes associated with ascites. Professor Still suggests that this symptom may be determined, in part at least, by toxic absorption from the intestines. Two factors would seem to corroborate this—puffiness of the eyelids, especially of the lower eyelids, accompanying chronic constipation or chronic indigestion; and general edema with albumin in the urine and no evidence of organic disease. He has observed that in some wasted infants the edema corresponded closely with variations in the degree of unwholesomeness of the stools and seemed to be more influenced by that than by the number of stools. This applies to cases of coeliac disease and he suggests, therefore, that the edema be regarded as due in part to feeble circulation and hydremia and in part to toxic absorption. Purpura is another symptom which sometimes recurs for years in coeliac disease. It is to be noted that the stools decrease in frequency before the purpura appears, and it is possible that the delay in the evacuation of unhealthy feces may cause absorption which results in the purpura. Mere constipation does not produce purpura and it has been suggested that indol may be the poison in question. This is rendered probable by the fact that during the presence of purpura a marked indican reaction was noted in the urine in many cases. The occurrence of tetany also points to toxic absorption. The arrest of growth, which is such a distinctive feature of coeliac disease, may be caused by deficiency of fat absorption. Experimental evidence would seem to give color to this suggestion, but it is not apparent how deficiency of fat in diet has any special influence in arresting growth. Herter has shown that there is an appreciable loss of calcium with the soaped fat passed in the stools, but calcium deficiency does not necessarily inhibit growth as is shown in the case of cretins given thyroid treatment at an age when walking has recently been acquired. There is also evidence that fat deficiency in the diet is a large factor in the causation of rickets, and there is deficient calcium deposit in the rachitic bone. It would be expected, then, that rickets would be closely associated with coeliac disease, whereas the reverse is the case. Furthermore, if the failure of fat absorption be the cause of the stunting in celiac disease, arrest of growth might be expected far more commonly in rickets.

Berliner klinische Wochenschrift.

July 8, 1918.

The Nature of the Weil-Felix Reaction in Typhus Fever.—H. Braun has been led by his experiments to explain this reaction as follows. It is due to an increase of certain normal agglutinins, this resulting from the action of the typhus fever and these agglutinins are, in quite a fortuitous manner, particularly active against certain strains of the Proteus. In order to explain this multiplication of the normal agglutinins, the writer invokes the very special localization of the agents of typhus fever. Since Nicolle's researches, it is known that these agents are more particularly contained within the leucocytes. This localization causes a marked excitation of the leucocytes and is thus the cause of the exaggerated production of normal antibodies. This peculiarity, which belongs to typhus fever, explains still more the fact that the Weil-Felix reaction is quite special to this disease.

On a Disease of Influenzal Type.—K. Kroner publishes a study which entirely relates to the epidemic which has ravaged Europe during the past few months. He describes the affection, now familiar to the profession, as being absolutely influenzal in nature, but differing distinctly from true influenza by the three following circumstances: (1) The almost general absence of Pfeiffer's bacillus, (2) distinct leucopenia, and (3) bradycardia in a large number of cases.

An Experimental Analysis of Subfebrile Temperatures.—J. Holló and E. Holló-Weil describe a subfebrile type of temperature which is absolutely refractory to antipyretics, but on the other hand, is influenced by opium. Such cases are frequently wrongly considered as latent tuberculoses, but in reality are merely instances of a particularly labile sympathetic nervous system.

Münchener medizinische Wochenschrift.

July 2, 1918.

Orthostatic Albuminuria. — Beckmann and Schlayer have endeavored to verify the theory which supposes orthostatic albuminuria to be the outcome of a disturbance of visceral innervation, and more particularly to hypertonia of the autonomous nervous system (vagotonia). Injections of atropin, adrenalin, pilocarpin, etc., have demonstrated that frequently the orthostatism is met with in a vagotonic soil, but this rule is far from being constant. An injection of atropine caused the final disappearance of the albuminuria in one case, while in several others the albumin disappeared for a time. Therefore, atropine would seem to be the specific remedy of orthostatism should this condition require treatment.

The Early Diagnosis of Whooping-Cough.—Chievitz and A. K. Meyer publish a continuation of their bacteriological researches on whooping-cough. Their technique consists in causing the patients to cough on a culture medium composed of agar-agar, potato, and blood, which is quite like the one associated by Bordet and Gengou. The writers' classification of their results arranged according to the stage of the disease is particularly interesting and is as follows: Catarrhal stage, 77 per cent. positive results; convulsive stage, 1st week, 52; 2nd week, 50; 3rd week, 30, and 4th week, 10 per cent. positive results. In the fifth week no results were obtained. In no case of non-pertussis infection could a culture of the Bordet-Gengou bacillus be obtained. Therefore, these researches would seem to show that the contagiousness of whooping-cough is limited to one month, in spite of the fact that the affection continues longer.

Deutsche medizinische Wochenschrift.

July 4, 1918.

Exanthemata in Paratyphoid A.—Nobel and Zilezer have had the opportunity of observing an epidemic of paratyphoid A which was peculiar from the frequency of a roseolic eruption of a very intense type. Clinically the epidemic assumed the characters of a moderate typhoid. The bacteriological diagnosis agreed in 6 cases in which the culture on bile were positive. The writers particularly insist on the histologic findings from specimens of skin removed by biopsy. The process was of an acute inflammatory type, consisting in a congestion of the cutaneous capillaries and edema, and a perivascular infiltration including both the large and small lymphocytes, as well as various cell types. Small hemorrhagic foci were met with in certain areas. These lesions were absolutely different from those met with in typhus fever in which the primordial histological picture consists in changes of the vessel walls with ultimate thrombosis. Microscopical examination of the cutaneous manifestations thus allowed the writers to eliminate typhus fever in certain instances of doubtful paratyphoid. On the other hand, the cutaneous lesions of this affection are not sufficiently distinctive from those encountered in other forms of erythemata.

Chemotherapie Disinfection with Quinic Alkaloides and Their Derivatives.—J. Morgenroth and E. Buncke offer their results derived from a series of researches *in vitro* tending to dissociate the quinic molecule into

derivatives quite as active as quinin and forming new combinations possessing even greater power. The writers do not give the detail of the manipulations, but they compare the intense bactericidal action of the products obtained to that of products already known, this action being far greater in antiseptic power than even bichloride of mercury. As to Dakin's solution, the writers only assert its small value as a bactericidal agent without having made any comparative experimental studies with this solution and the quinic products.

Wiener medizinische Wochenschrift.

July 6, 1918.

Diagnosis and Treatment of Contusions of the Abdomen.—H. Finsterer offers a paper on the above subject in which the remark is made by the writer that the malarial spleen appears to be particularly susceptible to rupture and that the presence of a slow and strong pulse, after the phase of shock has passed off, does not exclude the possibility of a ruptured liver, should be mentioned. The latter phenomenon is attributed by the writer to the absorption of the biliary acids. Abdominal rigidity, the presence of an intraabdominal fluid collection, localized or radiating pain, are all symptoms too well known to require lengthy discussion. The writer ends this article by proposing to make a small abdominal exploratory incision in all doubtful cases, rather than blindly remove a blood or fecal collection by puncture.

Clinical Observations on Pleurisy.—F. von Becher, from his studies on the thermic evolution and the etiology of pleural collections, believes that the polynuclear elements are more prone to accompany the high temperature cases while the lymphocytic formulæ belongs to those cases in which there is little or no temperature. Generally speaking, the thermic curve in high temperature cases assumes quite a uniform type with a progressive ascension during two to three weeks, the maximum lasting from one to five days followed by a drop in lysis. Convalescence is interrupted by small thermic elevations but which never attain the elevation of the fever existing during the stage of full devèlopment of the process. Puncture of the thorax with removal of the fluid is frequently followed by a rapid drop in temperature. Relapses are usually preceded by a marked rise in temperature before the pleural exudate can be detected.

Le Progrès Médical.

May 26, 1918.

Psychonervous Pain.—Bernheim refers to pains without appreciable lesions—although such pains may once have had an organic substratum—of which he gives numerous examples. A boy of 9 complained of severe sensitiveness in the umbilical region which he believed evidently to be due to a slight excoriation. He cried out if the area was touched. By suggestion of the insinuating character Bernheim managed to touch the area without invoking the pain complex and the sensations vanished for good. A young woman vomited a lumbricoid worm and thereafter experienced pain below the appendix region with sensations of crawling in the throat. Bernheim could produce pressure pain almost anywhere in the abdomen. He banished the pain in the groin by suggestion but to combat the crawling feeling and nausea it was necessary to give worm medicine. An elderly day laborer complained of pains in the armpit after a heavy lift and had to quit work. When he resumed a week later the pain was still there. Bernheim found a number of places in which pressure pain could be induced. Forms of effort pain were not associated with a material basis. He was cured in three days by suggestion. A domestic believed she had strained her back and for five months complained of pains in that region which were lancinating and with tendency to exacerbation. She was free from pressure pain areas and her gait was not affected although the sensations were radiated along the limbs. She had lost much sleep. Under suggestion sleep became good and she slowly improved. Bernheim cites numerous other cases of the same type and states the medical man does not know all that takes place in the organism. More remarkable than the case of this type is another in a man of 61 of a high class who had never been ill in his life but had suffered for thirty years from pains in the sole of one foot. There were numerous sensitive pressure points. No fixed tender point could be found in the foot although both feet showed vague tenderness. Walking was not interfered with and the man was given to dancing and hunting trips on foot—could walk 16 kilometers without getting footsore in any way. Bernheim, laying his hand on the patient's head, told him the pain was only in the brain. Distracting his attention, he pressed on one of the numerous dolorous areas and no pain reaction followed. But initial improvement was not maintained; 30 years' duration had given too deep roots to autosuggestion.

Norsk Magazin for Laegevidenskaben.

May, 1918.

Myasthenia Gravis.—Monrad-Krohn relates two cases of this affection. Special emphasis is laid on the necessity for timing the swallows in eating, so that the weakened muscles have a short interval for recuperation. This should measure from 2 to 4 minutes. The food must not be so hard to chew that mastication is an effort. A myasthenic must never be allowed to drink from a cup or glass but must receive fluids from a spoon; the rapid sequence of deglutition reflexes in drinking quickly fatigues the muscles concerned and choking and bronchopneumonia may result. Drinking is also believed to favor the development of attacks of dyspnea, although these can also occur spontaneously, and the nurse—every myasthenic must have a nurse—must be familiar with manual methods of artificial respiration. The passive exercise of the muscles involved does not prevent the recuperation of the pharyngeal muscles. It may be advisable to use the Sylvester or some other method for half an hour, an hour, even two hours. There is no causal treatment. The patient can only be nourished, rested and protected from death by dyspnea. Very often he recovers, sometimes, indeed, merely as a result of resting. Tube feeding is expressly contraindicated because of the danger of setting up exhausting pharyngeal reflexes and of the possibility, in the absence of all reflexes, of the entrance of the tube into the trachea. Rectal feeding is sometimes useful. Strychnine is also contraindicated for it increases reflex excitability. Recommendation of the use of this drug in so many text books is unfortunate. This disease was first studied in the author's clinic in 1887, although Oppenheimer reported it first and Erb had isolated the bulbar syndrome in 1879.

Missed Labor with Living Child.—Arnesen reports a case of transverse presentation at term in which labor began only to cease again. An attempt was made under narcosis to dilate the os manually in the hope of extracting a foot but was given up in the presence of the cessation of all signs of labor. Six weeks later there was spontaneous delivery of a living child, well developed and only of middle size. It was not weighed. No cause for the transverse position was apparent.

Meningococci and Gonococci.—Aaser and Holst discuss the subject of the possible confusion of gonococcus and meningococcus meningitis. Observers in the eighteenth century described a gonorrheal rhinitis and in 1830 Eisenmann featured a gonorrheal meningitis. Progress along these lines remained at a standstill for many years despite the ever increasing knowledge of the pathogenicity of the gonococcus. Finally a series of endocranial manifestations developing suddenly in the course of the disease—for example, diplopia—were very suggestive of a meningeal localization. The extragenital manifestations of gonorrhea also show a certain parallelism with the extracerebral complications of epidemic meningitis. Each form of coccus can cause a sepsis and metastases without implication of the meninges. The remarkable resemblance between the two causative organisms suggests that in a purely bacteriological or serological diagnosis, mistakes are possible. There is the further possibility of other germs of like behavior which belong to neither species. In any supposed epidemic of meningitis this question of possible identity can be subjected to intensive study.

One should at least know if meningococcus serum can agglutinate the gonococcus and vice versa. Thus far the elaborate study of the authors has failed to prove that any of the diplococci obtained from the cerebrospinal fluid of patients with epidemic meningitis are gonococci. Again in gonorrheal patients, none of the diplococci obtained from the nasopharynx are gonococci. The fact that an antimeningitis serum can inhibit the gonococcus cannot be interpreted as demonstrating the identity of the two organisms.

Correspondenz-Blatt für Schweizer Aerzte.

May 11, 1918.

Determination of Diabetic Acidosis by Measurement of the Tension of the CO_2 of the Alveolar Air.—Rapin and Turin mention the shortcomings in the recognition of acidosis. Urinary acidity is not sufficient in all respects, and requires laboratory technique. Furthermore, the urinary tests presuppose the integrity of the kidneys, for in inadequacy the acids are retained. In any case, what is wanted is not the amount of acid in the urine but that in the organism and also the state of the body defences against acidity. There is one simple procedure—the determination of the amount of alkali necessary to render the urine alkaline. This does well in certain degrees of acidosis but is not dependable when the latter is very high. Normally the alkalinity of the blood corresponds to about 50 ccm. of normal sodium hydrate for each liter of blood. It is due to the presence in the plasma of a certain quantity of acid sodium carbonate and phosphate which can blue red litmus paper. Such alkalinity is only apparent for the salts on which it depends are really acid salts in which an atom of it is replaceable by one of a metal. Hence authors speak of blood acidity although the blood is best regarded as neutral. There are, it must be admitted, alkaline reserves in the blood which can combine with CO_2. If the latter accumulates in the blood these reserves can be shown to diminish. Minkowski showed that in diabetic coma the CO_2 in the blood is strongly diminished, probably because the oxybutyric acid has been able to saturate the alkaline reserves. CO_2 is combined in the blood in numerous fashions—as sodium carbonate and bicarbonate, sodium phosphocarbonate, carbohemoglobine and in loose combination with the blood globulines. The capacity for combination with the alkalies of the phasma is diminished in acidosis. The CO_2 tension in the alveolar air is equal to the difference of the oxygen tension in the inspired and expired air, = 37 to 38 mm. of mercury at ordinary air pressure. To obtain this tension Joslin, also von Noorden, use the apparatus of Fredericia. The authors have sought to devise a simple bedside apparatus for this purpose and have had constructed a device termed by them the spirocarbometer. A bulb holding 100 c.c. is provided with two valves. A narrow reservoir in the lower portion below the entrance opening contains potassium 60 per cent. An upward extension of the bulb is provided with a manometer. The lower valve being opened the patient breathes through it by means of a mouth piece, the upper valve which leads to the manometer being also open. At the end of expiration the valves are closed (the lower first) and the manometer removed. The apparatus is now inverted, so that the potassium enters the bulb, and then shaken for a few moments, after which it is righted. Care must be taken that the hand does not warm the bulb. The manometer is now replaced, its valve opened and the difference between the two measurements read off. It is radily apparent that as acidosis increases the CO_2 tension diminishes. Thus with acetone in the urine of a patient 1.37 the CO_2 tension was 36; with acetone 2 84 it was 34, while with acetone 4.18 it was but 21. A number of successive measurements are necessary, as individual readings at long intervals would be misleading. In operating the apparatus, however, several corrections must be made. The tension recorded by the manometer is much higher than 37 or 38 because it comprises the vapor tension and runs from 45 to 55 or more in the normal subject. Correction for temperature does not appear to be absolutely necessary. In a severe case of acidosis the uncorrected alveolar tension ranged from 42 to 21 mm. Hg., while in an ordinary diabetic the figures were within normal limits. In a case of beginning coma the range was from 47 to 22, the higher figures appearing as a result of treatment. When the urine approached and reached alkalinity the tension had risen steadily from 22 to 47; and when the urine once more turned acid there was a drop in tension from 47 to 41.

Hygiea.

April 30, 1918.

Two Operative Cases of Hemolytic Icterus.—Edman reports two congenital cases of this affection in a mother and child and one case of acquired hemolytic icterus due to syphilis. The two former were subjected to splenectomy with the result that one month after operation all of the symptoms, save anemia, had disappeared. Five months after the intervention the latter symptom had also vanished. The author believes that the icterus may have resulted from absorption by the intestine of urobilin in excess, due in its turn to an excessive production of bilirubin. The absorbed urobilin again becomes oxidized to bilirubin. Wessén adds an account of the pathological specimens—spleens removed from a mother and son aged respectively 57 and 18 years. The spleens weighed 1400 gms. and 1120 gms. To the naked eye no alterations were perceptible; to the microscope the alterations were of a common character. There were changes in the medium sized and smallest arteries which comprised hyaline degeneration and proliferation of the perivascular tissue. The malpighian corpuscles were coarser than normal; the trabeculæ also showed hyaline degeneration; the meshes were as if compressed and contained a relatively small number of lymphocytes—in fact, the picture of lymphoid tissue was lost. The pulp showed a peculiar richness of blood with a peculiar distribution. The venous sinuses were empty and the intervascular stroma full of blood. The proper pulp cells were reduced in number and were thrown well into the background by the number of erythrocytes.

Case of Hemolytic Icterus.—Antoni also reports a case of this affection. The patient was aged 20, female. The mother is said to have had jaundice for a long time but was later free from it. No other heredity of interest. The icterus followed a surgical operation. The girl is fat, shows general icterus, spleen slightly enlarged. Hemoglobin 70, red cells 4,325,000. Feces reddish brown. Urine normal. Wassermann negative. Bloodsugar 107 mgm., increased by adrenaline to 171. The patient was splenectomized and the icterus vanished for a time, to reappear. At present time there is a slight tint in the skin and conjunctivæ.

Origins of Medical History in Spain.—Dr. Garcia del Real of Valladolid writes of the medicine of the Moors, Spanish Jews and French Benedictines. Little is known of Spanish medicine before the days of the Moorish invasion. The older Iberian and Celtiberian languages are all but unknown and have left no monuments. We know about as little of the medicine of the Carthaginian and Greek colonists. A few fragments of Hispano-Roman medicine have come down to us, but these are insufficient for drawing conclusions. This takes us to the epoch of the Visigoths which should have been sufficient to destroy any beginnings of medical culture had such existed. It appears from a work known as the Forum Judicum that before this irruption there were activities in the realm of preventive medicine and forensic medicine. The accomplishments of the great Arabians and of Maimonides and his coreligionists are of course sufficiently well known to us. The Christian culture of the period seems to have been in the hands of the French Benedictines, who were famous for their learning. This could obtain only in the northern kingdoms which had never been permanently conquered by the Moors. In the thirteenth century the Christians established the first universities and the first hospitals in Christian Spain (with the exception of a lazaret erected by the Cid in Palencia in 1067 A.D.).—*Revista Ibero-Americana de Ciencias Medicas.*

Book Reviews.

A Medical Dictionary. By W. B. Drummond, M.B., C.M., F.R.C.P.E., Medical Superintendent, Baldovian Institution, Dundee. Price, $5.00. London and Toronto: J. M. Dent & Sons, Ltd.; New York: E. P. Dutton Co., 1918.

This excellent work is not intended for the medical practitioner, though he might read some of the articles with interest, but for the layman—for "social workers, school teachers, district visitors, clergymen, factory inspectors, and welfare superintendents"; for "those who are called upon for medical knowledge, preventive or curative, in the absence of professional help."

The author has done his work well, avoiding the common errors of using too technical language and of telling his readers too much in regard to treatment, thereby imparting to them the little learning which is so dangerous a thing, especially in medicine, tempting the half instructed to give powerful drugs for minor ills which simples or time alone would cure. Many of the articles are capital and, as we have said, of interest even to the professional reader, especially those on the borderline of medicine, such as the relation of insects to disease, trade diseases, including those of munition workers, and eugenics, and others dealing with hygiene and public health, such as ventilation, food, exercise, water supply, vaccination, bacteriology, etc.

The educational value of the work would have been increased had the author included more of the history of medicine; in the article on yellow fever, for example, not enough is said of the discovery of the mosquito's agency in spreading the disease, and the practical wiping out of the scourge in most of the endemic centers by the application of this newly acquired knowledge. While teaching the layman the principles of first aid and giving him more or less information regarding the nature of disease, it would have been well to let him know something of what the much abused profession has actually accomplished in advancing the science of sanitation and safeguarding the public health.

Applied Bacteriology. Studies and Reviews of Some Present Day Problems for the Laboratory Worker, Clinician, and Administrator. Edited by C. H. Browning, M.D., D.P.H., Director of the Bland-Sutton Institute of Pathology, Middlesex Hospital. New York: Oxford University Press, American Branch, 1918.

This little volume is the joint work of seven men, including the editor. The different chapters are in part written jointly by two or three contributors. They really represent a series of detached essays which deal incidentally with enteric bacilli, the diphtheria group, the coli group, tetanus, antiseptics, the isolation of certain bacteria, the selective action of thallium acetate and the ultra violet rays, the chemistry of antibodies and the use of calibrated pipettes in serological work. It is therefore almost wholly a book for technicians. In works of this type the essays are usually mere reprints but in this case there is no evidence that any of them have appeared elsewhere.

Principles of Surgical Nursing: A Guide to Modern Surgical Technic. By Frederick C. Warnshuis, M.D., F.A.C.S., Visiting Surgeon, Butterworth Hospital, Grand Rapids, Michigan; Chief Surgeon, Pere Marquette Railway; Secretary of the Michigan State Medical Society; Editor of the Journal, Michigan State Medical Society; Member of the Michigan State Board of Registration in Medicine. Octavo of 277 pages with 255 illustrations. Price, cloth, $2.50 net. Philadelphia & London: W. B. Saunders Company, 1918.

This book is written from the point of view of an active operating surgeon who can fully appreciate the value of the properly trained nurse in the operating room as well as the value of competent nursing before and after the operation. Conversely, he well knows by experience the blighting effect on the smooth technique of the operating room and of the actual operation itself when the operating room staff of nurses has not been properly trained. He should, therefore, be well qualified to deal with this subject from a practical standpoint; and it takes but a brief perusal of this book to confirm that opinion. He has written in a clear, concise and logical manner, giving an interesting as well as eminently practical exposition of the subject, while the abundance of excellent illustrations adds still more to its value.

The methods taught in this book are largely if not entirely those of the hospital with which the author is connected, but that would also be true of books by other authors, since each would recommend the methods to which he was accustomed and which appeared to him to be best. It is also likely that a nurse at the head of a Training School would wish some portions of the text elaborated for teaching purposes and would consider others verbose or perhaps even unnecessary; but while the book is not perfect, it certainly will furnish any nurse with a set of guiding principles which, if followed closely, will make her unusually expert and efficient in the handling of surgical cases.

A Manual of Histology. By Henry Erdmann Radasch, M.S., M.D., Assistant Professor of Histology and Embryology in the Jefferson Medical College, etc. With 307 illustrations. Price, $2.50. Philadelphia: P. Blakiston's Son & Co., 1918.

This work is a successor of an earlier one, but is virtually a new work necessitated by the great advances of recent years. The chief departures appear to be in technique and in neurohistology. About 90 of the 564 pages are devoted to nerve substance and the nervous system and 55 to general technique. The alimentary tract requires 73 pages and the connective tissues 38 pages. All of the remaining sections are considerably smaller. The illustrations are on a rather small scale because of the size of the volume and the absence of colored plates is probably the result of war contingencies. It is difficult to predicate the teaching value of such a book from a survey of its pages, but the work is admirably done by one who thoroughly knows his subject, and must be regarded as authoritative.

Local and Regional Anesthesia. With Chapters on Spinal, Epidural, Paravertebral, and Parasacral Analgesia, and on other Applications of Local and Regional Anesthesia to the Surgery of the Eye, Ear, and Nose and Throat, and to Dental Practice. By Carrol W. Allen, M.D., Assistant Professor of Clinical Surgery at the Tulane University of Louisiana, New Orleans; Lecturer and Instructor in Genito Urinary and Rectal Diseases at the New Orleans Polyclinic; Visiting Surgeon to the Charity Hospital. With an Introduction by Rudolph Matas, M.D., Professor of General and Clinical Surgery at the Tulane University of Louisiana, New Orleans, etc. Second Edition. Price, $6.50. Philadelphia and London: W. B. Saunders Company, 1918.

Dr. Rudolph Matas states, in an introduction to this book, that since 1895 he, as director of the surgical clinics of the College of Medicine of the Tulane University, supervised efforts made by the staff to diminish the indications for general narcosis, and to substitute for the immediate dangers of chloroform, which was then the routine anesthetic in almost all Southern clinics, the more laborious but far safer methods of peripheral analgesia. For a period of something like fourteen years experiments have been made at Tulane University in this direction, until at the present time, while the art of local and regional anesthesia is only in its adolescence, great advances have been made in this branch of anesthesia. The book before us is a review and summary of such progress, written by Dr. Carrol W. Allen, who has for many years devoted himself to a study and practice of local and regional anesthesia. So skilled indeed has he become in these methods that from 55 to 60 per cent. of the major operations at the Charity Hospital at New Orleans, in the division under his charge, are performed solely by peripheral anesthetic procedures, exclusive of the spinal or subarachnoid analgesis, which are not included in this category.

This second edition includes the advances made in this field, prominent among those being the removal of the prostrate, which Dr. Allen regards as his best accomplishment in local anesthesia.

The work deals with local anesthesia in all its details and is a valuable reference book on the subject. It is well illustrated.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Twelfth Annual Meeting Held at Albany, May 20-24, 1918.

(Special Report to the MEDICAL RECORD.)

SECTION ON OBSTETRICS AND GYNECOLOGY.

Second Day—Wednesday, May 22.

DR. JAMES KNIGHT QUIGLEY IN THE CHAIR.

The Value to Both Mother and Child of Prenatal Care.—Dr. RALPH WALDO LOBENSTINE of New York presented this paper. He said the expectant mother had been neglected too long; too long had the "leave it to nature" delusion occupied our minds. Never before had the nations been brought to such a keen realization of the value of the mother. Recent investigations had shown that very little attention was given to parental care and that this was true of the rural districts more than of the cities. For instance, a study of one county in Kansas where the level of prosperity was high showed that two-thirds of the mothers had no medical care before the children were born. In many parts of the country the conditions were even worse. Practically 40 per cent. of all deaths under one year were due to congenital disease. To this must be added the high still birth and miscarriage rate of which there were no reliable records. In endeavoring to combat infant mortality and maternal morbidity, we were fighting industrialism, with all its attendant horrors, poverty, filth and ignorance. The basic evils that we had to combat were ignorance, rum and ruthless industrialism. If we could remove the curse of alcohol, the others, poverty, filth, syphilis and tuberculosis would in a large measure disappear. In New York the situation had been studied from different angles, the efforts having been confined to Manhattan with its 2,500,000 population and its 60,000 or 65,000 births every year. The first step in the simplification and coordination of the work was the development of the zoning system, as outlined in the *American Journal of Obstetrics*, September, 1917, whereby Manhattan was divided into ten zones. The basis adopted was the ratio of existing maternity facilities to the number of births in the different sections of the borough. The district plan was important for hospitals, for lay organizations, and most of all for the patients themselves. It encouraged the hospitals to draw their clientele from their particular district and rendered prenatal oversight of the expectant mother far easier by economizing the time of both the patient and the visiting nurse. The maternity center would be the center of an educational campaign for the prenatal care of expectant mothers of the district in which it was located. It would be the coordinating agency or the clearing house for the expectant mothers of that zone. It would secure the opening of prenatal clinics, conveniently located, when enough of such clinics did not exist to serve the needs of the district. The doctors and midwives of the district would be urged to bring their cases to the clinics for consultation. These clinics would be open day and night for emergency cases. Women physicians would be employed because of the prejudice of foreigners against a male physician. The clinic would follow each birth and see that nursing care was provided throughout the danger period. All the clinics would be standardized so far as records, nursing and medical oversight. Efforts would be made to encourage all abnormal cases to go to the hospital. Standards of requirements for prenatal care had been formulated for both hospitals and maternity center clinics, urging early registration of all expectant mothers and constant supervision. Literature giving instructions to expectant mothers was prepared and distributed.

Injuries at Birth, Their Effect upon the Child and Their Prevention.—Dr. BARTON COOKE HIRST of Philadelphia presented this paper. He stated that about 10 per cent. of children died prematurely of asphyxia, atelectasis, malformations, injuries, and infections. He then discussed in detail the injuries that might occur to the various parts of the body. Injury to the brain was most frequently the result of the faulty use of the forceps or the violent extraction of an aftercoming head. The nerves most frequently damaged were the facial and brachial plexuses. Spoon depressions of the parietal and frontal bones were most often caused by a prominent promontory by forceps. For the correction of these depressions pneumatic traction or trephining had been suggested and Dr. L. C. Frazer had successfully operated on one such case for him. Fractures, if compound, required aseptic dressing. Distortion of the head was very common. Caput succedaneum was a common injury to the scalp, requiring no treatment and usually disappearing in three or four days. Cephalohematoma occurred about once in 200 cases. It was due to subpericranial hemorrhage which lifted the pericranium from the bone, irritated it, and stimulated it to bone production, thus giving rise to the bony sensation at the lifted edges of the pericranium, and later to a peculiar crepitus over the tumor. Non-interference was the treatment except in cases in which the hemorrhage was excessive or suppuration had occurred; the latter required incision and drainage. Sloughs required ordinary surgical treatment, as did fractures and dislocations. Decapitation had been known to occur in some cases in which undue force was exerted and occasional injury was inflicted on the cervical spine, the larynx, or the trachea, in consequence of the excessive twisting of the neck that occurred when the occiput turned forward from a posterior position and the shoulders did not follow the movement of the head. Injuries to the limbs were usually fractures, being as a rule a separation of the diaphysis and epiphysis. They required in the lower extremities fixation in extension, and plaster bandage and in the arm fixation in the Velpeau position by a jacket with only one armhole for the sound arm. Fractures were usually the result of faulty management on the physician's part. Avulsion sometimes occurred in efforts to extract a premature or macerated fetus. In discussing injuries to the trunk, the essayist stated that ruptures of the large bowel might result from pre-existing ulceration or necrosis, usually at the sigmoid or other flexures. It was obvious that a great many of these grave injuries were due to faulty obstetrics. Specialists and the better trained element of the profession had definitely given up forcible deliveries of all kinds. Hard forceps operations with hours of strenuous pulling were no longer performed. When the head could not engage first the former plan of doing a version to try to pull it into the pelvis by main strength had been abandoned. Mistakes in diagnosis resulting in applying forceps to the breech or to one buttock or forcing a blade between the scalp and the skull were cited. The prevention of these injuries must result from better education in obstetrics than former generations of medical students had had.

Some Causes of Stillbirth.—Dr. J. CLIFTON EDGAR of New York presented this communication. He said the term stillbirth in this paper applied only to viable fetuses, namely, from twenty-eight weeks of pregnancy to term, in which respiration was not established, whether heart action persisted or not. The percentage of stillbirths in the United States and the number of deaths of infants in the first months following labor had shown no decrease during recent years. During the year 1917 there were 141,564 living births in the city of New York and 6,120 stillbirths were reported to the Department of Health, although the actual number of the latter must have been very much higher. There was a stillbirth mortality of 4.1 per cent. Of 14,468 births at the Manhattan Maternity from April, 1905, to October 1, 1916, there were 519 stillbirths or 3.6 per cent. The object of this paper was to inquire into the immediate causes of these 519 stillbirths with the possibility in view of lessening this source of infant mortality. The cause of the stillbirth was unknown in 149 cases; it was due to obstructed labor in 78; protracted labor in 32, and precipitate labor in 19 cases. It was due to cord conditions in 65 cases, to placental conditions in 47, maternal diseases in 44, and fetal conditions in 65 cases. In ten cases the cause was unstated. The writer made a detailed analysis of these groups of cases and in commenting on the findings deplored the absence of the routine employment of the

Wassermann reaction. At least one death in the series was attributed to the employment of so-called twilight sleep. Unless employed with great judgment, pituitary extract in labor cases was often a double-bladed instrument. To what extent chloroform, ether, and nitrous oxide gas were contributing or direct causes of stillbirths was an open question. Prolonged anesthesia during labor must always be reckoned with as predisposing to stillbirth. In this group of cases anesthetics were used very sparingly. The great lesson the study of these 500 instances of stillbirths taught was the need of prenatal observation and care of the patients. It was difficult enough to persuade the patients of the upper classes that such care was imperative; it was often impossible to convince the tenement house patient. In the hospital from which these cases were taken a daily prenatal clinic was conducted to which patients were directed to report and to send specimens of urine, etc. In connection with the Bellevue service they held a prenatal clinic twice a week. The conclusions they had drawn had reference to several possibilities, namely, a better system of records, a greater proportion of autopsies and biological tests, diffusion of knowledge among actual and prospective mothers, and especially oral instruction of women who have once been confined, so that better supervision might be exercised during the next pregnancy. In a word, better general obstetrical care, with special regard to closer prenatal observation of pregnant women. In regard to the number of cases in which the child might have been born alive under favorable auspices, many of the protracted labors could be included, precipitate labors might be added, and also some of the dystocia cases, especially those due to faulty presentations. Toxemia and eclampsia could have been averted in a goodly proportion of the cases. All of the syphilitic cases might have been averted by early treatment of the mother. It was by no means unlikely that at least 100 cases might have been saved, and even this seemingly high estimate might be too small a computation. Although their mortality was lower than the average there was every reason to believe that this figure could be considerably decreased. The tenement house woman was especially prone to abortion and premature labor which could not be charged to physical injury or psychical shock to the mother, but of which the real underlying cause was the too early getting about after confinement, before involution was more than partially accomplished, with the resulting subinvolution, displacements and endometrial changes. The longer existence of these conditions led to an even earlier interruption of pregnancy.

The Establishment and Maintenance of Breast Feeding.—Dr. J. D. Crozer Griffith of Philadelphia presented this communication in which he said that provision for the establishment and maintenance of breast feeding should be taken, if it were possible, before the mother was born. There was no question that the ability to nurse an infant successfully was to a large extent a matter of inheritance. It seemed very probable that a line of mothers who, though able, practised a voluntary refusal to suckle their offspring, finally developed an acquired characteristic which could be transmitted, resulting in inability in the mothers of the younger generation to perform the maternal function of nursing. Were we able to follow out the principles of eugenics to their logical conclusion a young woman before being permitted to marry would be subjected to an examination of her mammary glands to determine whether they were of a size and form which would make the ability to suckle probable, and in addition her mother's personal experience in maternal nursing should be investigated. It might be noted that inability to nurse was to a large extent a matter of locality. In certain regions of Germany nursing was common and in others infrequent. In Japan artificial feeding was almost unknown. Another important influence upon the establishment of breast feeding was the manner in which the mother had been brought up as a girl. It went without question that, in the average at least, the woman whose girlhood had been passed in the most hygienic manner would be the best purveyor of food for her infant. It was the neurotic mother who was liable to give the poorest milk, if any at all, and after her child was born it was often too late to make attempts to obviate the difficulty. In studying the problem of the inability to nurse, the conclusions were unavoidable that unwillingness played a very prominent rôle. This was to a very large extent the fault of the physician in attendance at the time of confinement. The growing desire of women of the better class to nurse their children came from what they had learned at the numerous mothers' clubs and publications in the lay press, and the like, and not to the degree that it should from the advice of the medical profession. In many other instances it was through the advice of a too officious obstetrical nurse that the effort to nurse the baby was given up by the mother. If medical men would unflinchingly preach the dogma of maternal nursing to their clientele, it would not be many years before we would see a marked increase taking place in the number of women able to nurse their children. A secretion that was not well established by the third day might yet be established if given a little longer time. When the secretion was slow in being established, frequent pumping of the breast might be of advantage. It sometimes happened that a weakly infant was unable to suckle satisfactorily and the breasts were left constantly too full; nothing would so soon diminish the supply as this insufficient emptying. Another very important factor in the maintenance of the maternal secretion was the preservation of a normal psychic state. In every instance in which a mother had an insufficient supply an attempt should be made to give the infant *supplemental* and not *substitute* feedings. Sometimes this might be avoided by allowing the infant to nurse from both breasts at one feeding. Later in the infant's life the question arose of the advisability of giving one or two bottles a day. There was no surer way of causing a cessation of the milk secretion. A better way was that of giving some supplemental feeding after each breast feeding. There was now a plan in vogue for the reduction of the number of feedings as compared with the practice of the past. The experience of many authorities showed that the average normal breast-fed infant emptied its stomach in one and one-half to two hours and was therefore ready for food again should the giving of it seem advisable. The longer the intervals the less stimulation of the breast occurred and the greater the danger of the milk supply diminishing. Large amounts of liquid given to the mother to augment the milk supply were likely merely to dilute the infant's food. Cow's milk given to the mother offered no advantage over weak tea or even water provided the mother was already well nourished. The mother gorged with milk cocoa and the like was liable to have her digestion disturbed. Malt liquors undoubtedly increased the supply of milk in some instances. The advisability of administering them varied with the case. Exercise had a distinct influence upon the composition of milk. Over-fed women who took too little exercise were liable to have a milk too rich in solids, especially the protein and fat. Menstruation had little if any influence on the character of the milk. Galactagogues were usually this in name only. From what had been said it was evident that breast milk could be modified to only a very limited extent. The effort should be made to regulate the life on a normal hygienic plane as far as possible and to eliminate all causes of worry.

The Care of the Premature Child in the Home.—Dr. Herman Schwarz of New York read this paper in which he gave a short résumé of the essentials necessary in the care of the premature infant, giving particular attention to temperature, nourishment, and nursing care. He said the temperature of the premature infant was usually lower than that of the normal infant, and was characterized by greater fluctuations, usually in the downward direction, and on the temperature a prognosis could usually be made. In order to combat this lowered temperature the application of heat was necessary. If the baby at birth had a temperature of less than 94° F. the prognosis was very bad. In caring for these premature babies they had suggested that the obstetrician devote his attention to the baby before caring for the mother. In the winter the baby should be wrapped up and have hot water bottles placed about it, the temperature of the water in the bottles being 102 to 104° F. He did not favor the plan of wrapping the baby in cotton unless an accurate jacket could be

made as it was hard to get at a baby when it was simply wrapped in cotton. He found ordinary baby clothes or the leg of woolen underdrawers a more convenient form of clothing. It was most important to keep the temperature of the entire room warm, that was at a temperature of 77° to 85° F. This was all that was required no matter what kind of a room or what kind of heat was employed. The beautiful modern incubators were of course preferable, but the essential point was to keep the room at an even temperature and not to have eight or ten other people in the room; this last factor was most important. The child should have no one about it except when it was being cared for and in this way it would get enough oxygen for the necessary gaseous exchange. So far as the nourishment was concerned this involved the four questions, namely, what to give, how much to give, how often to give it, and how to give it. As the intestinal ferments were the same as those of the new-born infant it was unnecessary to give predigested foods or dilutions or breast milk. The preferable food for the premature baby was, of course, breast milk, and this one could usually get in the clinics, taking, if necessary, an ounce from one mother, one from another, etc., and thus making up the required amount. If breast milk was not available one was confronted with something of a problem, but would have to use cow's milk dilutions, and for these babies Dr. Kerley's evaporated milk had been found better than ordinary milk. Authorities differed as to the calories the premature baby needed. There was no question that the premature baby needed more than the ordinary baby, probably from 100 to 160 calories per kilo body weight. During the first week one could regulate the amount of food by the weight of the child, giving one-sixth or one-seventh the weight of the child in ounces. They usually began with 20 to 50 grams and went up one ounce a day as rapidly as they could. These premature babies were really still *in utero* and the impulse to grow was greater than that of a normal baby born at term. It was important to begin feeding the premature baby during the first twelve hours after birth. As to how often the premature baby should be fed, that question could not be answered. That was frequently a matter of the individual baby and the nurse who was accustomed to caring for such babies was usually able to arrange the intervals between feeding when the number of ounces to be given in twenty-four hours was determined. As to how to give the milk, if the sucking power was strong the baby might be given the breast or the bottle, but if it was not strong the Becker feeder might be used, and if the baby was unable either to suck or swallow the milk might be introduced through a catheter introduced either through the mouth or nose. Some premature infants had attacks of cyanosis. They should be made to cry for a time each day; during the attacks of cyanosis oxygen might be of help. A good intelligent, conservative woman to care for the baby was the most important factor in securing success. A child might be born at full term and still have the characteristics of a premature baby and require the care appropriate for a premature child. The last month *in utero* was a period of very rapid growth for the child and one during which great deposits of mineral salts were made. In premature babies they had found it advisable to administer mineral salts and iron.

Dr. DeWitt H. Sherman of Buffalo said there had been a call to save 100,000 babies in the United States this year and in response to that call the City of Buffalo had been considering what could be done. Where there were prenatal clinics and other organizations interested in child welfare work, as there were in some of the larger cities like New York, considerable could be done which was more difficult to accomplish in the smaller cities. But even in the larger cities there was a class of patients that was difficult to reach. The well-to-do and the very poor were well cared for but those of entremely moderate means who were able to employ only indifferent physicians did not receive as good care as the very poor. How to reach the medium class of people was a very complicated problem because the physician who was caring for them did not wish to be interfered with and at the same time he was a danger either on account of his indifference or his lack of education. As to how these men could be reached, he knew of no other way than through associations such as this. If organizations like the Pediatric Section of this Society were going to accomplish results something more should be done than merely to meet for a few days and tell what ought to be done; there should be a permanent committee to consider the problems and to make an effort to meet them as had been done in New York. They could then draw up a program to be sent to the smaller cities which would interest the men there and could be carried out by them. With such a program the cooperation of all the agencies in the smaller cities could be secured such as the local health department and welfare organizations. Dr. Griffith said that the only efficient galactagogue was the baby itself, and the speaker mentioned it because it should be emphasized so that physicians would encourage mothers to try persistently to nurse their children since determination was a very important factor in success. There was one modification of breast feeding worth considering. If one had a cross, colicky baby, passing curds, gas, and mucus in increasing amounts it was probably due to carbohydrate fermentation and contributing fatty acid fermentation, and a great deal could be done by using a powdered casein mixture sweetened with granulated sugar. Dr. Schwarz laid emphasis on the temperature and food, but there was a third element which he did not bring out strongly and that was with reference to handling premature babies. They should be wrapped up and no attempt made to dress them.

Dr. E. Gustave Zinke of Cincinnati emphasized the importance of the scientific and practical care of the pregnant woman from the day of conception to the end of term. The obstetrician who had the care of a pregnant woman was like the captain of a trans-Atlantic steamer. One could not imagine a captain taking charge of such a ship at the moment of its departure. He took charge of his ship long before the time of sailing and learned everything there was to know about it and the obstetrician should know his patient before she comes to labor, and the only way this could be accomplished was by having her come under his attention early. He should know her general health, her pelvic capacity, and the position of the fetus in the uterus. He should know beforehand what to anticipate and should prepare for it. People as a rule scarcely realize how much this meant and it was only in recent years that the value of proper scientific care during gestation had been appreciated. Such care should be given not only with the idea of saving the life of the mother and child but of coping with any complication that might arise at the time of delivery.

Dr. Charles Gilmore Kerley of New York, after congratulating the officers on the excellence of their program, said that Dr. Lobenstine had spoken of the influence of alcohol on the fetus and the new born and he wished to carry the statements a little further and speak of the influence that alcohol had on the developing child. They saw children lacking in inhibition readily excitable, with poor powers of concentration, and poor self control, who were brought to them for advice concerning what was called "nervousness," and they came from all sections of the country. Those children either in the first or second generation had a history of alcoholism. It was important to educate people to the fact that the taking of alcohol daily, even more than an occasional intoxication, rendered unstable the nervous system of the progeny. That was the result of the speaker's experience in years of observation. As regarded improving the breast milk of the mother, Dr. Kerley said his efforts in that direction had been a total failure. This was either because there was greater difficulty in building up the nursing capacity of the nursing mothers in New York or else because he did not know how to do it. He could check an excessive supply or correct one that was over rich, but he had been unable to improve the quality of the milk and agreed with Dr. Griffith on the subject of galactagogues. Regarding the care of premature babies, Dr. Schwarz had gone over the ground admirably. The giving of a high sugar content to make up the caloric value was a proper procedure and it was equally important to keep people away from the baby, not only for the reasons that Dr. Schwarz gave but because of the danger of infection. These premature babies had

a lowered resistance; a normal baby could overcome an infection that a premature baby could not withstand.

Dr. Anna White Marquis of Norwich said she was speaking as a woman for women. She had had a great deal of experience with women and they probably gave her more confidence than they would a male physician. The point she wished to make was that if men wished to have the birth rate raised there was just one way to do it. All the talking and writing of learned papers was in vain, the thing women wanted was to have the financial burden lifted. Many women wished to have a pregnancy interrupted because they could not afford to have another child and they went from month to month in constant dread of pregnancy, because they were unable to meet the financial burden and because it would mean suffering and neglect for the children already born. The financial burden should be lifted by having in every community a maternity hospital where these women could be cared for and some means established whereby their other children could be cared for in the home, during and after the confinement when the mother was unable to look after them. Every mother should have a bonus to pay for good nursing and for the care of the other children in the home and then the women would be willing to have children. We now had tuberculosis hospitals in every county and there was no reason why we should not have a maternity hospital in every county.

Dr. Eliza M. Mosher of Brooklyn spoke of a defect in the dress of women at the present time. She said she did not think it was realized that the dress of today was essentially different from that of a generation ago. The mode of dress at the present time gave no support to the breasts and this tended to lengthen the upper quadrant and to shorten the lower quadrant. It lengthened the veins in the upper part and shortened those in the lower part, and as a result the breast was being fed on venous blood and they all knew that a tissue fed on venous blood was not as well nourished as one fed on arterial blood, and this also applied to the milk ducts, which were lengthened above and shortened below. The mode of dress that permitted the breast to dangle without support crippled it during the developmental years and every doctor who had a young girl come to his office should advise her to wear a brassiere to prevent the downward pull. Another point Dr. Mosher emphasized was that Sir Arbuthnot Lane said that when he examined any woman for enteroptosis he always felt the breast and he nearly always found a lump in the outer quadrant of the breast in cases of enteroptosis. There seemed to be a definite relation between enteroptosis and the condition of the breast, and a very close one. The abdominal wall should either be developed so that it would form a proper support for the viscera or a proper support should be worn, for where there was enteroptosis the question of intestinal toxins entered into the problem and influenced the milk supply. Another factor in connection with the problem of infant feeding was the fact that during the early weeks after confinement the milk of the mother contained certain products of the internal secretions and when milk was pasteurized or boiled the products of the internal secretions were destroyed. Therefore she believed it was a mistake to pasteurize milk for infant feeding. In closing Dr. Mosher made a plea for the training of fathers, not only to a recognition of the necessity of giving pecuniary aid to the expectant mother but to help her in keeping a well-balanced mental condition. She thought the husbands should be reached and impressed with the fact that the responsibility for the welfare of the child rested with them equally as much as with the mother.

Dr. A. C. Mercer of Syracuse cited as an instance of the instability of the heat center in the premature baby, a case in which the child's temperature went to 110 F., and the only way it could be accounted for was that the water bottles were too hot, for as soon as the bottles were removed the temperature came down.

Dr. Schwarz of New York, in closing the discussion, said he had been able to get some reliable statistics with reference to miscarriages and stillbirths in the institution with which he was connected. They had the history of 10,000 families and of these 4,000 had been worked up and showed that in these 4,000 families there had been 17,000 pregnancies and 8½ per cent. of these had resulted in miscarriages, while over 2½ per cent. were stillbirths. These were taken from family histories in the general hospital and not simply from maternity cases. In speaking of the dressing of the premature babies he did not mean that when they were wrapped in cotton they were exposed but that the cotton was likely to become disarranged and it was harder to handle the children than when they were dressed in ordinary clothing and then wrapped in blankets.

Some Observations of the Chemical Examination of the Blood and Urine in Normal Pregnancy and in Toxemia of Pregnancy.—Dr. J. R. Losee of New York presented this communication which comprised the determination of the blood urea, creatinin and sugar, the carbon dioxide combining power of the blood plasma, the estimation of the total nitrogen, and the per cent. of it as ammonia and urea nitrogen of the urine. In addition, from these estimates they had determined the McLean index. After describing the method of collecting the specimens and the technique employed, the essayist said that the cases were all selected from the wards of the hospital and classified according to their clinical manifestations into four groups, normal pregnancy, preeclampsia, eclampsia, and pernicious vomiting. The normal cases were young primaparæ in the ninth month who were walking about and who presented no abnormal symptoms. The preeclamptics were women seven to nine months pregnant who were admitted with generalized edema, vertigo, eye symptoms, hypertension, and a large amount of albumin and many granular casts in the urine. The classification of preeclamptic was used in this connection for the want of a better name. The eclamptics were emergency patients who had had many convulsions, were comatose, and presented all the clinical features of this type of cases. The fourth group of cases were those of pernicious vomiting, comprising those from two to four months pregnant who came to the hospital with the diagnosis of pernicious vomiting. After a few days they were differentiated into the real and the pseudotypes of the disease. The total nitrogen of the urine was determined by the Kjeldahl method, and the urea and ammonia by the use of urease as described by VanSlyke and Cullen. The blood urea was also determined by the use of urease. The creatinin of the blood was estimated according to the method of Myers and Fine. The sugar concentration was estimated by the Lewis and Benedict method, and the carbon dioxide content of the plasma by the VanSlyke apparatus. It had been conclusively demonstrated in a former paper by Van Slyke and the writer that there was not an increase of amino acids in the blood in normal pregnancy or toxemia of pregnancy. The creatinin and sugar were practically the same as in normal patients. The carbon dioxide combining power of the blood plasma had already been shown to be below the average normal in a former paper by VanSlyke and the writer. The McLean index of urea excretion in this series was normal. Of the preeclamptic cases only four were examined, and it was found that the percentage of urinary nitrogen in the form of urea was definitely lower and that the urea nitrogen of the blood was somewhat higher than in normal pregnancy. Although the urea nitrogen of the blood was increased it did not seem sufficient to account for the low output or the gravity of the symptoms. The creatinin and sugar in the blood were normal, and the carbon dioxide combining power was the same as in normal pregnancy. The McLean index of urea excretion was lower than normal, and it would be observed from the tables that one week after delivery the index again rose to a normal level. In eclampsia the percentage of urinary nitrogen in the form of urea was much less than that found in normal pregnancy, and also lower than that found in cases of the preeclamptic type. It was of interest to compare the urea nitrogen figures in the blood of eclamptics and in the blood of interstitial nephritis with uremia. It was here that the chemical blood examination would help to confirm the diagnosis, for whereas in eclampsia there was a normal or slightly elevated urea nitrogen, in interstitial nephritis

and uremia the urea nitrogen of the blood would be from sixty to three hundred milligrams per one hundred cubic centimeters. The creatinin in the blood in eclamptics was normal, and in uremia it ran as high as thirty-three milligrams. In several blood examinations on eclamptics one case only showed a high urea nitrogen. This patient died and no autopsy was permitted. In the cases of pernicious vomiting a high ammonia coefficient was the only determination which was sufficiently abnormal to be of any assistance. The conclusions drawn from this study were as follows: (1) In the diagnosis of eclampsia a large amount of albumin in the urine and a normal blood urea were the most significant laboratory findings. (2) They did not know where the toxemia of pregnancy was formed, but they did know that neither nitrogenous products nor any other waste products could be held in the slightest degree responsible for the symptoms. (3) While modern biochemical technique was of great scientific interest and had a marked clinical value in some diseases, and while it had disproved such theories as the acidosis, the amino acid and the nitrogen retention as a cause of the toxemia of pregnancy, it afforded little assistance in the daily routine of obstetrics.

Dr. M. C. Breuer of Buffalo asked Dr. Losee whether he was familiar with Dr. Foster's findings. Dr. Foster claimed to have found a specific crystalline body which was the cause of eclampsia.

Dr. Losee replied that he was familiar with Dr. Foster's claim, but that no one else had been able to differentiate these nitrogenous bodies. There were still some 22 to 33 per cent. of undetermined nitrogenous bodies, and it might be that some of these were concerned in the production of eclampsia, but as yet nothing definite was known in regard to them.

Dr. E. Gustave Zinke of Cincinnati said that a paper like that of Dr. Losee should not be allowed to pass without discussion. All had recognized for a long time that there was a distinct difference between puerperal convulsions and uremic convulsions. In puerperal convulsions there was practically never any urea in the blood. In listening to Dr. Edgar's paper in the morning he had wanted to ask about a point on which Dr. Edgar placed considerable emphasis, namely, the prevention of eclampsia. Now when a man had a case of toxemia, with or without convulsions, which he had observed for weeks or months and that patient suddenly developed eclampsia, who was to blame? That remark reminded him of a very sad case in the early days of aseptic and antiseptic obstetrics. A thorough obstetrician and a prolific writer held the doctrine that no man had a right to lose a case because of puerperal fever, and that if he did he should be held responsible. This man lost a case from puerperal sepsis and committed suicide. Such radical statements ought not to go unchallenged. Perhaps the time would come when we could prevent toxemia and eclampsia in every pregnant woman, but that time had not yet arrived.

Two and One-Half Years' Experience with the Conservative Treatment of Eclampsia.—Dr. Ross McPherson of New York presented this communication. He said that after carefully studying the mortality statistics, both for mother and child, in the cases treated by the usual radical methods and comparing them with the results obtained by the more conservative methods, notably those reported from the Rotunda Hospital in Dublin, he began two and one-half years ago to test the value of medical treatment in the convulsive toxemias of pregnancy. This he did with considerable skepticism, since he had been brought up to consider the two words eclampsia and operation synonymous. These cases were in convulsions when first seen, and therefore a discussion of the etiology and prophylaxis of eclampsia had no place in this paper. No one was more convinced than the writer that careful prenatal treatment would eliminate the great majority of these cases. Careful observation of the pregnant woman, with routine blood pressure and urinary examinations, together with advice as to diet, clothing and ordinary hygiene, would prevent the occurrence of the greater number of cases of eclampsia that they now saw. There would always remain a certain percentage of physicians who would neglect this prenatal care, either on account of their lack of appreciation of its importance or on account of the failure of the patient to realize the gravity of the pregnant state. Therefore we should see, even under the most utopian conditions, a certain amount of this unfortunate complication. A thoughtful survey of the figures presented before the American Association of Obstetricians and Gynecologists, in 1917, in reference to the mortality from the surgical procedures employed in these cases, indicated the need of some other method of treatment. The writer presented the following: The cases were all pregnant and had had one or two more convulsions representative of the true obstetrical convulsive toxemias. Immediately after entering the hospital the patient's blood pressure was taken and a catheterized specimen of urine secured. She was then placed in an isolation room and as much quiet obtained as possible. One-half grain of morphine sulphate was given and the patient's stomach washed out. Two ounces of castor oil was then poured down the stomach tube at the end of the lavage. The patient was given a colonic irrigation of five gallons of 5 per cent. glucose solution. If the blood pressure was over 175 systolic, phlebotomy was done and a sufficient quantity of blood extracted to bring the blood pressure down to 150. Normal saline was not injected. It was unwise to bleed the patient if the blood pressure was lower than 175 systolic, because if for any reason a good deal of blood was lost during delivery the pressure might be reduced so low that the patient would die of shock. The same objection applied to the ante-partum administration of large doses of veratrum viride. The patient was then kept quiet and one-quarter of a grain of morphine administered every hour until respirations dropped to 8 per minute. At this time convulsions ceased and the patient usually fell into labor and could be delivered easily by median or low forceps. Sometimes a little ether might be given while waiting for the effect of the morphine. The convalescence was treated in the usual manner. In the writer's series of 67 cases, seven mothers died, a mortality of 10.4 per cent. Two of these mothers died before treatment of any kind could be administered, which brought the mortality down to 7.4. The number of children still-born in the series was 28.5 per cent., which was a considerable reduction over the best figures quoted. The writer felt that this method of treating eclampsia was a real contribution to obstetrical progress, and hoped that radically inclined obstetricians would give it a trial.

Is Cesarean Section Justifiable in Eclampsia and Placenta Previa?—Dr. George L. Brodhead read this paper, in which he first emphasized his belief that probably in a large percentage of cases of eclampsia and placenta previa abdominal section was unwarranted and unjustifiable. When the child was dead or not viable, when the patient was in active labor, with the cervix partially dilated or easily dilatable, and when the patient could not have the advantages of a well-equipped hospital, and the services of a competent surgeon, other methods of procedure might be not only more advisable, but absolutely indicated. On the other hand, increasing experience compelled him to believe that in a considerable number of cases cesarean section was the safest, easiest, and the most satisfactory method of treatment. The writer referred to his published statistics of 174 cases of cesarean operation in eclampsia from a large number of operators in various parts of the country (*American Journal of Obstetrics and Diseases of Women and Children*, Vol. LXXV, No. 5) in which there was a maternal mortality of 16.1 per cent., and said that in order to obtain more statistics he had reports of 39 hitherto unpublished sections which he gave in full. Of this series there were 35 primiparæ, 2 multiparæ, and in two cases the parity was not known. Six of the mothers died, giving a mortality of 15.4. Of the infants in this series only two premature infants died, a mortality of 5.8 per cent., which was a very creditable result. The last series of 39 sections gave a very much better infant mortality, 5.8 per cent., than the first series of 174, 18.8 per cent. Taking the two series together, there were 213 sections with 34 deaths, a mortality of 16.5 per cent. The writer presented these figures with a mind open to conviction, but at the present moment, he believed that the cesarean operation for eclampsia in primiparæ, at or near term, with a closed cervix, offered the best prognosis for mother and child.

He also reviewed the statistics of a number of authorities with reference to the maternal and fetal mortality, and compared them with those he had collected, much to the advantage of the latter. The writer also presented statistics of 48 hitherto unpublished sections which he had collected in response to a questionnaire recently sent to many obstetricians throughout the country. The maternal mortality in this series was 10.4 per cent. and the fetal mortality 10.8 per cent. The maternal mortality in this series seemed high, but excluding a case *in extremis* at the time of operation who would have died anyway, and one who died with chronic nephritis and chronic endocarditis, the mortality was 6.4. Excluding these cases and two other bad cases on the list the mortality was two per cent. In conclusion Dr. Brodhead expressed the opinion that cesarean section was of the greatest value in all patients at or near term, with central placenta previa, and in primiparæ at or near term with partial placenta previa and no cervical dilatation.

Dr. E. Gustave Zinke of Cincinnati said the practising obstetricians of today might be divided into three classes: First, those who pursued a strictly medical care of the convulsions, and who permitted the pregnancy to take care of itself, except in those instances in which the patient was already in labor, when they delivered without delay either by an easy version or by the use of low forceps; second, those who immediately proceeded to evacuate the uterus in every instance, no matter what the duration of pregnancy or the stage of labor, either by abdominal or vaginal hysterectomy, or by rapid dilatation of the cervix, followed by version and immediate extraction of the child; third, those who did not confine themselves to either of the foregoing methods but who, after considering every phase of the case, calmly sat in judgment upon it, giving special attention to the gravity of the symptoms, the period of gestation, the stage of labor, the patient's general condition, and, of equal importance, the patient's immediate environment. The practitioners of the first class were quite as wrong as those of the second class; there was but one difference between them, the former did much less harm than the latter. Obstetrical writers of extensive practical experience had for years spoken of three distinct clinical varieties of puerperal convulsions. The first variety was the so-called mild form, which always terminated in recovery, even when but little or nothing was done to check the progress of the disease. In these cases the convulsions did not ordinarily occur at short intervals, the pulse remained good, the temperature did not rise, and the urine in the bladder, though small in amount, was not highly colored, contained only a small amount of albumin and showed but few or no casts. The second variety included those cases in which the attacks were at once more frequent and prolonged, consciousness returned slowly after every seizure, the patient complained but little, the pulse though increased in frequency remained good and the temperature slowly but gradually rose after every convulsion. The urine was scant, dark and cloudy, and contained albumin and casts. These patients usually recovered under judicious medical care; surgical intervention did not improve the prognosis. Veratrum viride in fearless doses, high copious enema, stomach lavage, judicious hot baths or hot packs, gentle saline catharsis, and a milk diet were all that would be needed. It was true recovery might be expected if a skilled surgeon quickly performed an abdominal or vaginal section, but neither of these operations should be considered absolutely necessary or even desirable. In the third variety of puerperal convulsions the issue was invariably fatal, no matter what the treatment, medical, surgical, or both. From the beginning the convulsive seizures were so profound and prolonged as to leave the patient in a more or less comatose condition, consciousness did not return, and the patient passed from one paroxysm into another until death drew the curtain on the scene. In these cases abdominal section might save the life of the child if performed very early. The operation was justifiable only for this purpose. In all his dissertations on eclampsia for the past twenty years, the speaker had held that surgery had contributed little or nothing to the reduction of the maternal mortality of puerperal eclampsia, and that intelligent medical care had given the best results. Even if it were true that the same gratifying results could be obtained by abdominal or vaginal cesarean section as had been secured through the strictly medical care of puerperal eclampsia, the latter would still carry off the prize, because it excluded wounding, disfigurement, or maiming of the patient, while the medical treatment left no trace behind.

Dr. William Bryan of Staten Island thought that in well advanced cases of eclampsia it was best to turn the patient over to the surgeon and that cesarean section on such cases was preferable to any other operation. If one submitted these patients to any other operation than a cesarean section the mother or child or both would be lost.

Dr. William Pfeiffer of Brooklyn said that just before Dr. McPherson read his paper recommending the medical treatment of eclampsia before the Brooklyn Obstetrical Society he had had a case of eclampsia come into the hospital II para in convulsions. He did a cesarean section as soon as possible after the woman was admitted to the hospital and both the mother and child survived. Just after hearing Dr. McPherson's paper he had another case and decided to follow Dr. McPherson's method. After giving the morphine as Dr. McPherson described, labor did not begin. The convulsions ceased and then began again. He then thought the woman had suffered enough and did a cesarean section, which was followed by a stormy convalescence complicated with a psychosis, which might have been due to the toxemia, but that could not be proved, but he felt that if an early cesarean section had been performed the patient might have had considerably less trouble.

Dr. George L. Brodhead of New York congratulated Dr. McPherson on his figures and said he knew of no others as good as the ones Dr. McPherson had presented. He had no antagonism to the morphine method of treatment and thought that possibly a large number of cases might be treated by that method with good results. He had tried treating two cases by the morphine method and neither of them went into labor. He would like to know when labor did not come on what course Dr. McPherson would advise one to pursue. Dr. McPherson said that no baby alive before beginning the morphine treatment did not live after delivery. He would like to know what the mortality was during the first ten days after birth.

Dr. McPherson, in closing, thanked Dr. Zinke for his discussion and said that he agreed with him with the exception of one minor point. He had done 118 cesarean sections and one died, but not of eclampsia. He had been impressed by the fact that obstetricians seemed to be obsessed with the idea that the cesarean section was the proper treatment for almost every obstetrical complication and they seemed to have forgotten how to do anything else. Even the most enthusiastic operator must admit that the mortality from cesarean section was higher than that from normal labor and he was perfectly willing to agree with Dr. Brodhead that he would do a cesarean section in a case of eclampsia where it was definitely indicated. If a patient had a very large baby or a tumor obstructing labor he would operate as soon as anybody, but he could not see from the figures brought forward any reason for operating on every case of eclampsia simply because of the eclampsia. Dr. Pfeiffer's experience did not prove anything in regard to this method of treatment. A man might treat a considerable number of cases successfully and then have two disappointing cases within a few days. He did not want anyone to believe for a minute that he thought this method was applicable to all cases. One must take every case and analyze it and then apply the method that seemed best at the time the patient came under treatment. The general practitioner was the one who handled many of these cases of eclampsia and he should know when to give this treatment and when to stop it, and this was a plan he could follow when he could not operate. They were formerly taught that they should not give morphine as it dried up the body secretions. After giving morphine the blood pressure dropped and the patient passed more urine.

(*To be concluded*)

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Original Articles.

AN APPEAL TO PHYSICIANS IN BEHALF OF THE FOURTH LIBERTY LOAN.

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THROUGHOUT the long history of the evolution of man, we, as physicians and scientists, are impressed by the outstanding fact that even among primitive nations and races there has been intermittent striving toward government, and in the development of civilized governments a tendency to throw off the yoke of feudalism and tyranny and substitute some form of democracy and popular government in the interest of the masses of people, as opposed to the autocracy of the classes, as it exists in Germany, and the nations, like Turkey, in unholy alliance with her in the present world war.

This phase of the evolution of man, amply set forth by Herbert Spencer, John Stuart Mill, Charles Darwin, Edward Russell Wallace, and others, in a sociological and political, as well as in a purely scientific sense, is of such interest from the physician's viewpoint, and suggests such surprising lack of political and moral evolution in Germany, that this article is presented somewhat from the viewpoint of a racial evolutionary study as well as in the sense of trying to help in a practical way the successful floating of the fourth liberty loan, the campaign for which is now on.

As examples of the social and political evolution (and revolution) referred to as showing the trend toward democracy and the throwing off of the yoke of tyranny and autocracy (out of which last-named tendencies Germany has not yet begun to evolve, if the Von Tirpitz and junker policies of frightfulness and annexation are to continue as national policies), the most notable are the French Revolution, the American War of Independence, and similar movements in England resulting in the granting of the Magna Charta in the thirteenth century, the beheading of Charles the First in the seventeenth century—all in the direction of greater personal freedom and more democratic or representative government by the masses of the people.

This tendency toward this kind of political, moral and social evolution has not appeared in Germany, having been completely stifled by the feudalistic, autocratic, arrogant supremacy of her military ruling castes. Throughout the world, among all races and creeds, there has gradually evolved an opposing sentiment to Germany's policies, based on her failure to go forward in the natural processes of political, moral, and social evolution—an opposing sentiment which now finds expression against Germany and her allies, according to the psychology and temperaments of the races and nations arrayed against her.

The United States having never entered upon or engaged in an unrighteous or unsuccessful war, must not be placed for a moment in the position of faltering in winning the present war because of the lack of ample money to back to the limit our brave and unselfish men in the army and navy, now in a death struggle with the hordes who would destroy every American ideal and the foundations of a possible world peace, founded on democracy and international justice, the highest ideals for which the world can fight.

The present war is not America's first bitter fight for human rights and national and international righteousness, nor is it the first war for this sacred cause in which others of the Allied nations have engaged, but this war is the most vital and important in which practically all the civilized nations of the world are at war with Germany, which is in itself significant, and portending one result—victory for democracy and civilization over autocracy, feudalism, and barbarity.

German military megalomania, propaganda, and ruthlessness, all too clearly show in this struggle that the issue is: shall so-called German *kultur*, or democracy, survive? And we, as loyal citizens of a mighty republic, now the greatest world power, have the solution of this vital question in our hands in that we must finance the war; and it is far better that the whole or the greater part of the sum called for in this loan should be contributed for the coming issue of Government liberty bonds by the great masses of the American people than by the banks and financial institutions, so as to leave the last named free to use their capital chiefly in extending credit and stabilizing normal and war business in other necessary directions.

It is hardly necessary to point out the importance to us, as citizens, enjoying the high privileges and the corresponding serious obligations of citizenship, in the greatest and most advanced republic in the world, of making this fourth loan a signal success, because of its effects on us individually and on the fighting spirit of our boys "over there," and also on our nation, our allies, and the enemy nations.

The effect on us individually of buying liberty bonds, to our utmost ability in the use of both all available cash and all available credit, is first, as a cold business proposition, that these bonds are the soundest, safest and best investment that will be offered, even in these days of low-selling securi-

ties, and their purchase by us helps us individually, because it helps us to save money, strengthens our credit, educates us along financial, thrift, economic, and political lines; it provides us the opportunity to do patriotic and civic duty and to consider community, national, and international benefits as related to ourselves; it teaches us the value of coordinated effort in the nation as a unit in war and in business; it is a wholesome stimulant to our moral natures as men and women; it, above all, emphasizes the part taken by ourselves in protecting and sustaining our dear ones and our brave compatriots who are fighting our battles to make the world a more decent place in which to live.

One of the leading purposes of this liberty bond sale, as in previous sales, is one that specially appeals to physicians and humanitarians—to humanize the war through the further perfecting and augmenting of the already wonderfully efficient medical department and the supplying of all necessary comforts to the soldiers, both the sick and the well.

The success of the fourth liberty bond sale is highly essential to further impress our Allies with the idea of our own strong belief in our high American principles and ideals, and that we consider that they have all, by implied consent, recognized these high principles of American democracy as a higher basis for an improvement along these lines in the countries of our Allies, thus carrying the best inspiration to every fighting unit against Germany. It is inconceivable that we, as American citizens, could by any possible indifference to this momentous matter fail to subscribe and oversubscribe this loan at this critical time, in such a prompt manner as to impress our Government with our loyalty and earnest support, and our enemies with our protest against their barbarous conduct and policies.

It is an axiom that governments need money in large amounts to carry on war, particularly this gigantic world war, in which the chief issue is organized Prussian militarism set up against the rights of small and helpless nations, inspired by the fiendish philosophy of Nietzsche and Treitschke, and the thought that barbarous brute force and might make right, or at least would make for world dominion by the morally insane leaders of German propaganda and military caste, who dreamed only of bloody conquests, in violation of all international decency and the recognized rights of sovereign, weaker peoples.

Napoleon the First truly said that "an army traveled on its stomach," in the sense that the best fed, equipped, and trained army would, all things being equal, surely win victory. Our own country and our Allies have already spent billions of dollars and thousands of precious lives to overcome Germany's menace to our national rights and the world's civilization; and in the drafting and organizing in record time of the American army, soon to be one of the most effective of the armies in Europe, this nation has made untold sacrifices, and will make further sacrifices. It is obviously a most urgent necessity to continue to support and augment this army at home and abroad, in order to end the war as quickly as possible, and thus save lives, as well as the sacred cause at stake; it is equally urgent that the United States shall, regardless of the cost measured in mere dollars, continue to feed, supply, and fully equip this army in the most efficient manner possible.

To this end, and to the end that we may fully and loyally support our Government in its efforts to bring about a lasting world peace, founded on true democracy, the assured rights of weaker peoples, and guaranteed international righteousness, let us buy liberty bonds to our utmost ability, both for cash and on the very liberal installment plan offered by the Government and the banks.

CANCER: ITS CAUSATION AND PREVENTION.

BY JAMES W. SHANNON, M.B.,

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It is common knowledge that water contains various kinds of living microscopic organisms, some of which, as, for example, typhoid and cholera bacilli, are recognized as the cause of disease; by far the greater number, however, have, without sufficient reason, heretofore been regarded as harmless, and have been and are still being applied to all parts of the body externally, and consumed internally, in enormous numbers, in ignorance of the serious dangers to which it is now certain they give rise.

There is abundant evidence to prove that the essential cause of cancer and all other forms of new growth, or tumor, is one or many species of those microscopic organisms which are commonly known as the "Protozoa." More than thirty thousand species of protozoal organisms have already been defined, and it is probable that many others yet remain to be discovered; hence the isolation of one or more species or organisms concerned in the causation of cancer is of little practical value, since the possibility that others remain undiscovered cannot be excluded.

The growth of protozoal organisms is governed by various conditions, among which only the following require to be considered in this connection, namely: sunlight, movement, temperature, and food material.

Sunlight is favorable to the growth of protozoal organisms, and hence they are present in all surface waters. In ground waters, if they exist at all, they are usually only to be found in comparatively small numbers.

Quiescence or stagnation is a necessary condition for their highest development, and for this reason they are to be found in the greatest numbers in reservoirs, ponds, and small lakes. It will be seen later that in connection with these sources of supply the association of water with cancer reaches its highest degree. Water kept in movement by gravity and wind action, as in rivers and great lakes, tends to retard the growth of protozoal organisms, doubtless by causing their dispersion and interfering with their food supplies.

Temperature affects the development of protozoal organisms through its influence upon the viscosity of water, high temperature lowering the viscosity and low temperature raising it. Low viscosity interferes with the ability of protozoal organisms to float, and as they are unable to thrive except at or near the surface, their numbers are small in the warm water of the tropics as compared with those of temperate or frigid climates.

Nitrogenous materials form the food supply of protozoal organisms, hence their numbers tend to be

large in waters containing much decaying animal or vegetable matter. Some reservoirs are especially liable to become foul for this reason, and in these the excessive growth of protozoal organisms is frequently a source of serious trouble. The development of organisms is also unusually abundant and rapid in ground waters containing large quantities of nitrogenous matter when exposed to sunlight in reservoirs at the surface.

According to the numbers of protozoal organisms, as determined by the foregoing conditions, it is possible to distinguish the following classes of water: (1) Stagnant water (reservoirs, ponds, small lakes), protozoal organisms present in highest numbers; (2) water in movement (rivers, great lakes), protozoal organisms present in moderate numbers; (3) tropical waters, protozoal organisms in fewer numbers than in the preceding classes; (4) ground waters (wells, springs), protozoal organism few, frequently absent.

Accepting tentatively the view that protozoal organisms are the ultimate cause of cancer, it is obvious that the distribution of the disease should be expected to correspond with the character of the water supplies as determined by the numbers of protozoal organisms present in them. Thus, for example, communities supplied with water from reservoirs are exposed in a greater degree to the influence of protozoal organisms than those using the waters of wells or springs, and should therefore be expected to suffer accordingly from cancerous affections. For the same reason it is also to be expected that the highest incidence of cancer should fall upon those parts and organs of the body to which the regular application of water is a normal event, and that the disease should be rarely manifested in parts which are only liable to accidental contact with water. These considerations open to view a large field of inquiry hitherto unexplored, which it is the present purpose to investigate by means of the statistical and other data now available. Such an investigation, since it concerns the relation of water to cancer, cannot fail to result in conclusions of definite theoretical value, and in the event that a causative relation is established between water and cancer, in indications of enormous practical importance in the control and prevention of the disease.

Mortality from Cancer in the Cities According to Latitude. 1908-1912.

No. of Cities.	Degrees of Latitude.	Rate per 100,000 Population.
35	60 N. 50 N.	105.7
48	50 N. 40 N.	92 4
24	40 N. 30 N.	78.1
7	30 N. 10 N.	42.3
4	10 N. 10 S.	40.9
7	10 S. 30 S.	37.7
5	30 S. 40 S.	89.8

Statistical research has rendered it possible to define the broad outlines of cancer distribution over the surface of the habitable world, and, in civilized countries, where the data are more complete, to distinguish in somewhat minute detail the differences which exist between States, cities, and localities. The most notable feature of cancer distribution throughout the world is the regular manner in which the disease prevails according to latitude. The above table from Dr. Frederick L. Hoffman's extensive work, "The Mortality from Cancer Throughout the World" establishes this clearly.

It is impossible to believe that the uniformity which characterizes these figures could exist unless the distribution of cancer were governed in a systematic manner by one or more of the great forces of nature, acting, not upon individuals, but upon the causative agent of the disease. For the present purpose it is sufficient to observe that the correspondence between cancer prevalence and latitude implies an equally definite relation between cancer prevalence and temperature. In effect, therefore, the foregoing table may be interpreted as showing the influence of temperature upon cancer causation, and in view of this it becomes of the utmost importance to recall the fact, already mentioned, that the development of protozoal organisms is also influenced by the action of temperature upon the viscosity of water. Independent observations in various parts of the world have also established the fact that in the cold waters of arctic and temperate climates the density of living organisms at the surface far exceeds that of the warm waters of tropical regions.

Since the distribution of both protozoal organisms and cancer is thus governed by temperature, and since it is contrary to theory and the verified facts of cancer causation to believe that cancerous manifestations are a direct result of the action of temperature upon the tissues of the body, it becomes logically certain that a causative relation must exist between protozoal organisms and cancer. It follows, then, in the face of such a relation that the prevalence of cancer must vary according to the development of protozoal organisms; or, in other words, that protozoal organisms are a determining or causative factor of the disease. For the present it is sufficient to notice that this view is entirely consistent with the statistical facts of cancer distribution in its widest aspect; later it will appear that it is also consistent with every other feature of cancer causation.

The principles of cancer causation are obscured by a number of predisposing conditions, such as age, sex, occupation, etc., none of which are of fundamental importance, but which, nevertheless, tend to influence the incidence of the disease upon any community. In order, therefore, to perceive clearly the fundamental causative principles it is necessary to eliminate from consideration all such unessential factors, and to assume for a time that all populations are predisposed to the disease in an equal degree. On fundamental grounds, then, the theory that protozoal organisms are the ultimate cause of cancer demands that the disease should prevail according to the character of the water supplies of each community, as determined by the number of protozoal organisms present in them.

By reason of the fact that the development of protozoal organisms is favored by quiescence or stagnation, and retarded by movement, and since waters are caused to flow or to stagnate according to the physical characters of a country, it is obvious that the prevalence of cancer in various localities must be governed in a large measure by the topographical features peculiar to each. It is therefore to be expected that cancer should prevail more abundantly in lake districts, valleys, and low-lying coun-

try, than in mountainous regions, or in the neighborhood of rapidly flowing rivers or streams. If the facts of cancer prevalence are interpreted in the light of these considerations, the relation of the disease to the water supplies will then become apparent. The material for such an inquiry is unlimited, and for the present it is only possible to consider certain features of the subject which are prominent in the records of cancer in the United States of America.

Statistics covering any period of years show that both the maximum and minimum incidence of cancer is invariably associated with the same group of States or region of the country. The degree to which this is true renders it virtually certain that the character of the country has a determining influence upon the prevalence of the disease in each part. If the States included in the United States registration area are arranged in order of cancer prevalence it will be found that they fall together into groups in a manner almost identical with the geographical arrangement. This is illustrated by the following table showing the States having the maximum and minimum rates of cancer mortality for the period 1913-14-15, according to the figures of the United States Bureau of the Census:

Maximum and Minimum Rates of Cancer Mortality per 100,000 of Population of States in the U. S. Registration Area for the Period 1913-14-15.

	1913	1914	1915
Average throughout registration area	78.9	79.4	81.1
Vermont	111.7	109.9	104.0
Maine	107.5	107.6	106.6
New Hampshire	104.4	100.8	109.4
Massachusetts	101.4	101.2	104.0
California	97.6	97.9	98.1
Rhode Island	93.3	91.2	92.1
New York	87.8	90.0	92.0
Connecticut	85.1	86.5	92.6
Washington	53.5	61.9	57.2
Utah	52.1	45.8	48.3
Colorado	50.7	58.3	53.4
Montana	49.4	51.5	50.0
Virginia	48.4	48.9	53.7
Kentucky	48.0	46.0	49.7
North Carolina	47.9	57.8	59.5

Study of this table will show that, with the exception of California, the arrangement of these States according to the figures of cancer prevalence places each in its correct geographical position with respect to the others. Three groups may be distinguished as follows: (1) a group comprising all the States of New England and the State of New York, which except for the interposition of California would appear in unbroken sequence; (2) a group hereafter referred to as the "Rocky Mountain" group, which consists of the States of Washington, Utah, Colorado and Montana; (3) the "Appalachian group" which includes the States of Virginia, Kentucky, and North Carolina.

It will be seen that while there is no substantial difference between the rates of cancer prevalence in the States of the Appalachian and Rocky Mountain groups, there is a most striking difference between these and the New England group. In estimating its importance it must be realized that this difference is not an exceptional or variable occurrence, but is a constant feature of cancer prevalence, and presumably, is therefore due to some permanent influence which is more potent in the States of New England than in the region of the Rocky Mountain and Appalachian Systems.

A distinguishing feature of the landscape is the extraordinary number of lakes in New England and the northern part of the State of New York; the State of Maine alone has more than fifteen hundred, and throughout the States of New England, out of a total area of 66,424 square miles, 4448 square miles consist of water. Such an enormous area of water, in the form of comparatively small lakes, must necessarily allow of abundant opportunities for stagnation, and consequently tend to favor the maximum development of protozoal organisms. In view of this and of the fact that this region is associated with the maximum degree of cancer prevalence, there is a strong presumption that water and protozoal organisms are factors in the causation of the disease.

The influence of the physical characters of the country upon the behavior of water, on the States belonging to the Rocky Mountain and Appalachian groups, is such as to reduce the possibilities for stagnation to a minimum. These states include within their boundaries portions of the two great mountain systems of the North American continent, and therefore form part of two great water sheds draining towards the Mississippi Valley in the center and the eastern and western coasts on either side. The number of lakes throughout these states is small in comparison with that of the states of New England, and owing to the fact that the country may be broadly regarded as a series of plateaus or terraces rising towards the summit of mountains of considerable height, the flow of water under such conditions must necessarily tend to be for the most part rapid, and hence generally unfavorable to the development of protozoal organisms.

The minimum degrees of cancer prevalence thus occur in districts which afford the smallest opportunities for the stagnation of water, and, as in the case of the maximum degrees of prevalence, the facts concerning them are entirely consistent with the view that water and protozoal organisms are factors in the causation of the disease. When the details of this part of the subject are carefully weighed, and their meaning as a whole attentively considered, their significance can hardly fail to be regarded as having the value of proof; otherwise it is impossible to conceive that a relation of the kind established could exist if protozoal organisms and water were not influential in the causation of the disease.

The increasing tendency for cancer to prevail according to the progress of modern civilization is a subject of great theoretical interest to students of the disease, and of considerable anxiety to those responsible for its control. In less than the lifetime of a generation the mortality from cancer in America has increased by at least 25 per cent., and under existing conditions threatens to advance still further. In endeavoring to understand this feature of cancer prevalence, attention is arrested by the fact that the present-day facilities for travel, together with the demands of commercial and social life, have not only resulted in a great permanent increase of the urban population, but also, by attracting a larger proportion than formerly of the rural population to cities, have tended, in some measure, to equalize the conditions of urban and rural life. By reason of the fact that the rate of cancer prevalence in cities is constantly higher than in rural districts, the general

result has been the exposure of a greater proportion of the population to an increased risk of acquiring the disease.

In reality the progressive increase of cancer is more precisely due to urbanization than to civilization, and since urban populations are predisposed in a special degree to cancer, it becomes important to consider those conditions peculiar to city life which may influence the causation of the disease; prominent among such conditions is the character of urban water supplies.

The needs of urban populations require that the water supplies of cities should be stored, usually for a considerable time, in reservoirs, under conditions which generally are highly favorable to the development of protozoal organisms. Hence, notwithstanding the use of methods for its purification, water in cities, as delivered to the consumer, is, by reason of the numbers of protozoal organisms present, less desirable, from the viewpoint of the theory of cancer causation herein suggested, than the average water from natural sources used by rural populations and primitive peoples.

There is much evidence to support the foregoing views of cancer causation, but before attempting to render its full significance clear it is necessary to outline certain principles underlying the nature of the disease; these are as follows: (1) that cancer and other neoplasms are individual new formations, developing independently of the body in which they exist by virtue of a degree of vital energy which is inherent, and peculiar to their cellular elements, and which is also of higher potency than that of the cells of normal tissues; (2) that cancerous and other neoplasms originate from normal tissue-cells by virtue of and according to the fundamental principles which determine the origin and growth of all living organisms; (3) that, similarly to all living organisms, cancerous and other neoplasms result from the union of male and female nuclei according to the laws which govern the process of fertilization; (4) that the male and female elements concerned in the procreation of cancerous and other neoplasms are, respectively, certain fertilizing agents arising from various species of protozoal organisms in water, and the normal cells of epithelial, glandular, and connective-tissue structures.

The nature of cancer is therefore that of a hybrid organism resulting from heterogeneous fertilization between the male elements of protozoal organisms and the normal cells of certain tissues of the body. Since this view of the disease involves considerations too numerous for discussion within the limits of this article, it must suffice for the present to state that it is entirely consistent with the accepted principles of biological, pathological, and physiological science.

In order to permit access of fertilizing elements to the living cells of the tissues, it is necessary that a defect or lesion of the epithelial surfaces of the skin and mucous membranes should exist. Clinical observation has shown that cancer manifests itself at the site of preexisting or "precancerous" lesion, and authorities are generally agreed that such lesions are a prominent feature in its causation. Theoretically, cancer cannot arise in the absence of a lesion, nor in the absence of water, protozoal organisms, and their fertilizing elements; hence it is certain that four factors are esssential in the causation of the disease, which are as follows: (1) Fertilizing elements. (2) Lesions exposing living tissue cells. (3) Protozoal organisms. (4) Water.

Now, since the causation of cancer is dependent upon the cooperation of all these factors it is obvious that the disease may be prevented by the elimination of any one. But further, since the cooperation of these factors is determined by many conditions, both favorable and adverse, some of which concern the character of water with respect to the living organisms contained in it, and others the condition and environment of communities and individuals, it is evident that the distribution and prevalence of the disease must vary in accordance with the manner in which such conditions combine to influence any of the factors, or their cooperation as a whole.

Three of the factors of cancer causation, namely, the fertilizing elements, protozoal organisms, and water are related to each other in such a way that for practical purposes they may be included in the considerations which concern water only. The remaining factor, lesions, is independent of the others in all respects except those which relate to the causation of cancer. Hence the subject resolves itself into an inquiry concerning the manner in which the manifestations of cancer correspond with the conditions which determine the application of water to lesions. The statistical records of cancer afford a safe basis for inquiry along these lines; it is therefore proposed to consider certain statistical facts of the disease in the light of the principle that contact of water with a lesion is essential in its causation.

The incidence of cancer upon parts and organs of the body, as recorded by the United States Bureau of the Census for the year 1915 is as follows:

	Rate per 100,000 Population.	Per Cent.
Cancer and other malignant tumors (aggregate)	81.1	100
Cancer of the buccal cavity	3.2	3.9
Cancer of the stomach, liver	31.5	38.9
Cancer of the peritoneum, intestines, rectum	10.9	13.4
Cancer of the female genital organs	12.1	14.9
Cancer of the breast	7.7	9.5
Cancer of the skin	2.9	3.6
Cancer of the other organs and organs not specified	12.9	15.9

This table shows that cancers of the alimentary system constitute 56.2 per cent. of all manifestations of the disease; those of the female breast and generative organs together 24.4 per cent.; and those of the skin 3.6 per cent. These parts together are only a small portion of the total mass of the body, yet they bear 84 per cent. or nearly seven-eighths of the weight of cancer incidence. This disproportion will, however, appear much greater when it is remembered that in each organ certain limited areas, as for example the pylorus, cervix uteri, or the skin of the face and hands, are specially favored as the seat of the disease. In view of this it seems impossible to conceive of cancer as otherwise than a local affection, arising independently of metabolic or constitutional disturbances, from causes limited in action to parts specially predisposed to lesions by reason of exposure to various external influences.

Returning to the consideration of water and lesions as causative factors of cancer, it is obvious that the chances of the disease originating at the site of any lesion must vary according to the frequency and duration of its contact with water. It is therefore to be expected that cancer is most likely to arise in those parts of the body to which the application of water is most frequent, or from which its removal by the ordinary processes of drying, or by evaporation is difficult or impossible; and conversely, that cancer should prevail in the minimum degree in those parts of the body to which under normal circumstances water is never admitted. It remains to be determined how far these expectations agree with actual facts, and it is therefore proposed to select the stomach, uterus, breast, and skin to illustrate the relation of water and lesions to the disease in organs with a high rate of cancer incidence, and the lungs and respiratory passages as an example of the rarity of the disease in parts which, normally, are never exposed to contact with water.

It has been estimated that the stomach is attacked by cancer three times more freqeuntly than any other organ, and that cancers of the stomach constitute one-third of all cases of the disease. Cancer may arise in any part of the stomach, but it is highly significant that the region of the pylorus—the most frequent site of ulceration—is attacked in overwhelming proportion to the other parts. It is also very significant that the liability of males and females to gastric cancer differs in a degree which exactly corresponds to the sex-liability of gastric ulceration. Dr. Frank Smithies has shown by analysis of a long series of consecutive cases that the sex ratio both of gastric cancer and gastric ulcer is as 2 to 1 for males and females, respectively; since it is impossible to conceive, except on the basis of a relation between ulceration and cancer, that this sex ratio could remain constant, its value in showing the importance of lesions in the causation of the disease can hardly be exaggerated.

Concerning the part played by water in causation of gastric cancer it is sufficient to observe that all water necessary for the physiological requirements of the body is received into the stomach, and retained therein for a longer period than in any other parts of the alimentary system. Although an equal quantity passes through the mouth, pharynx, œsophagus, and doubtless through the duodenum, its contact with these parts is of comparatively short duration, and the opportunities for fertilizing elements to gain access to exposed tissue cells are consequently much less favorable. Having regard therefore to the presence of lesions, and the relations of water to them with respect to volume, frequency, and duration of contact in various parts of the alimentary tract, it is of the highest significance that cancer should prevail in the maximum degree in that part, namely the stomach, which by the nature of its function must necessarily favor the most intimate association of water with lesions.

The uterus ranks second in order of cancer incidence, its liability to attack being estimated at about one-third of that of the stomach. Cancer may arise in any part of the female reproductive system, but the proportion in which it manifests itself in the uterus, and more especially in the cervix uteri, so far exceeds that of all the remaining parts together as to render it virtually certain that local conditions peculiar to the cervix uteri are influential in determining the disease. Without entering upon a discussion of gynecological matters it is sufficient to realize that ulceration, erosion, laceration, and other lesions of the cervix uteri prevail to a degree which exceeds that of any other region in the body of equal size. For very apparent reasons married women suffer from such affections in greater proportion than the unmarried, and in this connection it is important to observe that the incidence of cancer upon the uterus is higher among the married than in those who are single.

Water is not functionally necessary to the female generative organs, and therefore its presence in any part of the genital tract is an abnormal event. The deliberate use, however, of water as a routine measure of cleanliness, to prevent conception, as a prophylactic against infection, and, especially, in those suffering from uterine lesions, to relieve objectionable discharges, is general throughout a large section of all civilized populations. Also there is reason to believe that water may be admitted to the genital tract in the course of ordinary bathing, particularly in women whose muscular mechanism is relaxed by age, or impaired by obstetrical, or other forms of injury.

The removal of water from the generative organs by evaporation, or any ordinarily available means, is impossible, and hence, although only a small quantity is retained, the time during which it remains in contact with the mucous surfaces is very prolonged. Since the chances of fertilization occurring must necessarily vary according to the length of time fertilizing elements remain at the site of a lesion, it is clear that the conditions in the genital tract are highly favorable to such an event, and consequently to the causation of cancer in a manner and degree consistent with the theory herein suggested.

Cancers of the breast vary in type, and in the details of their causation, according as to whether they originate from the cells of the lactiferous ducts and glandular structures, or from those of the skin-coverings and connective framework of the organ. The causation of cancer in the skin and connective-tissues of the breast, differs in no essential respect from that of similar manifestations in other parts of the body, and therefore does not require to be specially considered. The causation of true mammary cancer is, however, exceptional with respect to the manner in which the cells of the glandular tissues and ducts are exposed to contact with water, and in order to appreciate the reasons for the marked liability of these parts to the disease, it is necessary to consider certain anatomical and functional peculiarities of the organ.

The breast is the only example of a large glandular organ opening directly upon the surface of the body. The lactiferous ducts, fifteen or twenty in number, converge toward the nipple, and open by the numerous orifices upon its summit. The skin of the nipple and its areola differs from that of all other parts except the eyelids, scrotum and analogous female structures (all favorite sites of cancer), by reason of its thinness and delicacy of texture, its tendency to be thrown into folds or

wrinkles by involuntary muscular contraction, and the tuberculated or warty character of its surface at the summit of the nipple—all of which features favor the retention of water. Owing to the absence of definite muscular control, the lactiferous ducts may be regarded as open channels which offer little or no resistance to the passage of fluids in either direction. The substance of the breast is loose and spongy; capable of expansion, and of accommodating a considerable quantity of fluid. At the age when reproductive activity ceases the breast rapidly undergoes atrophic changes, as a result of which a condition of extreme relaxation and flaccidity is produced; it is not difficult to believe that the entrance of fluids is thereby facilitated.

Having regard to the fact that milk may flow passively from the lactiferous ducts, it is justifiable to assume that there is little or no resistance to the passage of fluids in the opposite direction, that is, from without inward. In the case of water containing protozoal organisms it can hardly be doubted that the faculty of locomotion which characterizes most fertilizing elements must be of considerable assistance in enabling them to reach the cells of the glandular tissues. In view of these considerations it is justifiable to believe that in the course of bathing, water may enter the lactiferous ducts by the force of capillary action, external pressure, or suction, and so be carried to the deeper parts of the breast substance. Having once gained an entrance it remains in contact with the tissue-cells for the longest possible time.

Independently, however, of the foregoing there is evidence of a conclusive kind to convict water in the causation of mammary cancer. This evidence refers to the relation of the mortality rate from cancer of the breast in Japan, to the customs of the Japanese with respect to the use of water in bathing, as contrasted with the corresponding mortality-rates and customs of other countries. For reasons which will appear later it is convenient to consider the mortality rate of the skin and stomach with those of the breast. The figures, as given by Dr. Frederick L. Hoffman in the work already mentioned, for Japan and the United States, are as follows:

	Japan, per 100,000 Population.		United States Registration Area per 100,000 Population.	
	Males.	Females.	Males.	Females.
Skin	0.9	0 6	3.5	2 1
Female breast		1 8		14 3
Stomach and liver	48.4	31.4	28 8	30 5

At first sight it will doubtless seem confusing to find that while the incidence of cancer upon the skin and breast is, respectively, about four times and eight times higher in the United States than in Japan, the corresponding rate for the stomach is uniformly lower. The problem therefore is to reconcile these apparently contradictory facts, in a manner consistent with the principles which are common to all other manifestations of the disease. At the outset it is obvious that the foregoing figures are inconsistent with any general or constitutional principle of causation, and consequently, that they can only be satisfactorily explained on the basis of differences in the relations of each part or organ to the causative factors of the disease in the United States and Japan.

The Japanese are notorious for their habits of personal cleanliness. It is a custom among them, carefully observed by every individual, irrespective of rank, age, sex, or condition, to bathe the whole body daily, and in this respect they differ from western races, in whom the use of a daily bath is for the most part restricted to a limited class of society. Apparently then the incidence of cancer in Japan and the United States, upon the parts exposed to water in bathing, namely the breast and skin, is directly the opposite of that which should be expected according to the view that water is a factor in the causation of the disease. The key to this paradox is found in the fact that not only are the Japanese careful never to bathe in cold water, but also that they have become habituated to temperatures far higher than American or European sensations could ordinarily endure. The bath is prepared in the evening by heating the water to a temperature of 113° F-115° F. This water is used in succession by every member of the household, including dependents. The process often requires several hours for its completion, during which time the temperature of the water is maintained at the point stated.

In estimating the effect of such temperatures upon the incidence of cancer it must be realized that the standards which apply to the bacteriological sterilization of water are, on the assumption that protozoal organisms are an essential factor in its causation, far in excess of those required for the prevention of the disease. Protozoal organisms are very sensitive to any change in their environmental conditions, and it is not probable that any species could survive exposure to a temperature so far beyond their power of adaptation as that of the Japanese bath. In so far then as protozoal organisms are concerned, the water used by the Japanese in bathing may be regarded as sterile, and therefore of no effect in the causation of cancer. In the light of this it is of the greatest significance that the most striking feature of cancer incidence among the Japanese, namely the extraordinarily low rate of incidence upon the skin and breast, is associated only with those parts of the body which are exposed to contact with water free in a special degree from living protozoal organisms.

The use of water for ablutionary purposes by Americans and Europeans is in direct opposition to the practice of the Japanese with respect to those details which are of theoretical and practical importance in the causation and prevention of cancer. Bathing of the whole body in America or Europe is not regulated as in Japan by national custom, and is therefore unsystematic and comparatively infrequent. There is an increasing tendency to encourage the use of cold baths, and in the case of warm baths water is seldom heated beyond, but usually below the normal temperature of the body; temperatures as used in Japan are virtually unknown. No care is taken to destroy organic life in water intended for personal uses, and there is no general aversion, as in Japan, against exposure of the body to contact with raw water.

In the light of the foregoing it seems to be definitely established that the incidence of cancer on the skin and breast is determined by those customs,

habits, or conditions which regulate the number of living protozoal organisms in water used for bathing. Since this is true in the case of the skin and breast, in America and Japan, it must also be true in principle for manifestations of cancer in other parts of the body, everywhere. In general therefore it may be stated that the maximum incidence of cancer is associated with the use, for personal purposes, of raw water, and tends to become reduced in proportion to the degree in which water is sterilized, or rendered more or less free from protozoal organisms by any other artificial or natural means. According to this principle, complete sterilization of water implies absolute protection against cancer; theoretically, therefore, cancer is a preventable disease, only the adoption of the necessary precaution can prove that it is so practically.

Cancerous manifestations in the skin present many other features of interest, but for the present it must suffice to consider briefly a few of the more prominent, with the understanding that the principles which apply to these are equally true in all other cases. Cancer may arise in any part of the skin, but those parts are attacked in undue proportion which are the seat of lesions, and are also most frequently exposed to water. The truth of this is apparent from the fact that the hands, arms, and face (which obviously are most exposed to lesions and water) are together affected more frequently than the whole of the remaining surface of the body.

On the face cancer tends to select the region of the orbit, the lips, and certain parts which, in elderly persons, are commonly the seat of seborrhoea, eczema or other diseases. The reasons for this are doubtless that in the region of the orbit the skin is extremely thin and delicate, and by its loose and wrinkled condition tends to favor the retention of water, the lips are specially liable to lesions from injury or disease, and are specially exposed to water in the act of drinking, and that water remain longer at the seat of seborrhoeic, eczematous, or other lesions, for the reason that the use of a towel in the ordinary manner is painful, and liable to cause further injury.

The undue incidence of cancer on the hands and arms is due to the fact that they are exposed to injury in a greater degree than any other part of the body. Special interest attaches to those cases in which the conditions of occupation not only predispose to lesions, but also demand the application of water to them as a routine proceedure. Prominent among such cases are "Paraffin Cancer" and "X-ray Cancer," and as these will serve to illustrate the variety of circumstances under which water and lesions combine to cause cancer, it is proposed to examine the salient features of each.

Cancer of the hands and arms is common amongst workers in paraffin, pitch, tar, and similar substances, first on account of the dermatitis induced by the irritant action of such chemicals upon the skin, and secondly by reason of the undue exposure of these parts to water, in the process of cleansing the skin thus injured. Difficulties arise from the fact that while thorough cleansing of the skin is important as a precautionary measure against dermatitis, substances like paraffin, tar, pitch, etc., tend to resist the action of water and are not easily removed even from healthy skin. When, however, the skin is inflamed and tender, it is necessary, in order to avoid pain and possible injury, to employ longer time and greater care in the manipulation of the parts. For similar reasons vigorous use of the towel is impossible, and hence the process of drying is apt to be incomplete.

With regard to the causation of cancer among *x*-ray operators it should be observed that the exigencies of this profession demand exposure of the hands especially to the action of *x*-rays in an injurious degree, and to water in the course of photographic work, and for the purpose of personal cleanliness. Many persons have sustained injuries of the skin from the action of the *x*-rays in the course of diagnosis and treatment, but there is no evidence to show, or even to suggest, that such injuries are associated with cancer in any special manner. While, therefore, it is virtually certain that *x*-rays alone are incapable of causing cancer, yet it is equally certain that they are an essential feature in the causation of that form of the disease which is limited to *x*-ray operators.

X-ray cancer is clearly determined by conditions of occupation, but there is no reason to believe that the part played by *x*-rays is fundamentally different from paraffin, pitch, tar or any other irritant in the causation of the disease. If, then, the action of *x*-rays is regarded as being limited to the causation of lesions, it becomes easy, on the basis of an association of such lesions to water, to reconcile the absence of cancer in some cases with its appearance among *x*-ray operators, and to perceive that *x*-ray cancer is governed by the same principles which regulate the causation of the disease generally.

In applying the principles of cancer causation suggested in the foregoing to those parts and organs of the body which are only very rarely the seat of cancerous disease, it will be found that in every case, either by reason of functional necessity or anatomical situation, such parts are shielded from contact with water. In the aggregate these parts far exceed in area or mass those which bear all but a small proportion of the incidence of the disease, and include the nervous, muscular, circulatory, respiratory, and genito-urinary systems, together with the osseous and connective-tissue framework of the body; that is, with the exception of the respiratory system, all those parts, which under normal circumstances, have no communication with the external world.

For certain biological reasons, which cannot be discussed at the present time, nervous and striped muscular cells are absolutely immune from cancer or any other form of new-growth. In the case of all other tissues immunity is only relative, and is determined by conditions which regulate their exposure to water. Cancer can, therefore, only arise in tissues other than those which constitute or communicate with the surface of the body as a result of a breach or lesion of the skin or mucous membrane; and such lesions may be due to injury or disease, but there is considerable significance in the fact that, clinically, sarcomatous growths are specially associated with injury. Also, since there is no reason to doubt that, by the application of water to such lesions, the causative agent of cancer, similarly to other microscopic organisms, may enter the blood-stream at the side of an injury, and be

carried from thence to a distant part of the body, the appearance of a sarcomatous growth in a part remote from the seat of injury is not theoretically inconsistent with the explanation herein suggested for other manifestations of cancer.

The lungs and respiratory passages are exposed to numerous bacterial and other influences which, especially in persons beyond middle age, tend to result in lesions and chronic irritation, probably to a greater degree than in any other part of the body, yet, notwithstanding this, cancer of the respiratory organs is an extremely rare event. Having regard then to the rarity of pulmonary cancer in the face of these conditions, it is clear that the disease cannot be altogether due to lesions, chronic irritation, or any of the external or internal influences to which the respiratory organs are normally, or frequently exposed; hence it follows that the causative agent of cancer is abnormal to, and only rarely present in the respiratory system.

In considering those foreign substances which may on rare occasions enter the respiratory tract as possible causes of pulmonary cancer, it is obvious that, since the disease cannot arise in the absence of its cause, no substance is entitled to consideration, unless its range of applicability is as wide as the distribution of cancer—that is, universal throughout the world; except water, no substance fulfills this condition.

A large quantity of water in the respiratory system is incompatible with life, and its presence in small quantities is a rare event. A small volume of water may enter the lungs as the result of accident, and water in the form of spray may be inhaled in the course of ordinary respiration. There is reason to believe that a considerable proportion of cases of pulmonary cancer are determined by conditions of occupation, but satisfactory data concerning such conditions are unavailable. For the present it is sufficient to observe that all the existing evidence is consistent with the view that water is concerned in the causation of cancer of the respiratory organs.

Hitherto the more prominent features of cancer causation have been considered independently and more or less disconnectedly, but in order to estimate the force of the conclusions which have been established it is necessary to realize that the same principles apply equally to all, and that by virtue of this they are capable of being united into a consistent whole. This united force possesses the logical value of proof, since it is inconceivable that in a matter of such complexity so great a number of diverse facts could be uniformly reduced to systematic order by any other principles than those governing the phenomenon of which each is a constituent part.

A study of the statistics of cancer and typhoid fever will reveal a relation between these diseases which, in any series of figures representing a sufficiently large area and population, is constant, but which by reason of the liability of certain factors to vary, more especially those concerned in the causation of typhoid fever, may be less apparent or altogether obscured in the statistical records of a limited population or locality. Further, it is well to remember in this connection that the statistics of disease are true in mass, but not in detail, and that any conclusions based upon figures representing limited areas are, therefore, open to dispute. The following table represents the broadest feature of the relation between cancer and typhoid fever; the figures are from the Mortality Reports of the United States Bureau of the Census:

Mortality of Cancer and Typhoid Fever Throughout the U. S. Registration Area for the Period 1900-1915, per 100,000 Population.

	1900	1901	1902	1903	1904
Cancer	63.0	64.3	65.1	68.3	70.2
Typhoid fever	35.9	32.3	34.3	34.1	31.7
	1905	1906	1907	1908	1909
Cancer	71.4	69.1	70.9	74.5	73.8
Typhoid fever	27.8	31.3	29.5	24.3	21.1
	1910	1911	1912	1913	1914	1915
Cancer	76.2	74.3	77.0	78.9	79.4	81.1
Typhoid fever	23.5	21.0	16.5	17.9	15.4	12.4

In view of the prevailing opinion that the reduction of typhoid fever mortality during recent years is due to the adoption of certain sanitary precautions, it is necessary, before attempting to supply reasons for the relation, apparent in the foregoing table, between cancer and typhoid fever, to emphasize the point that the problem of this relation is not directly concerned with the rise or fall in the mortality rates of these diseases, but deals solely with the manner in which these mortality rates vary toward each other. However satisfying any explanation for the decrease in typhoid fever mortality may appear to be when considered independently, the fact that a constant relation exists between cancer and typhoid fever demands that before such explanation can be regarded as acceptable, it must account for the corresponding increase in cancer mortality in a manner consistent with the facts of both diseases.

In addition to the foregoing table the inverse character of the relation between cancer and typhoid fever may be shown by any series of figures, representing large areas of population in which there is a notable difference between the maximum and minimum prevalence of cancer. The following tables, compiled from the figures of the United States Census Bureau representing the mortality of cancer and typhoid fever in the States of the United States registration area, show the mortality rates of these diseases during the period 1913-1915, for the seven States with the highest, and for an equal number of States with the lowest rates of cancer mortality, per 100,000 of population:

A.—States Having Maximum Cancer Mortality Rates.

	1913		1914		1915	
	Cancer.	Typhoid Fever.	Cancer.	Typhoid Fever.	Cancer.	Typhoid Fever.
Average throughout U. S. registration area	78.9	17.9	79.4	15.4	81.1	12.4
Vermont	111.7	7.8	109.9	11.6	104.0	13.0
Maine	107.5	12.0	107.6	16.0	106.6	13.4
New Hampshire	104.4	11.9	100.8	8.7	109.4	7.7
Massachusetts	101.4	7.9	101.2	7.6	104.0	6.7
California	97.6	15.9	97.9	13.4	98.1	9.7
Rhode Island	93.3	8.3	91.2	8.1	92.1	10.1
New York	87.8	10.3	90.0	8.9	92.0	7.6
Average, 7 states	100.3	10.5	99.8	10.6	100.8	9.7
Ratio of cancer to typhoid fever	9.4 to 1		9.4 to 1		10.3 to 1	

B.—States Having Minimum Cancer Mortality Rates.

	1913		1914		1915	
	Cancer.	Typhoid Fever.	Cancer.	Typhoid Fever.	Cancer.	Typhoid Fever.
Washington	53.5	10.3	61.9	10.7	57.2	8.1
Utah	52.1	22.2	45.8	15.9	48.3	9.4
Colorado	50.7	17.0	58.3	17.0	53.4	12.7
Montana	49.4	22.7	51.5	15.3	50.0	12.8
Virginia	48.4	33.3	48.9	27.3	53.7	23.7
Kentucky	48.0	42.7	46.0	41.7	49.7	30.4
North Carolina	47.9	57.4	57.8	56.5	59.5	40.8
Average, 7 states	50.0	29.3	52.8	26.3	53.1	19.7
Ratio of cancer to typhoid fever	1.7 to 1		2.0 to 1		2.6 to 1	

Since from this and the preceding table it is abundantly clear that the mortality of cancer varies inversely with that of typhoid fever in a constant and regular manner, it follows that the causation of these diseases must be governed by some principle common to both; otherwise it is not conceivable that a relation of such character could exist between them. The fact that the relation between them is inverse can only be interpreted as implying that cancer and typhoid fever tend to neutralize each other, or in other words that they are mutually antagonistic. This attitude is of the highest importance for the reason that, as will appear presently, it coincides so perfectly with the relations of protozoal organism to typhoid bacilli in water as to render it certain that these organisms are concerned in the causation of cancer and water-borne typhoid fever.

The relation of cancer to water-borne typhoid fever is obscured in some degree by the inclusion in the mortality rates of cases arising from direct infection, flies, food contamination, etc. If it were possible to eliminate all such cases, the relation of cancer to water-borne typhoid fever would then be seen in its true proportions, and would undoubtedly appear to better advantage.

For the normal development of protozoal organisms and typhoid bacilli in water certain conditions such as temperature, oxygen, food-supply are necessary, but as these are generally present in a degree equally favorable to both these species in all classes of water ordinarily used for human consumption they cannot be regarded as the determining factors of an inverse relation between them, and, therefore, do not require to be considered in connection with this subject. With respect to sunlight, however, the case is entirely different; exposure to sunlight promotes the growth of protozoal organisms but is fatal to typhoid bacilli. Hence in surface waters protozoal organisms are favored, while typhoid bacilli are at a disadvantage, whereas in ground waters the reverse is true; that is, protozoal organisms tend to disappear, while typhoid bacilli are able to multiply freely. The influence of sunlight upon protozoal organisms and typhoid bacilli is of such contrary nature that the relation between them cannot be otherwise than inverse.

In addition to sunlight, another determining factor of this relation must be recognized, namely, the ability of protozoal organisms to feed upon typhoid bacilli and thus to thrive at their expense. It is obvious that in waters otherwise equally suitable for the existence of both species, by virtue of this faculty typhoid bacilli must tend to disappear as the numbers of protozoal organisms increase.

In confirmation of the foregoing, the following passage from Prof. G. C. Whipple's work, "The Microscopy of Drinking Water," is of value: Baisley's Pond, one of the sources of water supply of Brooklyn, is fed by a number of streams which are more or less polluted. During August, 1899, the water of the pond contained a large amount of clathrocystis. Bacteriological examination of the inflowing streams showed that the water contained from 1,000 to 17,000 bacteria per c.c., while the water at the lower end of the pond contained less than 50 per c.c. A study of the analytical records for the same pond during the years 1898-9 showed that the number of bacteria varied inversely with the number of clathrocystis.

"Laboratory experiments made by Strohmeyer and others corroborate the above and show that certain algae tend to reduce the number of bacteria in water. More recent experiments by Emmerich have indicated that certain protozoa exercise a similar purifying effect on surface waters. He has found that two species of the genus Bodo will greatly reduce the number of typhoid fever germs in water. Straining of the organisms shows that the bacteria are absorbed by the animal cell, the action being analogous to that of the white-blood corpuscles in the human body, upon which Metchnikoff's theory of phagocytosis was based. Emmerich considers that these and other protozoa play an important part in the self-purification of streams."

Typhoid bacilli are undoubtedly the primary cause of typhoid fever, and therefore the rates of typhoid fever prevalence must necessarily vary in accordance with any increase or decrease in their numbers. Hence, in addition to the inverse relations already considered, namely, that between cancer and typhoid fever, and that between protozoal organisms and typhoid bacilli, a relation also exists between typhoid bacilli and typhoid fever which is direct or causative, and which, by reason of the fact that it contains a factor, namely, typhoid bacilli, in common with the relation between protozoal organisms and typhoid bacilli, serves to connect protozoal organisms with typhoid fever and also with cancer.

Since it has been shown that the numbers of typhoid bacilli in water vary inversely with the numbers of protozoal organisms present, it follows, in view of the causative relation of typhoid bacilli to typhoid fever, that typhoid fever due to typhoid bacilli in water must also vary inversely in accordance with the numbers of protozoal organisms present in such waters. Large numbers of protozoal organisms, therefore, imply a low rate, and small numbers a high rate, of typhoid fever prevalence.

But it has also been shown that the prevalence of cancer varies inversely with that of typhoid fever; consequently, the influence of protozoal organisms upon the rate of typhoid fever prevalence must necessarily be reflected upon the rate of cancer prevalence in a manner the reverse of that in the case of typhoid fever. Large numbers of protozoal organisms, therefore, imply a low rate of typhoid fever and a high rate of cancer prevalence; small numbers a high rate of typhoid fever and a low rate of cancer prevalence.

Thus cancer is influenced by and therefore related to protozoal organisms; and as revealed by the foregoing, *the character of this relation can only be direct or causative.* Supposing it to be otherwise, that is, inverse, large numbers of protozoal organisms would then imply low rates of cancer prevalence, whereas it has been shown that the contrary is true; further, in such a case the relation between cancer and typhoid fever, which has been established upon the basis of statistical facts, could not exist, for the reason that protozoal organisms would then oppose the prevalence of both typhoid fever and cancer, and would thus obliterate the relation between them.

It appears, therefore, that only one conclusion is consistent with the facts underlying these relations, namely, that the prevalence both of cancer and of typhoid fever is governed by the numbers of protozoal organisms in water. On this basis the reasons which support the view that protozoal organisms are the primary cause of cancer correspond with, and are equally as forcible, as those which apply in the case of typhoid bacilli and typhoid fever.

In concluding this discussion of the causation of cancer it may be said that this article is to be regarded not as a complete presentation, but only as a small sample of a subject so vast as to far exceed the capacity of any single individual. It is believed, however, that the material herein considered is fairly representative of the whole, and that it is sufficient for the purpose in view, namely, to urge the importance of water in the causation of cancer, and to advocate the adoption of measures likely to be effective in the prevention of disease.

Theoretically, the prevention of cancer is chiefly concerned with the elimination of all those factors which are essential in the causation of the disease, but for the practical purpose only two of these —lesions and water—require to be considered. Cancer cannot arise in the absence of a preexisting defect or lesion in the skin or mucous membranes, nor in the absence of living organisms from water, and therefore it follows that in so far as measures calculated for the attainment of these conditions are successful they are at the same time correspondingly effective in the prevention of the disease.

Although precautionary measures against lesions are of undoubted value in certain cases, more especially of the skin and other parts readily accessible, yet, because of the difficulty and uncertainty connected with the diagnosis and treatment of internal lesions, they are inapplicable to all except a small percentage of cases; it is, however, not justifiable on this account to discard them entirely.

The fullest degree of success in the eradication of cancer or any other disease is only to be expected from measures directed against its primary cause. This does not necessarily imply that the primary cause should be isolated. It is sufficient if its nature is known. Nor does it necessarily follow that when the primary cause has been actually demonstrated the prevention of the disease is thereby rendered possible, or even that any substantial progress has been made in this direction; yellow fever and leprosy may be cited as cases in point. Cancer arises from fertilization of a tissue cell by the fertilizing or male elements of protozoal organisms, but when it is realized that more than thirty thousand species of these organisms are already known, and that apparently an unlimited number of other species, as yet unrecognized, exist, any or all of which are to be theoretically regarded as a possible cause of the disease until the contrary is proved; and furthermore, that the processes of fertilization are the most subtle in nature, and consequently the most difficult to investigate, it would appear that the task of isolating the causative agent or agents of cancer is only possible of achievement in an infinite period of time. Moreover, supposing this task were accomplished, there is no reason to believe that measures for the prevention of the disease would then differ in any material respect from those which are now at command.

However numerous or diverse the species of protozoal organisms concerned in the causation of cancer may be, there is one controlling principle sufficiently broad to cover them all, namely, that cancer cannot arise except by contact between a lesion and water containing living organisms. Accordingly, anything which tends to prevent such contact must, in some degree, be effective in controlling the disease; but since nothing can equal the sterilization of water by heat for simplicity, availability, range of applicability, freedom from untoward consequences, and the satisfactory character of the results to be expected, it is unnecessary to consider any other measures at this time.

Protozoal organisms are very sensitive to changes in their environmental conditions, and it is probable that all species are destroyed at temperatures far below the boiling point of water. The effect of even a moderate temperature (115° F.) in controlling cancer has been seen in connection with the incidence of the disease on the skin and breast among the Japanese, and on the basis of that experience it seems justifiable to believe that cancer may be entirely prevented by raising water to temperatures not greatly in excess of those which are customary in Japan. Having regard, however, to the desirability of fixing a standard readily recognized by persons untrained in estimating degrees of temperature, and also to the advantage of destroying at the same time typhoid bacilli and other pathogenic organisms commonly present in water, a temperature less than the boiling point of water is not to be generally recommended.

Sterilization by boiling of all water intended for drinking, washing, bathing, medical uses, or any other purpose requiring contact of water with the skin or mucous membranes, is the only measure really essential in the prevention of cancer. Sea bathing and the application to the body of raw water in any form is to be avoided. Natural ice, or ice not manufactured from sterilized water, is not less dangerous than water of the same class in its liquid form.

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Autotherapy of Cerebral Wounds.—Mocquot and Moulonguet prepared a vaccine from the pus of cerebral wounds and injected it directly into the patient daily by the subcutaneous route. In three cases thus treated suppuration diminished, the wound improved and the general amelioration was remarkable. The healing was complete.—*Le Progrès Médical.*

PERILS FROM FAULTY POSTURES.

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If I were called upon to name one physical fault from which most perils to health arise, that one would be *wrong postures*. This will be more apparent after a survey of relationships of body attitudes to functional competences.

The more graceful a person the more harmonious are the workings of both body and mind, also vigor seems to be thereby longer maintained. This obtains no matter what sort of life was led, excepting of course serious errors of conduct. The crux of the matter is not mere grace of action, the esthetic feature, but the admirable poise, the economies of force in action displayed. Equipoise makes for serenity of body and mind, for equalized expenditures of force in respiration, in circulation, in digestion, hence in rhythmic action throughout the macrocosm. Not only so, but the affective faculties, volition, emotion, the primal urgings of fear and anger, equally demand equilibration.

That man or woman who habitually and instinctively performs all acts with economic energizing from impulse to execution, loses the least motion, wastes the smallest amounts of force by the way, and possesses a superiority over those who are awkward, careless, or spasmodic. Such beings move through life with ease; with the least friction; little is left to chance, to accident, because they adjust themselves intuitively to external forces and circumstances. They automatically save themselves from perils innumerable though rarely conscious of their escape.

The subject of *posture* is thus cited to serve as a warning against sacrificing balance, and to encourage efforts at acquiring equipoise in both repose and in action. The prime condition is to achieve normality of body adjustments as an automatism, a habitude.

Let me sketch in shortest space why and how faulty postures are capable of acting harmfully on the whole organism:

Obviously that mechanism best serves its purpose whose component parts work in harmonious economic interaction. Any departures from ideal adjustments must necessarily cause losses of motion interfering less or more, with whatever function the part or group or system was designed to serve. Ideal results of voluntary movement fall short in two essential particulars: (a) Unless the objects or aims or purposes which the mechanism is calculated to discharge are fully met and discharged; and, (b) unless the make up, structure, composition, therefore integrity of structures are freed from danger of suffering harm by undue friction, attrition, strain and waste motion to which faulty adjustment renders them liable; and, (c) unless movements voluntary and also involuntary or automatic are so well controlled as to reduce to a minimum the perils of awkwardness, chance collisions, slips, bumps, falls, or inefficiency.

The body and mind being one unity, a self-guiding, self-adjusting sentient mechanism, therefore perfection of action, interaction, and reaction can be expected to be and remain only while certain ideal postures are maintained or economic attitudes assumed.

Individuals vary so widely in both domains, *i.e.* the self-guiding and the developmental, that, as a matter of fact, faulty attitude habits, both static and mobile (*i.e.* while maintaining attitudes and during work), leave much to be desired of the ideal; hence fail of ideal motor economies, hence of the highest output of purposeful effort—or proficient energizing.

Thus it should be plain that faulty habits in attitude, the positions one voluntarily assumes (posture being that correlation of parts unconsciously assumed), lead to almost endless perils through disadvantageous mechanics or confused function.

Disadvantages of posture influence: (1) While at work, performance of any sort; (2) while at large, moving about to and from destination, amid thoroughfares occupied by moving vehicles or while traversing by-ways out of the common where the element of poise, balance, ascending or descending declivities, etc., call for some care in locomotion.

Another obvious fact or significant principle is that every one, young or old, deserves, indeed, really needs training in attitudes. An excellent example of the value of conscious control of subconscious acts (the return force of faulty habitudes) is given by F. Matthias Alexander in his book, "Man's Supreme Inheritance." He cites the attitudes of Dorando winning the World's Marathon (1) while he was moving along at his best, showing all the superb effects of conformation and right training. Contrasted with this is (2) Dorando's attitude toward the end of his heart-breaking race, desperately wearied, and, whatever conscious control of his muscular mechanisms he may have possessed, he was at the moment completely under domination of subconscious (or subjective) control; out of communication with his reason.

Small doubt can linger in the minds of any who will look critically into the daily evidence that a large variety of disabilities, disorders and some diseases can be not only prevented, relieved, but oftentimes cured by education (and re-education) in conscious control. This includes accurate training in suitable attitudes. Space forbids dwelling on details of causation and progress of specific conditions. We must leave elaborations for another time and now merely commend the importance of the principle sketched out.

Concrete illustrations appear on every side of pathetic limitation of usefulness by neglect of recognition and observance of precautions in conscious control of attitude.

Closely allied with posture is the whole subject of behavior, poise between impulse and restraint, emotion and motion, expansion and concentration. Man's supreme inheritance is the product of his power for poise, for self-balancing the push and the pull, "of equanamitas," his "cosmic urge," elan vital, and his capacity to limit his streams of energizing, and to confine them into natural or rather controlled channels. Impulse and its mastery is the loftiest achievement.

That is a small part of man's best inheritance which has provided him with mere mechanisms; miracles of complexity and adaptability and utility

as they are. None the less the whole of earned success, of achievement, rests on how he exhibits and exercises conscious control of those mechanisms.

Right postures and attitudes depend for their integrity upon the integration of neuromuscular mechanisms. These stand so high in his hierarchy as to be on a par with, indeed, they are essential parts of, his cerebrospinal, his reasoning mechanisms.

The component parts are balanced muscles; their harmonious energizings from sensory impressions on the brain centers to the uttermost confines of the periphery. Here we reckon with the special sense kinesthesis.

Likewise and indissolubly implicated with these are the reflexes; accommodations between sensations of motor origin and central receptive mechanisms, *e.g.* the otic labyrinth, the cerebellum, the centers for sight and the muscles of the eye along the whole group of sensory and sensori motor coordinating centers and structures.

Body equilibrium is governed by the vestibular apparatus of the internal ear through which the muscles of the skeleton receive impulses enabling them to maintain body balance.

The correlate of kinesthesis is akinesis—rest, sleep, the great conservator of energies. And this depends upon balanced nutrition, poised metabolism. The whole are regulated by the ductless glands.

Let us mention a few of the manifold departments of functioning in which body defenses can be economized, conserved and fortified by conscious control of attitude. Note that by so doing serious perils are oftentimes escaped, wholly or in part.

In a second paper will be presented a summary of illustrative citations from literature showing specific applications of adapted attitude as a direct or indirect means of rendering service. Among the vital systems or functions capable of being conspicuously aided by control of attitudes are:

Reproduction.—Economic attitudes during gestation are of peculiar importance to the welfare of mother and fœtus. Normal postures of the static mechanisms, the development of the bones, ligaments and limbs, and especially normal development of the muscles concerned in retaining right posture, are of paramount significance in the complex processes of nutrition of both. On adequate support of the abdominal parietes depends holding up the increasing weight of the unborn child.

During parturition it has been demonstrated to be far safer and more economical to assume the attitude of stooping on the ground (squatting) and holding onto a fixed support, thus enabling the pelvic muscles and outlets to work to advantage, and the compressor action of the associated muscles to do their duty in accord with conformation. The customary atttiude of lying on a bed places all these structures at disadvantage. In consequence labor is delayed, presentation is readily disturbed, and the perineum is too often ruptured.

Respiration.—All the acts concerned in tissue respiration depend on normality in postures. Respiration consists of a group of automatic procedures which are, however, capable of volitional control and deserve to be trained. Unless some advice be supplied the tendency is to acquire faulty habits of stooping. Hence undue compression is exerted on the lungs, heart, and great vessels, whereby oxygenation is limited, impaired. Guidance is necessary during youth and should not be omitted in later life, especially by those who show anomalies in breathing.

Circulation.—The whole group of organs, the heart, bloodvessels, and kidneys are peculiarly susceptible to impairment from faulty postures. They are also closely correlated with both respiration and digestion.

Failure of right cardiac action leads to so large a group of disorders that correction of myocardial anomalies oftentimes is the key to recovery, repair, efficiency, and health. During any form of exhausting illness, primary attention must be given to conservation of the heart. The only rest this master organ gets is the pause between systole and diastole. Whatever interferes with the rest period directly impairs integrity of the entire vital processes.

During infections the heart muscle is gravely taxed, often seriously disordered; it demands fullest rest, and for this right posture is paramount. The attitude of lying down is best. Many other factors enter. Reversal of attitude aids in resting the over-burdened, over-weakened myocardium. Hence devices such as raising the feet of the bed; of insistence on absence of exertion; of elevating the legs during convalescence, all contribute to aid recovery of the organism as a whole.

Even during health, when exhausted from any cause the most prompt circulatory equilibrium is assured by conservative attitudes. After long marching soldiers will recover tone most quickly by lying down and raising the legs. Emptying of the veins is thus aided, stagnation in the abdominal viscera is relieved. The feet become restored to their best competence. That distressing and disabling condition, chronic leg ulcer, can be prevented by emptying over distended veins by attitude.

Shock of all forms and degrees involves secondary hypotension and next to warmth, quiet, rest, is dependency of the head and raising of the legs an essential to recovery.

Digestion and Elimination.—All the hollow viscera, tubes, and their supports act at best advantage while normal attitudes are preserved. Man, the only upright mamal, has not yet wholly become adjusted to radical changes from his original conformation. Hence the normal postures, the interrelationships of those organs need to be sedulously conserved. Adequate power must reside in the abdominal parietes and associated structures.

Defecation in particular depends largely upon the attitude assumed during the act. This is the primal biological one of stooping, squatting down, like the savage to-day; thighs pressed close against the abdomen; the arms encircling the knees, and the whole compressor group acting together to advantage. The danger of inducing hernia is thus greatly reduced.

Sophistication, laziness, whimsical customs have much to answer for in causing disorder, disease, and premature death. The significance of attitude in defecation is vastly greater than it is possible to impress upon the consciousness of custom-ridden constipated humans.

Interrelationships of the abdominal viscera

(enteroptosia) are so frequently disturbed as to be almost the rule—Albu says at least one among five men and three in five women. While this does not always seem to cause distress, it is a disurbance and must be reckoned with as a background of much disorder and deserves correction.

Then there are the recently discovered intestinal adhesions, kinks, angulations and the like, secondary factors in visceral stasis. To be sure, these are due to diseased states, but how much original defect may be caused cannot be stated. It deserves closer study.

Special Senses.—Attitude is a large factor in conserving or in destroying acuity of vision. It may have less to do with hearing or feeling or smelling, but the principle is equally important. Upon the eye falls the major fatigues, exhaustions, hence varied and widely associated disorders, nerve strains (see Geo. M. Gould's findings as to "Effects of Visual Function on Health").

How far faulty original attitudes influence visual development and conservation can not be demonstrated, but can not be ignored. Certain it is that vision, long fixed and concentrated, the relationships of light, of nearness or distance of object viewed, along with attitude of head, of neck, of chest, back, etc., must have far more to do with original development than even to disorders of those of middle or advanced age.

Genitourinary Apparatus.—Volumes have been written, hours of discussion squandered, on the subject of maladjustments of the female organs of generation. It is fair to assume a large part of these could have been prevented by primary conservation of attitudes and hence of visceral interrelationships.

When shall we learn to conserve man power at the source? Certain it is, in my opinion, much can be achieved by training in attitudes to prevent and relieve prostatism. Long hours of sedentary work must influence evilly the entire associated soft structures which can only be and remain sound through normal motor use of correlated structures. Beginning and well advanced prostatism can be greatly retarded and relieved by ample exercises designed to restore normal posture. (See article, *Journal of Urology and Dermatology*, 1917.)

Locomotion.—It will be obvious that nicety in adjustment of the static and gross muscular mechanisms must exert significant effects on economic locomotion. The key to posture is the attitude of the pelvis first, thorax second, the head and neck third. I can only allude to locomotion in its relationship to attiude here, having elaborated the subject elsewhere.

One point I must mention: The leg is equipped with both flexor and extensor muscles. Unless these are both used and to an equal degree, alternately, the act of walking can be only partial, inadequate, and inefficient. As the leg is thrust forward the extensors are used; as it is drawn back the flexors come into play or should come—when passing the mid line. This flexor action should be equally forceful with extensions. A right attitude of the pelvis makes this possible.

One word as to that pediment of "the human understanding," the foot. The foot is at the mercy of fashion in shoes. Most of these distort the relationships of parts and in consequence unnumbered miseries ensue. Permit these parts to assume habitually normal postures and avoid the forced attitude of ill-fitting foot gear and locomotion becomes and remains a pleasure as well as a source of profit.

Finally, give nature a fair chance to work unhindered by noninterference with normal postures and supply early and late intelligent training in economic attitudes, and human miseries, disorders, and decrepitudes, it is fair to asssume, will be reduced much more than fifty per cent.

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RESISTANCE AND TRANSFERENCE IN PSYCHOANALYSIS.

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It is well appreciated by any physician with experience in psychoanalysis that the difficulties encountered in analysis depend not only on the intricate character of dreams, but especially upon the resistance which the patient develops, both consciously and unconsciously, to the revelation, dismemberment, and interpretation of painful thought associations which have been voluntarily or involuntarily kept carefully guarded. Inasmuch as the "likes" and dislikes of all patients for their physicians, and inasmuch as the apparently intangible determination of reaction of one individual to another's personality, have fundamentally the same unconscious basic sources (which we shall here designate "transference" and "resistance"), the topic may be of interest to those not directly concerned with the technicalities of psychoanalysis.

The essence of the procedure of psychoanalysis, delving as it does into the individual's intimacies of the past, usually a vexatious and torturing past, invites a conscious resistance which is comprehensible to all. One of the commonest mental tendencies is to allow the recollection of unpleasant events to slip into the background, so that in reverting to childhood days we are apt to regard them as singularly happy, notwithstanding their many concomitant poignant troubles and disappointments.

Most persons naturally choose the most agreeable way offered for the solution of any difficulty, and psychoanalysis cannot be represented to the patient as a remedy of unmixed pleasure. Compared with the proposition of a trip to California or a six weeks' cure at a spa with a companion or nurse, it has little to attract the self-pampered neurotic. A mere statement of the laboriousness of analytic procedures may arouse sufficient conscious disapprobation to prevent further acquiescence on the part of a patient, so that treatment is never begun. However, where it is undertaken, before long active resistance is almost invariably raised on one ground or another.

Patients may consent to psychoanalysis with such misgiving or with such eagerness as to arouse suspicion on the part of the physician, for either may be construed as an evidence of unconscious resistance. The first indicates distrust of the physician to ameliorate the symptoms; the

second, a desire quickly to unburden what the patient considers to be his share toward the analysis, and, having done this, without appreciable benefit to his condition, to prove the method a failure so far as he is concerned. "I've told you all there is to tell" is a frequent though untrustworthy protest from patients. In reality this type of denial is a defense against further investigation which has its roots firmly imbedded in the unconscious. In cases of this latter class, the handling of the resistance becomes the main factor from the first visit. The failure of the analysis, in turn, would permit the patient to retain his illness—a thing which many patients, in spite of their protestations to the contrary, unconsciously desire.

A patient who some five years ago was, with unsatisfactory results, analyzed for insomnia and inexplicable moods of depression, and whose analysis was at the time interrupted by external circumstances, recently returned to resume the analysis. While I was attempting to determine the origin of the flippancy with which she persisted in confronting me from time to time during the second period of analysis, she suddenly became quiet. On urging, she acknowledged that I had been correct in maintaining that her flippancy constituted a protection against analysis. She added, however, that the flippancy was merely a new method of defense, substituted for that of conveying wrong impressions, which she had consciously done during her first series of visits, to baffle me. Furthermore, notwithstanding that she had prevailed upon herself to resume analysis, even on this second occasion she had lied where it suited her purposes in order to supplement the effect of the flippancy.

This clinging to an illness becomes comprehensible when it is understood that a neurosis often forms a compromise between an unconscious wish and a repression. The sickness constitutes the patient's own solution of his perplexing problems, and may be construed as an effort to "eat his cake and keep it." Unconsciously he desires to cling to the compromise in the form of existence that the neurosis represents. Thus patients, after their resistance has been overcome, have often acknowledged that they consciously fought stubbornly because they appreciated that if a cure of their neurosis were accomplished, it might bring them face to face with realities, which at the time appeared more distressing to them than their pathological symptoms. In fact, one patient who entered treatment for homosexuality, feeling that he was on the way to a cure, calmly informed me that he had decided to continue in his homosexual state rather than endure the loss of old associations, which he felt he must do if he became heterosexual—in other words, the state which would result from the cure seemed more disagreeable than the disease.

Thus a paramount task of the analyst resolves itself into the handling of these resistances as they arise. This is accomplished, or rather accomplishes itself, in permitting the patient first to transfer his loves and longings, hates and jealousies, upon the physician himself. All persons harbor, to a greater or lesser degree, floating affects which are seeking fixation on some object. In neurotics, no matter what symptoms may be presented in their malady, this is especially the case.

Neurotics suffer from an incomplete utilization of their affective energy, which remains entangled and bound about their various symptoms. Where such affects, especially old and forgotten affects of childhood, are released during the course of an analysis and come to the surface of consciousness, they are displaced upon persons with whom the patient is most intimately in contact at the time. The analyzing physician is at the time of the analysis the most convenient, and as a matter of fact, if he be understanding, the safest object upon which to unload this mass of affects.

Transference, then, is a temporary regression to infantile affects, with an adaptation of them to the immmediate real situation. It is evident, therefore, that transference is paramountly a subjective process with the patient, during which he invests the physician with the character or characteristics of his unconscious antipathies, his ideals, or his yearnings which he desires to see realized. How purely reflective the process of transference is may be judged by the fact that it is the experience of any analyst to appeal to different patients in a great diversity of characters on shallow grounds. Thus I have been considered in turn by various patients to be a serious student, because of a high forehead; a homosexual, because of neat dress and wearing a clean straw sailor hat; a sport, because of wearing a red tie; a priest, because of solemn countenance; effeminate, because of a sweet smile; masculine, because my office smells of tobacco smoke, etc.

A more or less potent transference is the rule at the outset of all analyses where the patient actually begins treatment. One of the most accurate indications of the degree of transference is the punctuality with which the patient keeps his appointments. When the transference is positive, but not necessarily excessive, appointments are kept almost to the minute, so that when the patient is late, allowing for unavoidable delays beyond his control, the physician may confidently regard it as an evidence of resistance which he should not neglect to attempt to unravel.

At times transference is shown in presents given the physician by the patient. It has been my experience that when I handled transference poorly, I was apt to be rewarded by some token of esteem, for which I paid later in a stubborn resistance which might terminate in discontinuance of the treatment. It may be considered a fault in technique if transference is permitted to proceed to the gift-giving point. Excessive transference can be regarded only in the light of a danger signal, which, if unchecked, will militate against a permanent cure and certainly prolong the treatment.

During the course of analysis, symptoms of resistance of varying intensity (which is then in reality a negative transference), appear, and form the most exacting technical aspect of psychoanalysis. Resistance in this sense is always based on unconscious motives, and usually is dependent on infantile impressions.

Resistance may be further distinguished as resistance on the part of the patient to acceptance of views, which he unconsciously harbors but which conflict with those which he consciously fosters, or on the part of the analyst himself to an impartial

consideration of all aspects of the problems presented. Closely associated with the patient's own resistance, but really a factor quite apart, may be the opposition advanced by the patient's family to the treatment. At times this opposition becomes a cardinal influence, in that it supports and protracts preexistent resistances developed independently by the patient himself as a result of the bringing to consciousness ideas which he is accustomed to disfavor consciously.

The conscious initial rationalized resistances can usually be overcome. Objection is met by fact. Most persons who seek analysis have usually at their own initiative or at the direction of physicians, essayed the gamut of water, rest, and electrical cures, all prolonged and expensive methods. Nevertheless, resistance may be disguised as an apparently well founded objection to the length of time, the tedium, or the expense of the procedure. These can all be plainly answered, and, if the patient still finds objections, it seems to me to be far better to allow the proposed treatment to rest in abeyance.

Early resistance to revelation of unsavory experiences usually vanishes after analysis has been in active process and the patient appreciates that these occurrences are regarded by the physician in the light of dry, impersonal facts, which arouse neither censure nor sympathy. Most active, and perhaps most logically defended, is the objection to the analytic interpretation of certain manifestations. Eventually this disappears, but it may frequently be obviated if interpretation of the material gleaned is deferred until the patient has become well familiarized with the general tenets of analysis. Not infrequently in the course of conversation the patient himself offers an interpretation of a casual extraneous experience which corresponds to the light wherein some of his own more important complexes may be viewed. I am inclined at that time to emphasize especially his own interpretations of extraneous reactions as a means of lessening resistance to subsequent analogous explanations of his own symptoms.

Opposition on the part of the family, when present, forms the most stubborn and potent of all forms of antagonism, as its source usually lies beyond the immediate range of the physician, operates clandestinely, and particularly reinforces early trends upon which the unconscious subjective resistance of the patient is founded. The family usually remains ignorant of the aims of analysis and cannot be enlightened by the gradual introduction of the subject through which the patient becomes reconciled to it. They not infrequently infer that the neurotic, whom they often suspect of consciously imposing on their leniency, is further pampering himself by engaging in sympathetic little chats with the physician. Seeing little improvement manifest in the patient, as is so often the case at the outset of analysis, they advance objections on the score of further expense, which has usually been considerable before analytic treatment is begun.

The most serious obstacle encountered from family sources is met when a complementary attachment of the patient to a neurotic relative, which the patient may himself have regarded as rather unnatural and have been unconsciously attempting to break, is finally ruptured under analysis. Such a relative, confronted with the loss of something which has been a distinct source of pleasure, may instigate an active campaign, openly or indirectly, to interrupt the procedure which is so manifestly responsible for the alteration in the patient's affections. Such a person would prefer to have a son or wife sick, than apparently to lose them. Naturally enough such a relative, whose own attitude continues unaltered, cannot be brought to appreciate that unhealthy attachments can never, in the end, continue to be happy or entirely satisfactory. One could not expect a widowed mother, who had crawled into the bed of her thirty-year-old daughter every morning to be fondled by her, to relinquish the habit without a murmur when the daughter's reciprocal attitude changed under analysis. In fact, the mother's protest increased in intensity until it became a veritable clamor against the physician. This added immeasurably to the resistance which had developed independently in the patient as the result of the transference upon the physician of the interest formerly exhibited to the mother and which the patient realized must inevitably remain unrequited.

On the whole, it has seemed to me preferable, where possible, not to become acquainted with members of the patient's family. Even at the initial conference it seems advisable to explain the requirements of analytic treatment to the patient and to allow him to make necessary arrangements with the persons upon whom he is dependent. Interviews lead to distortion or misinterpretations of the physician's aims in the discussion which invariably ensues at home after the visit of a relative, and this is avoided if the affair be restricted to the patient and the physician.

The resistance of the physician himself to the correct or unbiased interpretation of the material which he has presented to him by the patient is quite apt to be overlooked by him. The physician, no less than the patient, is not immune from having his own vision somewhat obscured by personal equations. He may fail to recognize certain qualities in the psyche of his patient because he is antagonistic to admitting these qualities in himself. On the other hand, he may be vaguely conscious of the existence in his own make-up of the characteristics which he sees in his patient, and therefore be unconsciously inclined to condone them. The patient need not be extraordinarily keen to sense this sympathy, and while he may relish it, will seldom adjust himself through it.

Largely on these grounds has the dictum gone forth from the Zurich School, that an analysis of the psychoanalyst should be part of his technical equipment. Some years ago du Bois of Berne virtually admitted that his persuasive method was almost entirely dependent upon his personality, *i.e.* it depended upon the transference of the patient upon him, an elderly, full bearded, sympathetic, understanding man—in analytic terms, the ideal father, who prevails upon the patient to follow his counsel. Du Bois remarked, "Only a good man can use persuasion successfully." As illustrative of the fundamental difference between the persuasive and analytic methods, one might readily paraphrase his

dictum into, "Only an unbiased man can use psychoanalysis successfully."

Resistance of the patient may exhibit itself in diversified and apparently completely antithetical ways. It may take a form best classified as purely personal antagonism to the physician, rationalized on one ground or another, or resistance to the method which he employs. At times this may be displaced either way; *i.e.* the physician may receive the blame for the method, which is distasteful to the patient, or the method may be blamed for the patient's purely individualistic dislike for the physician.

The following incident is recorded as a typical example of a transference turned into a rationalized resistance, which, however, was analyzed with the result that the further analysis of the neurosis could proceed normally. The patient, who had been under analysis for four months and was coming three times a week, one morning sent me this letter:

Dear Doctor: I have decided that I will come twice a week after this, so that I can go back to your first suggestion to pay $10 a month toward my bill. It will make A.'s (a brother) contribution to my bill less. I think it will help me a little toward that freedom I want, and besides I will have more toward my incidentals. I will also have more time for swimming and getting back to my friends. I think a sex outlet can be had in work and athletics as well as in sex intercourse, social and otherwise.

I feel I have been floundering terribly lately, my headaches have increased. I think it is a mistake to look for more psychology, as I intended to do at those Labor Temple lectures. I believe I am getting all I can make use of at present—enough for my needs and at the rate I can go. I have been trying to put myself on a level with you—trying to reach your plane of education—not only you but others I meet—college girls, etc.

It was better for me to follow someone else's advice. I suppose in the long run I would be better off if I followed my own—I mean in the long run that I have to know what I really want. But at present I don't. I came in to-day thinking that I would keep up my swimming and my thoughts were divided with the psychology at Labor Temple. I thought this would be a good way of dividing my attention from you:....."

While the contradictions in the rationalization of the wish to come only twice a week because of, or notwithstanding, the "increased headaches and floundering terribly lately" are apparent, in the main the contentions advanced by the patient are that three times a week occupy too much time to the exclusion of other pursuits; that it would allow her more money for the enjoyment of pleasures if she came less often; and that the amount of psychology which might be crammed into two hours a week would be all she could grasp. Significantly she adds that she had considered the other outlets as a means of "dividing my attention from you."

In explanation of the circumstances it may be stated that the patient had been put under my care some four months before the letter was written. Three years before that time she had had a violent love affair with a man who was her inferior in position, morals, and manners. After she had ruptured this alliance, so unsuited to certain sides of her character, she suffered from a severe emotional disorder and had since then been under the care of various physicians continuously, both outside and in sanatoria. When the love affair was broken, her freed love energy had attached itself to one physician after another and in turn had descended upon me.

It is impossible to record here the numerous factors which originally caused the schism in her emotional stability. It must suffice that an almost hopeless disintegration existed, and I became invested in her eyes with many spiritual, ethical, and social qualities which corresponded to her earlier ideals.

Some of her earliest childhood affects found egress, as betrayed by her remark, "When you were stern with me, you were like my father—I liked you better then." It may be remarked in passing that it was the impression of the patient that the father had attempted an assault when she was about five. In any case, he had beaten her until she bled, when, as a child, she had related to him that an Italian had offered her money (presumably to induce her to permit a sexual aggression).

She had long struggled to bridge the gap between a strongly inherent sensuality, which she considered sordid, and fanciful aspirations for refinement and cultural achievements, which it had never been her fortune even partially to realize.

Just as she had, in her desperation at the futility of ever approaching the plane of her idealism, plunged headlong into her unpropitious alliance with an uncouth individual, so now, recoiling, she swung to the other extreme, that of her idealist love fancies, with which she found it possible to invest me. At times this idealism was adulterated by frankly sexual thoughts. While fully aware that any consummation of her fancy was impossible, it remained to her a pleasantly treasured illusion. This intense transference became very apparent early in the analysis and had been explained to her, with fair appreciation on her part, and the analysis had proceeded quite smoothly. But an ideal of this type, fulfilling so urgent a need and enveloping a convenient object, is not easily dispelled.

When the time came that I had planned to take my vacation (four months after the patient began treatment), I simply informed her of my intention, believing that she had sufficient grasp upon her neurosis for me to interrupt treatment temporarily.

Upon my return I noticed a decided resistance, but allowed it to pass, and shortly afterward received the letter quoted above. When motives instigating the letter were sought, the investigation revealed the following situation: When I departed upon my vacation the patient felt that I had not shown the proper consideration for her and had resented it, but had said nothing of it. Shortly after my return I had made an appointment with her for one o'clock, which she kept promptly, foregoing her luncheon in order to be punctual. I, however, having been delayed during my morning work and, being at lunch at one o'clock, finished my meal, which made me about fifteen minutes late. I excused myself for my tardiness. She surmised that I had been at luncheon and inferred that I was not showing as great a personal interest in her as she had in me. She had tried to "put herself on a level with me" and I had rejected it. Thereupon she sought means of revenging herself upon me. By decreasing the number of visits she would make me feel her absence and at the same time humble me by disregarding my opinion as to the number of visits I thought desirable; *i.e.* put herself not on a level with me, but above me.

According to her rationalization, the motives for diminishing the number of visits were material. Back of it, however, rested a powerful transference which had not been completely dissolved and turned into personal resistance. This interpretation is reinforced by a letter which I received on the day following the visit when the first letter was discussed.

"When you made up your bill for the month (August) that you were away—I counted that you would charge me $30. Your bill was $35. I reckoned that you should have suffered matrimonially (this is a slip of the pen as patient meant to state monetarily) for having stayed away. It bothered me a whole lot. I have always been, nearly always been exact, not only with regard to money but time also. I spent time figuring out each visit. I couldn't come to any conclusion. It bothered me the next day. I thought you charged me more because I wouldn't have such a "hold" on your affections—that was the best way to kill some of it. I began to find fault with you. But I saw at last that I was small, and that it was up to you to make your bill as you chose and that you couldn't have done any differently—any better. This past month, when I stayed home, I did not expect you to deduct from my bill. I wanted you to charge me the whole bill because then that would have made up for my nasty attitude, but anyway I thought you were very fine when you did it."

It is evident that the transference was not yet entirely broken—I am still "very fine" in my actions. As a matter of fact, it continued a serious problem throughout the arduous case. Nevertheless, some of the aura with which the patient had surrounded her ideal had been removed—with the result that the patient no longer struggled so acutely between her conflicting personal reactions of loyalty and revenge. It is needless to add that none of the patient's rationalizations were retained when the true source of their inception was brought to her attention.

While such transference is an absolutely essential and really unavoidable part of the technique during the initial stages in order to secure any degree of co-operation, it subsequently lapses without detriment to the patient.

Transference alone may serve to alleviate many symptoms of which a patient complains, but the result is usually transient as it is dependent upon the persistence of the transference. In such cases the effect is attributable to a substitution or a sublimation. At times, although such a transference in the physician wanes, the patient, having in the meantime acquired a better grasp of his problems, is quite capable of directing love energy into other sublimative and productive channels. Freud recently remarked, with his characteristic penetration, "The treatment is worthy the name of psychoanalysis only when the force of the transference has been utilized to the subjugation of resistance, for only then does a recurrence of the sickness become an impossibility, even after the transference has been destroyed, as of course it should be."

249 West Seventy-fourth Street.

Anicteric Spirochetosis.—Favre and Mathieu refer by this term to the rare cases in which the parasitic cause of Weil's disease is found in the urine in association with atypical general symptoms, among which icterus does not figure. There is a failure of the health and forces, and a suggestion of atypical malaria, without initial chill or true intermittence.—*La Presse Médicale.*

WHY IODINE? WHAT IODINE?

By Douglas H. Stewart, M.D.,

New York.

There are many able physicians who will neither abandon the use of iodine nor will they adopt the use of any chlorine product whatsoever, when it comes to a question of the proper treatment of wounds. It must surely be evident that such conduct has at least one good supporting reason, in the axiomatic fact that chlorine will attack and destroy sutures. Years before the existence of the present fad for acidulated chlorine compounds the writer did suggest the value and use of calx chlorinmata dissolved in diluted acetic acid; but he has endeavored always to assert very clearly that chlorine was destructive to any suture or ligature; no matter whether of fabric, of tissue, or of metal. As for silver and other wires, those were found to be converted into chlorides of the corresponding bases. Even now at this late day nothing has demonstrated the occurrence of any alteration in the workings of fundamental chemical laws, so let us take for granted that chlorine will attack sutures; either within a wound or elsewhere, if moisture be present.

When a deep and sutured wound is thoroughly and profusely irrigated with chlorine, then the scar of that wound may confidently be awaited as one that will require repair, in months or years after an apparent healing. This is so, because of the existence of intravulnerary spaces and these together with a subsequent yielding of the cicatrix to intravulnerary pressure would be rather reasonable certainties; after catgut stitches under tension had been submitted to contact with a chlorine solution. If the reader will but select a test tube, will fill that with anyone of the popular chlorine antiseptic solutions, preferably one suggested by a detail man, and if he will allow a few strands of catgut to lie in that solution for a short time; then or after his consideration of the destruction there evidenced, even the boldest and most reckless experimentist would hardly defend the act of putting any such solution upon or within any sutured wound.

Apparently it is thought in certain quarters that manufacturers are very much to blame for advising the employment of their chlorine preparations for wound dressing purposes; but the present writer does not take that view of the subject at all. So far as his knowledge goes manufacturers, advertisers, detail men, etc., have been scrupulously honest and have insisted upon the fact that their chlorine product would destroy dead tissue in a wound. If a catgut stitch that runs from wall to wall of a wound is not an excellent example and specimen of a thoroughly dead and altogether tissue-like material; then will some learned pathologist or biologist please tell us what this "common but unobserved" thing called catgut really is; for many of us have taken for granted that a catgut suture properly placed is "dead tissue within a wound," and as such chlorine will surely attack it.

At any rate, the present writer is using chlorine only upon a wound or within a wound of such a nature that it may be closed by the ancient in-

carnating bandage or by acupressure; so that rotting of fabric or the presence of tissue ligature destruction is not a factor that is worth consideration. Surely it is not necessary to pursue this matter further because the reader may make any simple test-tube experiment that is satisfactory to himself and may tell about his result as he finds it. One thing he will readily discover and that is why some men cling so closely to iodine that they will not give chlorine a patient hearing, if its merits are spoken about in their presence.

The author has tried many iodine preparations and has at least a half dozen of such that he finds a use for at times. It will suffice to mention three of them in this place together with an advantage in the use of each form.

Bottle number one contains alcohol to which crystals of iodine, in excess, have been added. The supernatant liquid when unshaken is the 10 per cent. tincture of iodine that is so often mentioned in the literature of surgery. It is an ideal and powerful counterirritant, which statement will enable one to determine whether he desires to employ its germicidal power upon a wound or unbroken surface, or whether he does not so desire.

Bottle number two contains iodine hydrate (4 per cent.). Its efficiency in arresting pimples, furuncles, and carbuncles is so prompt and good that it reigns almost, if not quite, unrivaled in its capital antagonism to infection with the staphylococcus. As an antiseptic preliminary to puncture of the skin for hypodermic or intravenous medication it has had ample trial and much approval. After application it fades quickly with nothing like the stain or the dermatitis of an ordinary (7 per cent.) tincture. Used in wounds it gives a short and sharp snip that is not comparable with that from the tincture of iodine U. S. P.

The third bottle contains the vinegar of iodotannic acid (acetum acidi iodotannici). Its formula is one ounce of U. S. P. tincture of iodine rubbed up with a drachm of tannic acid and with three additional ounces of dilute acetic acid. Should there be any deficiency the whole mixture is finally made up to four ounces, through the addition of the acid. Within the test tube, in the Petri dish, or upon a slide it may be estimated as about equal to 1-2000 or 1-2500 mercury bichloride in water. But upon a wound or upon an infected area of the living human body under work-a-day conditions its superiority is so great that a comparison is impossible. For that superiority is apparent from every angle and point of view. As to its effect upon catgut it hardens that and tends to preservation rather than destruction. Whether it will convert a wound from wet to dry in a very short time is largely a matter of complete contact.

Take it all in all for general office use it is one of the most satisfactory of the preparations of iodine, and lends itself readily to almost every conceivable purpose for which iodine is employed in throat, vagina or urethra, though it does come short as a counterirritant.

The present writer's experiments must have many hidden witnesses, because every little while a letter arrives from some previously unknown source, which letter informs the aforesaid writer about what he is doing. This has a value in calling one's attention to points that might otherwise go unmentioned. It is suggested that something be said about compound fractures, about osteomyelitis, and about other matters, because as one letter states, "Even the nurses know the difference." Perhaps this is as good a place as any to state that iodine and chlorine are out of place under an airtight splint. Through a fenestra in a splint tannin solution No. 119 may be put upon and into a wound *ad lib.* Pads may be used as covers for that wound and through their gauze substance purple may be run or soaked. Where the tannin and purple come in contact iodotannic acid will be formed. In short, the wound will be tanned and the bandage will be iodized. The formula for paraffin purple is to rub up with a little ether, iodine and potassium iodide āā gr. xl, calomel gr. xii, and add slowly liquid paraffin ʒiii. A mortar and pestle are essentials. This purple runs through and into gauze by a visible capillarity. A little care with a little patience in application will fulfil every requirement.

This expedient has been tried with approval in burns, cellulitis, dermatitis, and similar conditions. It may be as well to add, even though it is hardly necessary, that neither tannin solution nor purple will attack rubber or any suture material; and if the application of either preparation or of both together gives rise to pain, or the complaint of pain, then some very unusual condition must be present. Whereas such statements as "We have used quarts of it here," and "This hospital has a bottle on every floor," would rather tend to show that purple and tannin, either or both, were giving some degree of satisfaction in services where everything (and anything) else in the way of application is available and comparable.

128 West 86th Street.

THE TERROR THAT COMES IN THE NIGHT.

By EDWIN F. BOWERS, M.D.,
NEW YORK.

The wisest man that ever lived once said "He jests at scars who never felt a wound." In similar fashion we make light of the terror that comes in the dark to those more delicately organized and more susceptible to external and internal impressions than we are.

And yet, perhaps, we ourselves may be entitled to little or no credit for our freedom from nightmares and frights, or for our fearlessness in the creaky, whispering dark.

The credit, if due at all, should go in large measure to certain steady-nerved, strong-willed ancestors who bequeathed us a nervous system and a set of racial memories that fortify us against fright under conditions where others might melt with terror.

Indeed, it is now conceded that the most serious and stubborn affections that nerve specialists are called upon to treat are those caused by the fears and frights of ancestors. Not immediate ancestors —although these are responsible in various ways

for considerable of our nervous instability—but of our monkey-like progenitors, our great-grandfathers, ten thousand times removed, back in the flying-lizard, giant fern period. This may seem difficult to believe. But scientists who have devoted a lifetime to the study now conclude that much unexplained nervous apprehension and many intuitive and instinctive fears are inherited from our forbears of the ancient world.

The biologic cell-stuff—or the soul-stuff, whichever it is, that they pass down to us—contains the essence of that thing or that state of mind that makes children and many adults fear the dark, or high places, or snakes, or mice, or running water, or thunderstorms, or being left alone, or mysterious forests, or of being tied up, or of strangers, or fire, or of a hundred other things equally absurd in this protected age.

And these instinctive fears are by no means "imaginary," as so many rugged-minded men and women would have us believe. On the contrary, they are as tangible and definite as is a case of mumps or a broken leg—and they cause infinitely more suffering than either.

Take the fear of darkness, for example. Out of the blackness of a prehistoric night there creeps a great jungle monster. With a roar that freezes the blood he springs among the sleeping clan, breaks the back of the nearest with a blow, crunches the body in his great jaws and snarlingly drags it into the forest. There, for hours, the terror-stricken folk who have sought temporary shelter in the branches of the trees shudder to the carnivora's bloody feast.

The nervous systems of these ape-like ancestors were shocked with an indelibly implanted horror of the dark and its dangers. Is it any wonder that the survivors of these nightly catastrophes transmitted to their children, as part of the inheritance of the race, the instinct to dread darkness and to fear the mysterious shadowy recesses of the forest, where sudden death lurked in the undergrowth?

Is it to be wondered that the deep caves that might harbor ferocious bears, or the black gorges and clefts that were likely to conceal the saber-toothed tiger struck the folk over the heart and caused the thick, reddish-brown hair of their heads to stand on end?

Now, children are nearer their ancestors than we are. Reason, experience, the shame of acknowledging "groundless" terrors and the courage that comes from meeting and overcoming obstacles are not yet theirs. And so they see bears on the black stairs, leering faces peering from shadowy corners, and shapes of dread in familiar daytime objects. The thing that might be under the bed, or in the cellar, or in the murky attic closet—waiting to spring out upon them—is to them as real as is George Washington or the Desert of Sahara to us. And they can no more help being afraid of this old racial memory than we can help fearing death or the tax-gatherer or getting run over.

Practically every child in the world dreads the dark. Even the best-born, the healthiest and the most carefully shielded are liable to sudden stampedes of fear following some suggestion that overwhelms control, and that may actually cause deep-seated, or even permanent nervous disorder.

This fear of darkness is by no means confined to children. Many adults have it to an extraordinary degree. If you don't believe this just have yourself locked into the blackness of a solitary confinement cell for a half hour or so, as I did on the old Australian prison ship that toured these shores a few years ago. I confess, without shame, that I had to keep telling myself that my friends would let me out of this tomb when they got ready. Otherwise I should have yielded to an almost irresistible impulse to kick on that door and to shriek at the top of my lungs. Which, so I was afterwards informed, is exactly the way that nine out of ten behave under these circumstances. The fear of "closeness" complicates the fear of darkness in this instance and intensifies the dread. Our soul-stuff knows that closeness is dangerous and that to be suddenly confronted in a narrow place with some peril which there isn't room to avoid or opportunity to run away from spells disaster.

This knowledge our half-animal forbears have transmitted through all the ages that separate them from us. So, tangled in the woof of inherited instinct are those racial dreads that only time and education and the strong force of example can obliterate—or more properly subjugate—for they are, in my judgment, never obliterated.

Almost as unreasoning as the dread of darkness is the horror of high places. The average person, who has not become immured to it by experience, could not be hired for love or money to walk a girder on the twentieth story, or to balance himself on the coping of even a moderately high building. Some there are who cannot look down a deep well or a subway excavation. Others suffer terribly when they have to go up in elevators or when they cross high bridges or ravines.

Some cannot even watch a steeplejack at work or see some reckless but debonair artisan sliding gayly down a skyscraping rope without getting seasick. Others are frightened, not so much by the height itself as by an almost irresistible desire to jump off when they are up there.

Of course, the slight changes in blood pressure which come with the rise above the sea level, the feeling of insecurity, the "newness" of the situation and the rioting imagination bodying forth the consequences of a "spill," all have their effects upon the body and upon the mind. But back of all these things is that instinctive "gravity fear" transmitted to us by ancestors who didn't fall, but who saw clearly what happened to others who did.

And so, even the tiniest infants, too young to know danger or to have developed any imagination, are sometimes "frightened stiff" at being lifted toward the ceiling or in dropping to the lower floor in an elevator.

Then there is the fear of snakes and of crawling things that possesses ninety-nine out of every one hundred of us. What is there about a harmless little garter snake or a green lizard that should create a panic in women and a murder-lust in men? There is this about it. In the tropical regions that were the first home of the race snakes were almost uniformly venomous. Our geologic ancestors came to know that death sprang upon them from the fangs of serpents. Thus they came to dread snakes and all creeping and crawling things that suggested

snakes. And so they implanted the fear of crawling things in all their children—even unto the ten-thousandth generation.

Now we see why nightmares are so very real—to the one who is ridden by them. And why they so frequently hark back to the horrors that infest the dark, to being smothered by closeness, to falling from tremendous heights, to snakes and all manner of wall-eyed crawling things, and to various other matters in which the individual himself may have no experience, but with which his soul is thoroughly well acquainted.

Our objective or reasoning mind being asleep, the subconscious mind takes the reins and jumps the sleeper over the bundles of horrible experiences. Not content with plaguing us with the frights and fears of ancestral memories, it even manufactures new ones, made up of a most curious and heterogeneous hodge-podge of everything we have heard, smelt, seen, tasted, touched or talked about—generally mixed with some physical sensation that touches the thing off.

For instance, the slipping down of the blankets may start an Arctic exploration expedition, with a whole train of icebergs, seals, walruses, Eskimos, and everything that properly belongs to our conception of what Peary or Nansen must have come through in order to get somewhere near the Pole. Or even such a trivial accident as our poking a couple of toes from under the covers on a cold night may produce a dreadfully embarrassing dream, in which we try to slip unobserved through the crowd on the corner of Forty-second Street and Fifth Avenue dressed in a costume that would make decolleté look like being wrapped in feather beds.

Read Mercutio's beautiful and fantastic description of how dreams are started, and how those so stimulated interpret this stimulus and react to it. For it's true—all but the fairies. And, since Peter Pan, I'm not so sure that they are not true, too.

Perhaps everyone is familiar with the distressing dreams produced by some dietetic indiscretion—the "mince pie" or "midnight lobster" dream. It surely is a realistic and thrilling experience while it lasts, like the drunkard's eulogy of delirium tremens: "You ain't been nowhere and you ain't seen nuthin' till you've had the 'snakes.'"

Yet that little old man with the hideous fanged mouth, who hopped up on your chest and proceeded to grow bigger and bigger and heavier and heavier, until finally, by a superhuman effort, you succeeded in unhorsing him, was only gas. The gas-distended stomach was pushing away for dear life on the diaphragm, compressing the lungs with all the strength of fermentative desperation. The fertile imagination furnished the remainder of the entertainment.

The night terrors of children frequently have a physical cause also. They may originate in "mouth-breathing" and in the defects of circulation which this brings about.

Some nasal obstruction, such as a twisted septum, enlarged turbinated bones, or adenoid growths may block the nasal passages.

Every mother should closely observe her children for symptoms of these conditions. If found, they should be removed. For if they are not removed the child will develop contracted dental arches and other conditions that will prevent the circulation of lymph. Deprived of this nutritive material, the brain will be starved into subnormality, and a child who should be keen and alert becomes a dunce.

If a child cries out in his sleep, or is subject to distressing, restless dreams, see if these nasal conditions may not be the cause. If present, they should be radically removed. The dangers of operation are extremely remote, while the dangers of not operating are immediate and progressive. And the little "tads" rarely outgrow them.

The "falling from a height" dream also has a physical basis of cause when it occurs within the first 45 seconds of sleep. For scientists have shown that this form of "falling nightmare" invariably occurs during the first 45 seconds after falling asleep. It is suggested by the general muscular relaxation that takes place when we settle down to sleep. A change in position of even the fraction of an inch, or the least little slip of the muscles, or any sudden noise that migh suggest slipping or falling is sufficient to convey the idea of a fall to the brain. In the twinkling of an eye the brain has provided precipices, chasms, mast-heads, monuments and divers other things for us to fall or be pushed from, and we "do the rest."

The inherited instincts of fear and the tendency of the mind to translate any unusual sound or motion into terms of danger suggest what is probably one of the most frequent of all causes of night terrors. This is a creaky bed—a bed that rattles, squeaks, moans, groans or protests—audibly or by sagging, or by any other unusual motion—when a sleeper happens to move or turn in his sleep. The very faintest sound or the slightest motion is heard or felt by the subconscious mind. Like a flash it manufactures its dream to fit this particular soul-shock. And it repeats the process possibly hundreds of times a night in response to every unusual move or sound. This, I am convinced, is one frequent cause for nightmare, as well as for light, disturbed sleep, and even for insomnia.

Therefore, a rigid, absolutely noiseless bed all to oneself, for a double bed is an unhygienic abomination that is rapidly becoming extinct, will, in my opinion, do more to banish nightmare than a whole pocketful of pills. And it won't be nearly so hard on the one who has to take it either.

225 West End Avenue.

Immunization of Gravidæ Against Puerperal Fever.—In Bumm's clinic, Berlin, gravidæ are being actively immunized against puerperal fever by the use of a polyvalent vaccine obtained from streptococci present in virulent puerperal sepsis. The results are encouraging.—*Correspondenz-Blatt für Schweizer Aerzte.*

Vaccination and Variola in Mexico.—In the month of May, 1918, nearly 37,000 tubes of vaccine were distributed throughout parts of Mexico by the Federal Health Department. The actual number vaccinated in thirteen municipalities was 6,316, of which 5,230 were in Mexico City. Over one-half had been vaccinated before. The disease is not epidemic and but 21 deaths occurred from this cause in Mexico City for May. But nine patients with variola were interned outside of the city in the hospitals for contagious diseases in the registration districts. In the same area 22 premises were disinfected for variola.— *oletin del Departmento de Salubridad Publica.*

Military Medicine.

WOUNDS OF THE MAXILLARY SINUS IN WARFARE.

WOUNDS of the maxillary sinus in warfare are more commonly the result of missiles. These injuries are not always accompanied by a solution of continuity of the integuments, because it is not rare to find bullets or bits of shell which have penetrated through some other structure and passed through the sinus or become lodged within it, or, continuing their course, have made their exit at some other part of the face or remain embedded. Less frequently the wound is a direct one, with injury to the integuments, fracture of the wall of the sinus, with filling of its cavity with clot. Fractures of the anterior wall are generally comminuted with depression of the fragments.

As complications may be mentioned blood-clot in the sinus cavity or the presence of the missile within it, suppuration with possible necrosis of the walls, and finally at a later date the formation of a fistula. The treatment of such fistulæ is similar to that of empyema of the sinus and therefore offers nothing of particular interest. When the missile has simply traversed the sinus it may produce a very small lesion or there may be considerable destruction of the part. The entire face may be smashed, with extensive destruction of bone and soft structures.

These wounds readily become infected on account of their proximity to the buccal cavity and give rise to a characteristic odor of slough. They should be treated by frequently repeated irrigation with an antiseptic solution. By this means an almost constant antisepsis is maintained, the sloughs become detached, and hemorrhage is not apt to occur. Then the wound granulates and the loss of substance is filled in with surprising rapidity. When cicatrization is complete it is then, and only then, expedient to perform the necessary plastic work.

Very often the maxillary sinuses are wounded by missiles which have penetrated the neighboring structures such as the orbit, nasal fossæ, the face, neck, or even the skull. If these missiles have simply traversed the sinus, no serious damage may be done, or, on the other hand, their passage will cause infection of Highmore's antrum, with resulting fistulæ opening externally, particularly when removal of the missile has been undertaken by the external route. To close these fistulæ, which are usually awkwardly situated, all that is required is to curette the sinus and drain it at its most dependent part. The fistulæ will close in a few days. As to the sinus, it should be attacked at the canine fossa through which it should be curetted and drained. This procedure in most cases will be completely successful.

The most common complications are suppurative processes, necrosis, and fistulæ to which reference has already been made, but there still remains hemorrhage, which although not common may be of extreme gravity. This occurs particularly during attempts at extraction of the missile when the latter is lodged in the cavity of the sinus. Plugging is often not enough to control the loss of blood, in which case one should not hesitate to ligate the external carotid. This is the only means of preventing secondary hemorrhage which may arise when the sloughs are eliminated. Some of these secondary hemorrhages may be really fearful and probably came from a wound of the internal maxillary artery or of one of its larger branches. In such cases no time should be lost by plugging, but the external carotid should be tied without delay.

Serotherapy of Gas Gangrene.—Two years ago the attempt was made to inject at once into the surrounding tissues in a gas gangrene wound some of the patient's own discharges pending a bacteriological examination and also because the variety of the bacteriological flora made it very doubtful that a proper serum could be manufactured for the individual case. The idea seems to have come from the French veterinaries who, in turn, doubtless derived it from our own veterinaries, while the latter evidently obtained the idea from Dr. Duncan of New York. The results of this autotherapy of gas gangrene were said to have been encouraging, but the hope was expressed that straight specific or polyvalent serotherapy could be made to fit the condition. Last July there was an extensive discussion of the subject before the Société de Chirurgie, reported in *La Presse Médicale* for July 25. The subject of autotherapy was not discussed, for the reason that we are now pretty certain as to the identity of the pathogenic organisms and can antidote the worst of them with stock preparations (serums). Weinberg and Seguin, who made the autotherapy experiments, have sera to antidote the perfringens, the edema bacillus, and the septic vibrio, and a mixture of these sera has been used as a preventive in recent wounds which promise gangrene. In fifty wounded thus treated none developed gangrene. The surgeons who report the use of the serum are Duval and Vaucher. The work was then extended to other types of wounded and the injections were made at a later period. In but one series, of four cases of neglected and putrid wounds, did cases of gas gangrene develop despite serum. Professor Delbet, who had officially brought the subject of the autoserotherapy of gas gangrene before the Société de Biologie in 1916, recommended the use of the trivalent serum for prophylaxis. Bazy mentions a quadrivalent serum, a serum of the *Bacillus bellonensis* being added to the first three mentioned. However, he regards the septic vibrio and the perfringens as the chief offenders. He also mentions the possibility of increasing the valence by adding ordinary streptococcus polyvalent serum. Rouvillois and others favor a mixture of vibrio and bellonensis for routine use, as already recommended by Sacquépée, with special reference to the cure of gangrene already present. In five cases of this type death took place later from the consequences of amputation, the surgeons unanimously insisting on the most radical surgical intervention in association with serum therapy. In another series of cases with such intervention recovery occurred and finally there were a number of recoveries in non-operative cases.

Mentally Deficient Recruits for the Army Service.—Captain O. C. I. Withrow, C. A. M. C., writes

in the *Canadian Public Health Journal*, March, 1918, concerning mentally deficient recruits, as follows: The problem of the unfit is of more concern in army circles than in the civilian community. War is a hard taskmaster, and is insatiable in its demands. It cannot brook physical disability; it must have the best. Moral disability is no bar to entrance into the ranks; all war asks is a sufficient morale in its gregarious fighting humanity. The question of mental disability is both important and difficult of solution. It presents grave difficulties because of the lack of time to institute a proper examination of mental capacity. The idiot and the low-grade imbecile present no real problem. The brand they wear is deep enough and plain enough for a real decision at a casual glance; but the high-grade imbecile and the moron with the victim of a psychosis are often passed through training. It is not surprising that this should be, for they have sufficient intelligence to answer all necessary questions and the elucidation of their malady would require a different line of tactics by the medical officer. In the early days of the war men were so eager for acceptance that they hid their disabilities if possible. Now recruits are so eager to recount their numerous maladies that it is surprising that one small human body can carry such a conglomeration of complaints. This refers more especially to the physical. The mental problem is the same now as then. The men themselves do not know their disability and even their friends are loath to admit the possibility of any such blight as mental deficiency or insanity. Thus the medical officer, having little to guide him, ofttimes stumbles and falls upon a very rocky road. For there is no shadow of doubt that mental defectives give great concern to a medical officer of a unit so soon as they have donned their uniform. Every fellow may look alike in khaki, but every man does not act like his comrade, any more than do the units in civilian life. Defective mentality shows itself early or late. The greater the deficiency the sooner the discovery. One mental defective in a platoon may cause more anxious thought than all the rest of the men, while physically he is so fit that the mess hour is hardly sufficient to satisfy the call of an abnormally healthy appetite. This class of man is not understood and numerous crimes stand to their discredit, while punishment has no efficacy whatever as a corrective. If these men were properly understood they might prove fairly useful servants at certain duties, but the gain therefrom is offset by the loss of such valuable time and money that it is better to shut the entrance gates to them, or if, perchance, an odd one slips through discerning medical boards to have his name deleted from the roll as speedily as his symptoms become manifest. Withrow believes it would be good policy to have a board of two competent psychiatrists at the center of every military district, to whom suspected cases of mental deficiency and psychoses be referred. It takes time to make a diagnosis and the importance of a diagnosis is threefold. 1. It is not fair to the recruit to stigmatize him as a mental case if he is not such a one. 2. It is not fair to the fighting forces at this time to keep out of service one possible addition to the ranks because he may inadvertently have been labeled mentally deficient. 3. It is not fair to the government nor is it good business to carry one single mental defective on the rolls of the forces one moment longer than is necessary for a proper diagnosis. It appears to Withrow that the parties concerned might be fairly dealt with. Many loyal and devoted persons have expressed their conviction that it seems a great pity to send all the physically fit to fight our battles with the prospect of death or disfigurement, while those of lesser physical attainments are left at home. It seems a great hardship that we leave behind the mentally defective while those of brighter intellect march off to do exploits. But what will you? War is war, and it takes the keenest and the bravest to stand the rigors of a campaign and one deficient intelligence may cause a cataclysm of disaster in the very hour of expected triumph.

Hydrotherapy in the Treatment of War Injuries.—Hydrotherapy, according to R. Tait McKenzie (*American Physical Educational Review*), plays an important rôle in the treatment of the wounded man, as it has the additional resource of cold as well as heat. The cases that derive most benefit from hot water are those marked by great areas of contracted scar tissue, painful stumps, and weakened and stiffened joints. Slight adhesions may be broken down frequently, after its use, and all parts are more easily manipulated. Irritable bruised nerves are made worse by heat so that for them the bath should not be raised above 100° and manipulation or massage should never be used, the water should here act as a comforting poultice. A sort of gymnastics of the circulation is given by the alternate use of hot and cold water in the Scotch douche or the local contrast baths advocated by Sir Robert Jones. The full sedative bath at 94°, lasting for an hour, is of great value in shock. The whirlpool baths, first used in France during the war, are the most valuable single appliance in the after-treatment of wounds. The arm or leg is plunged into a vessel containing water at about 105°, which is circulated by jets set at an angle, or by a propeller. Air is also introduced so that the limb is surrounded by a swirling, bubbling current, the temperature of which is raised as high as 120° if the patient can bear it. The air bubbles increase the stimulant effect on the skin and the heat is applied to the surface far more surely by this means than if the water were still. These baths are particularly effective for painful stumps, painful scars, partial paralysis, or in fact for any condition which lowers the circulation and nutrition of the member. The period of treatment is about twenty minutes and the patient, made warm and comfortable, is then ready for massage and manipulation, which could not have been performed without this preparation.

New York Committee of the Volunteer Service Corps.—The Central Governing Board of the Volunteer Medical Service Corps of the Council of National Defense announces that the New York State Executive Committee of the Volunteer Medical Service Corps is comprised of the following

doctors: George D. Stewart, New York City; John Van Duyan, Syracuse; Gilbert D. Gregor, Watertown; J. I. Dowling, Albany; James B. Clemens, New York City; Charles G. Stockton, Buffalo; John E. Virden, New York City; J. E. Wilson, New York City; Walter B. James, New York City; W. Stanton Gleason, Newburgh; Walter F. Chappell, New York City; Joseph W. McGill, Rochester; Nathan E. Brill, New York City; James S. Waterman, Brooklyn; DeWitt H. Sherman, Buffalo; William M. Brown, Rochester. The purpose of this committee is to co-operate with the Central Governing Board in prosecuting all activities pertaining to the mobilization and enrollment of members of the Volunteer Medical Service Corps throughout the state. The Central Governing Board of the Volunteer Medical Service Corps also authorizes the appointment of one county representative in each county in every state of the Union. The county representatives for New York are F. E. Sondern, New York County; James C. Hancock, Kings; J. Lewis Amster, Bronx; William Bryan, Richmond; J. J. Kindred, Queens.

Women Anesthetists Wanted for the Army.—It is announced that there is need of competent women anesthetists and a call has been issued asking that all women physicians who are qualified for anesthetic service or who are competent to be intensively trained communicate at once with Dr. F. H. McMechan, Avon Lake, Ohio.

Health in Army Camps.—A statement issued by the War Department on September 19 reports that the health of American troops at home and overseas continues good. For the two-month period ended August 31 the death rate of the entire Army was 2.18, compared with a death rate of men in civilian life of military age of 6.7. For the week ended September 20 there were 108 deaths at all camps as compared with 95 for the previous week. There has been a rapid spread of Spanish influenza among soldiers in training, with epidemics at Camps Devens, Massachusetts; Upton, New York; Dix, New Jersey, and Lee, Virginia; the Great Lakes Station, and the Second Naval District, Newport, R. I. It is expected that the disease will appear at other camps and cause a general increase in the sick rate. On September 20 fifteen deaths were reported from pneumonia developing from influenza among soldiers at Camp Devens. While this is the largest number of death reports for a single day, camp authorities state that the epidemic is waning and that the number of cases admitted to hospitals daily is decreasing. A report given out by the War Department on September 23 announces that up to noon of that day there have been reported 20,211 cases of influenza in the various Army camps. Seven camps reported influenza cases for the first time on this date. The epidemic continues most severe at Camp Devens, Mass., the total number of cases reported from this camp to date being 10,700. Camp Dix, N. J., ranks second with 1,897 cases to date. At Camp Devens the number of pneumonia cases is high, 424 new cases having been reported from September 19 to 23. For the previous two weeks the average number of cases per week was 45.

Training of Hospital Assistants.—The following resolution was unanimously adopted at Washington on September 20 by a special committee which included Col. Winford H. Smith, Surgeon General's Office, chairman; Miss Clayton, League for Nursing Education; Miss Crandall, Committee on Nursing, Council of National Defense; Miss Delano, American Red Cross; Dr. Goldwater, War Service Committee, American Hospital Association; Miss Goodrich, Army School of Nursing; Miss Nutting, Committee on Nursing, Council of National Defense; Miss Thompson, Army Nurse Corps:

Resolved, That civil hospitals which have the necessary facilities be encouraged to arrange for the training and use of hospital assistants according to the plan and qualifications of the Army School of Nursing.

That such hospital assistants should be enrolled through the American Red Cross, with the understanding that they will accept service, as required, either (*a*) in the hospitals in which they are trained, (*b*) with the American Red Cross, or (*c*) in Army Hospitals.

American Clearing Hospital Shelled.—After throwing a large number of high explosive projectiles into the region of an American clearing hospital on the Lorraine front for two successive nights, a large tent where gassed patients were confined was struck on the night of September 9. Eight Americans, the majority of them privates, were killed outright and several members of the medical corps were injured. This attack, like many previous ones of a similar nature, was evidently intentional and deliberate, as the roof of the hospital was marked by a large red cross.

New Hospital for Shell Shocked Soldiers.—Dr. John T. M. Finney of Baltimore, surgeon in chief of the American Expeditionary Forces, who recently made a brief visit to this country, has returned to France after having secured a large appropriation from the Federal Government, which places at his disposal several millions of dollars to erect and maintain a hospital in France for the treatment of shell-shocked American soldiers.

American Women's Hospital Sends Second Unit.—The second unit of the American Women's Hospitals, which will be added to the staff of the military hospital, at present working with the Sixth Army Corps in cooperation with the American Committee for Devastated France, has sailed. This hospital contains 100 military beds, with capacity for expansion, and also has a small civilian ward. The unit which has sailed consists of Dr. Caroline M. Purnell, Philadelphia; Dr. Mary L. Evans, Middletown, Conn.; Dr. Charlotte Fairbanks, St. Johnsbury, Vt.; Dr. M. Ethel Fraser, Denver, Col.; Dr. Mary MacLachlan, Portland, Ore.; Dr. Ier Jay Manwarring, Norwich, Conn., and a corps of nurses. Dr. Purnell will act as special commissioner for the American Women's Hospitals in France.

New Hospital for Camp Mills.—As Camp Mills is soon to become a permanent cantonment, in addition to the construction of permanent barracks, work has been started on a new hospital which will furnish accommodations for 2,000 patients.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, September 28, 1918.

THE FOURTH LIBERTY LOAN.

ALTHOUGH as a body the medical profession has made greater sacrifices than any other calling, sending a larger proportion of its numbers to war than any other class in civil life, it nevertheless remains for those of its members who cannot give actual military service to do their part back here. In an article in this issue Dr. Kindred shows why physicians, especially those of us who are prevented by age, illness, or other impediment from going to the front, should do their bit for the success of the new Liberty Loan offered this day. The army surgeon is not a fighter—much as he might like to be—but he is as essential to the success of our cause as any one on the firing line; and we, his colleagues far in the rear, neither can we fight, but we can make our work tell as effectually as he, though in a different way. We, too, can make sacrifices. We have not given up our practices, but we can give up the income, as much as possible of it, derived from practice to equip and pay our brothers who are doing the actual work.

There is another reason why we should do all in our power to aid our country in its struggle against the cruelest and most fiendish of enemies ever recorded in the history of warfare; not only are we impelled by patriotism to help, but we are further called upon as a profession to make expiation for the inhumanity of many German army surgeons, whom we once honored with the title of colleague, but who have disgraced themselves and their profession by their brutality and cowardly ruffianism. Many instances of unprofessional conduct by German army surgeons are on record, but we need only mention Wittenberg, where Dr. Aschenbach and his staff neglected the prisoners so shamefully and then ran away as soon as a few cases of typhus appeared, leaving the care of the sick and the sanitation of the prison camp to several English surgeons among the prisoners. For the honor of our profession therefore let us do our part to make the Liberty Loan a success, and then buy more bonds in order to atone as far as we can for such crimes as have been committed by our enemies in attacking hospitals and hospital ships, and especially by those German doctors, who are few we try to believe, that have displayed such brutality in their treatment of wounded prisoners.

Next week, through the generosity of many of our advertisers, further urgent appeals will be made to the humanity and patriotism of our readers, but one need not wait for that. Let us buy what we can at once, and perhaps the appeals of next week will persuade us that it is possible to buy still more.

THE "MYTH OF ANAPHYLAXIS."

AUTHORITIES continue to insist on the necessity of large doses of serum in the treatment of diphtheria. There should be no hesitation, no scruples, they say, to swerve the practitioner from his duty in this respect. Nor should the patient shrink from his duty in the same dilemma. In this connection the subject of anaphylaxis at once looms up as the chief deterrent in practice. Jousset, in an article which appears in *La Presse Médicale* for August 5, gives his experience and convictions concerning the alleged peril of anaphylactic shock. He has long been accustomed to give large doses of serum in tuberculosis. He has often enough seen the phenomena of anaphylaxis, innocently produced, but never were these serious in character, and he has had opportunities for an unbiased study. To assume that sera are dangerous is to warp the judgment. In his tuberculous work he has had to employ large doses of increasing size, yet he knows nothing of that famous bugbear which is the terror of the practitioner. He begins with a dose of 100-150 c.c. and often reaches a total dose of a pint, a quart, and even more. Aside from the local reaction, which is more apt to be excessive with the high dose, the percentage of seric accidents is but little larger with the high than with the small and medium dose. Hence anaphylaxis is not to be regarded as a matter of dosage. The eruptions are aggravated by large doses and are, perhaps, threefold more pronounced; but to renounce large doses for this reason would be like failing to give a malarial subject the benefit of quinine because of some collateral action of that drug. The author continues to berate the phantom of anaphylaxis, "that caput mortuum of serotherapy." No doubt the word covers up much ignorance and all obscure and mysterious untoward phenomena are laid at its door. Because of "anaphylactophobia," Jousset says, many a life has been lost. He goes so far as to assert that there never has been a well-recorded case of fatal or severe anaphylactic shock due to repeating a serum injection. He asks to be shown that he is mistaken in this claim. He limits the subject to subcutaneous injections, the kind almost always practised. He has made more than 1,500 such injections and has yet to see a case. He admits that after intravenous injections—of salvarsan, for example—and without reference to previous injections, alarming crises have developed; but upon analysis these do not resemble

Richet's anaphylaxis. It is evident that anaphylactic shock must be instantaneous, but the severe reactions which follow intravenous injections may appear only after the lapse of hours.

The fact of previous sensibilization, which is the very essence of the anaphylactic phenomnon and which alone makes the phenomenon intelligible, is found on analysis of reported cases to be nonexistent in the majority—in other words, the phenomena, whatever else they may be, are not even anaphylactic, but come under the head of serum sickness. What then becomes of anaphylaxis in medical practice? We see here only the simple operation of a toxin—not a general property on the part of the serum but an individual intolerance. The latter is conceivably of the same nature as individual intolerance to foods of a certain type. Let us, therefore, Jousset insists, speak of serum intolerance and not of anaphylaxis. The bugbear of anaphylaxis has to do solely with the repetition of an injection and if the subject has shown no intolerance to a first injection we need have no fear of repetition. The author's chief dread in serotherapy is of Arthus's reaction—a local phenomenon—and this because of the possible development of a phlegmon. This is positively the only accident the author fears, because it can neither be foreseen nor prevented. But this phenomenon is not due to intolerance of an individual character. It is an artifact, so to speak, and to be charged up largely to defective technique. The size of the dose cuts no figure, but it is a phenomenon of repeated injections, which explains why it is erroneously classed as a local anaphylaxis. With certain precautions it should not be seen oftener than once in fifty subjects.

PHTHISIOPHOBIA AND PHTHISIOMANIA IN FRANCE.

In the *Journal de médecine et de chirurgie pratiques* for March 25 is an abstract of an article by Lereboullet which deals with the fear of tuberculosis as a menace to the expeditionary troops exhibited in some quarters of the United States. This fear is based on exaggeration of the effect that 400,000 French soldiers have been invalided home for that affection since the beginning of the war. This figure is over four times too great, and so far from reflecting the condition of the army is an index to the prevalence of the disease in the nation. With this number deducted the army *per se* cannot be regarded as visited with the disease. Up to November 1, 1917, of the more than 89,000 evacuated for the disease, by no means all were actually tuberculous, for there was a considerable percentage of wrong diagnoses. Moreover, at least 65,000 eliminated during the first year must have contracted the infection before beginning military life. Of the remainder there is no evidence that any of them were infected during the war, for we know that in the vast majority of cases the disease is awakened from a latent form as a result of military hardships.

The problem of rendering the tuberculous soldier innocuous to the civilian population after he has been retired from the army, and after the end of the war, will be greatly aggravated by a widespread fear of infection. The establishment of sanatoria in this or that community—naturally, certain sites with climatic advantages will be chosen—is always resented by the resident population. His own relatives, who must care for the victim, often exhibit the same fear, and practical isolation under the tender mercies of a hired keeper is the result. Examples cited by the author illustrate the morbid fear of the disease even by a parent or spouse, and the one idea is to pass the burden along to some one else. In such kinsfolk the phobic state completely ousts all altruism and family attachment. The expressions of fear recall those manifested toward lepers.

Phthisiophobia may pass on to the condition of phthisiomania. In the former the subject is morbidly anxious to avoid infection; in the latter he believes that despite all care he has become infected. He no longer fears others, and no amount of assurance that he is still intact can prevail over his mental state. Some of these subjects may have had tuberculous affections at some period, and believe that reawakening has occurred. Only a campaign of education can change these points of view.

SERGENT'S WHITE LINE IN SOLDIERS.

According to an abstract in the *Journal de médecine et de chirurgie pratiques* for July 25, Baudron has conducted a special research for the presence or absence of this phenomenon in 100 sick or wounded soldiers in a garrison infirmary. The technique was carried out in the usual manner, the skin of the abdomen being stroked gently with some blunt object—for example, the pulp of the finger; a slight pressure is necessary. At the expiration of a few minutes one sees the appearance in the track of the finger of a white streak, which increases in distinctness until a maximum is reached, remains stationary for a longer or shorter time, and then slowly effaces itself. The interpretation of this line has led to controversy, and it was to throw more light on the subject that the research was carried out. Military exigencies are also much more favorable for the occurrence of conditions which favor the development of the line than civil life, for there we find constantly states of infection or intoxication in combination with overwork and fatigue. In the hundred subjects examined the line was elicited in 81. It was present in all, but two of the following febrile cases and in 17 out of 20 subjects with gonorrhea. It was never absent in grip, rheumatism, malaria, or tuberculosis, and was encountered in a variety of purely local conditions, as gingivitis and orchitis. The conclusions of the author concerning the white line are as follows: It is of great value in certain emergencies of differential diagnosis, as when acute adrenal insufficiency is confused with a pyrexia of meningeal, thoracic, or abdominal origin.

Its association with certain infections like grip and rheumatism means a certain degree of asthenia and hypotension, and betrays the implication of the adrenals in the disease picture. Here it does not indicate a serious state of affairs in comparison with the severe syndromes of acute adrenal insufficiency, with collapse, and does not carry a bad prognosis. Finally, when encountered in association with some trivial local condition, it represents a mere coincidence, or is due to a transitory disturbance of vasomotor equilibrium.

Some Brazilian Pathology.

In the *Brazil-Medico* for March 2, Villela reports the first case of acute Chagas' disease to be seen in the State of São Paulo. The patient was a boy aged 16 months, member of a goitrous community, and presenting evidences of myxedema. There was a generalized lymph-node engorgement, enlarged liver and spleen, and slight bronchitis. There was an ulcer over the right hip with a few scattered vesicles. The diagnosis was confirmed by blood examination, the *Trypanosoma cruzi* being recognizable therein. De Rezende reports a case of leishmaniasis of the nasal fossæ in a boy of 16 years who had developed a pimple behind one of his nostrils 8 months before. In the interim, ulceration proceeding therefrom had completely destroyed the cartilaginous septum and had transformed the area of the nostrils into a large ulcer. The extension of the process into the nasal fossæ had blocked them so that the patient breathed wholly through his mouth, which was held constantly open. Despite his predicament the lad's general health was excellent, and he ate with good appetite. The first diagnosis was syphilis, although the history and collateral evidences were negative. The treatment test having likewise proved negative, the alternate diagnosis was leishmaniasis. The author treated the case with a mixture containing arsenic, antimony, methylene blue, quinine, etc., which is used in the hospital as a purely local application, and obtained a complete cure. Apparently there were no injections of antimony practised. At a later period four cases of so-called Baurú ulcer which had appeared in the hospital received the same treatment, with the same brilliant results. These lesions are usually regarded as a form of cutaneous leishmaniasis. Silva Araujo, Jr., presented a case of so-called boubas before the Brazilian Dermatological Society. The patient was a boy of 17, and the eruption was of 3 months' duration. He knew of 5 similar cases in his vicinity. The primary manifestation was on the dorsum of the foot. There was a general reaction, with headache and pains in the bones and an outbreak of frambesiform lesions over most of the surface. Smears from the lesions revealed the presence of the *Treponema pertenue*. The patient recovered promptly on sodium iodide.

"Soft" Drinks for French Workmen.

According to an abstract in the *Journal de médecine et de chirurgie pratiques* for August 10, an attempt is being made, or at least suggestions have been made, in favor of substituting alcohol-free beverages for the workingman's red wine. There are, of course, the classic drinks—tea, coffee, cocoa, lemon juice, and licorice beverages—but recently others have come to the front, such as the so-called "red drink," which is a non-alcoholic wine. Instead of making grape juice outright, an extract of claret is prepared which conserves its flavor, and to this is added artificially colored water, so that we have a near wine, or "vinoline," which is quite analogous to the near-beers of the United States. Another beverage recommended is "frenette," made from the dried leaves of the ash by decoction. This may also be used as a mildly alcoholic beverage by fermenting it after addition of a little sugar. The amount of alcohol desired is not over 18 grams per liter, or less than 2 per cent. This drink may be prepared on a considerable scale by making it in a cask. Fermentation is under way in two weeks, and the mixture is then allowed to stand a week before bottling. The only object in fermenting and thus alcoholizing this drink is the production of gas, for a drink that foams always has the preference over a still one. The author admits that the same result can be obtained by artificially charging with gas, but perhaps this necessitates apparatus which the other way can dispense with.

Bacteriology of Vernal Influenza.

It is entirely conceivable that in the course of a pandemic the bacteriologists of one country might be more favored by chance than those of others in the recognition of the presence of organisms, especially of new microorganisms, in the secretions of the victims. This applies also to the discovery of old germs in new rôles. We note that in the present pandemic, after much report of negative results, authors are beginning to announce positive finds of pneumococci and microorganisms. In Italy, in the latter part of May, the troops were attacked with what was apparently pappataci fever. At a later date this view was changed and the epidemic was pronounced to be influenza, in which the offending microorganism was the tetragenes. The latter was found in the blood, in pleural exudate, etc. According to an abstract in *La Riforma Medica* for July 20, Saccone made blood cultures of 120 soldiers at various days of the fever. Nothing was found after a certain interval had elapsed, but in the first day or two of the disease positive results were obtained in about half the cases tested. The organism was in the grouping of both the tetragenes and diplococcus, and also was seen isolated and in chains. It took the gram stain readily. By reason of its variation from the ordinary tetragenes the author terms it the "*Micrococcus metatetragenes* of vernal influenza."

News of the Week.

Influenza.—The New York City Board of Health at its regular meeting, on September 17, placed pneumonia and influenza on the list of diseases that must be reported to the Health Department by all physicians. Patients are being quarantined and those so situated that an effective quarantine is not practicable may be compelled to go into hospitals. The bacteriologists of the Health Department in their study of the cases find the Pfeiffer bacillus in a large percentage of the cases and in addition

a minute organism which as yet has not been identified. Up to September 20 about 450 cases of influenza have been reported to the New York City Health Department. A report from Boston shows that on September 17 there had been within twenty-four hours seventy deaths from influenza, including three naval men, and twenty-seven deaths from pneumonia, and that there were several thousand cases of the disease in that city. Later reports announce the appearance of the disease in Washington, D. C., and in Chicago. The Surgeon General of the Public Health Service has issued rules to the public to safeguard against the spread of respiratory diseases, which lay emphasis on the importance of personal cleanliness, good hygiene, fresh air, and the avoidance of unnecessary crowding.

Health Department Makes Changes in Administrative System.—Changes in the administrative system of the New York City Health Department have been announced, having for their purpose the coordination of the work of the department and the granting of autonomy to the boroughs. The chief officer in each borough, now called the Assistant Sanitary Superintendent, will become the head of that borough. All the employees in a given borough will be under the direction, supervision, and control of the Assistant Sanitary Superintendent. It is understood, however, that except in cases of emergency each employee, now or hereafter assigned to a borough office for the work of a given bureau, will not be taken from that particular work without orders from the Commissioner's office. There will be attached to each borough office, as is the practice at present, a representative of each of the bureaus of the department requiring field representatives. Questions of policy, exceptional conditions, and changes in personnel will be brought to the personal attention of the Commissioner, who will make final decision in cases of disagreement between the Sanitary Superintendent and the head of any borough. The entire detail of the new plan has not yet been made public.

Women Doctors Raising Fund for Hospital.—The women physicians of the New York Infirmary for Women and Children are conducting a campaign to raise $200,000 for this institution. Dr. S. Josephine Baker is chairman of the campaign committee and has enlisted four hundred volunteer workers in this movement.

Dr. Charles Duncan of Concord, N. H., has been elected secretary of the State Board of Health to succeed the late Dr. Irving A. Watson.

Dr. J. G. Henry has been appointed epidemiologist for the city of New Haven, Conn.

Dr. Abraham Jacobi of New York had a narrow escape on the night of September 20 when his summer home at Lake George was destroyed by fire. According to press reports, the part of the house in which Dr. Jacobi had his sleeping apartments was cut off by flames and Dr. Jacobi, who is 88 years of age, jumped from a second story window, fortunately sustaining no injury more serious than a few bruises and cuts on the arm. A number of letters and manuscripts, including the first chapters of an autobiography, were destroyed. We congratulate Dr. Jacobi on his most fortunate escape and wish that he may yet have many peaceful years in which to rewrite and complete the autobiography which has had such troubled beginning.

Major Joseph B. Bissell, Surgical Director of the New York Radium Institute, has been assigned to active duty in Maryland. Dr. C. Everett Field, Medical Director of the Institute, still remains in charge of the routine work. Although several of the regular staff have been drawn into the service, all cases of malignancy referred for radium treatment are being admitted.

The Boston University School of Medicine.—Boston University announces that its medical department has been thoroughly reorganized and henceforth will be non-sectarian in scope and character. Regular physicians will conduct courses in pharmacology and therapeutics and clinical teaching will be given in the Boston City Hospital and the Robert Bent Brigham Hospital. Homeopathic materia medica will be taught as heretofore, with clinical teaching in the Massachusetts Homeopathic Hospital and allied institutions.

Henry Street Settlement Work.—This institution, which supplies visiting nurses to the needy of Manhattan, has just made public its annual report on the activities of its twenty-fifth year, together with plans for the further expansion of its work. The increase of illness among children due to undernourishment and inadequate heating has greatly increased the demands on the visiting nurse. The expenditure of the year amounted to $158,928, against an income of $135,876, and special efforts are being made to wipe out the deficit thus created. During the year covered by the report the settlement nurses cared for 32,753 patients, making 277,179 visits. In order to provide for the expansion necessary to meet the increased demands on the service it is proposed to raise a million dollar fund to pay salaries and expenses of nurses at home, to erect a central administration building for the nursing service, and to train a larger body of student nurses.

The Wesley M. Carpenter Lecture.—The New York Academy of Medicine will hold its first meeting of the season on Thursday evening, October 3, at 9 o'clock, at which time Prof. Graham Lusk, one of the representatives at the recent meetings of the Interallied Scientific Food Commission abroad, will deliver the Wesley M. Carpenter Lecture, his subject being "The Scientific Aspect of the Interallied Food Situation."

The Ohio State Medical Association will hold no meeting this year. The seventy-third annual meeting was to have been held in Columbus during the first week in October.

Health Department Gives First Aid Lectures.—The New York City Commissioner of Health has made arrangements for a course of lectures on first aid and similar topics for the employees of the Health Department and the public generally. The first lecture of the series, delivered on September 11, was on "First Aid from the Fire Prevention Engineer's Viewpoint." The second lecture was delivered in Room 526, Municipal Building, on September 18, on "First Aid in Resuscitation," by Commodore Charles E. Raynor, United States Life Saving Station.

Gifts and Bequests.—The will of Marie Louise Tillotson makes the following bequests to local

charities: Society for the Relief of the Destitute Blind, $20,000; Post-Graduate Hospital, $10,000; New York Eye and Ear Infirmary, $5,000; New York Society for the Relief of Widows and Orphans of Medical Men, $5,000; Tuxedo Hospital, Tuxedo Park, N. Y., $5,000.

Under the will of Dr. Sidney L. Spiegelberg of New York, who died recently at Bussey-le-Chateau, France, while serving in the American Army, the decedent's life insurance, amounting to $500, is left to the New York Physicians' Mutual Aid Association.

By the will of the late Emma Goldbeck of Philadelphia, the sum of $1,000 is bequeathed to the Children's Homeopathic Hospital of that city.

By the will of the late Annie Fassett of Philaphia bequests are made as follows: Rush Hospital for Consumption and Allied Diseases $10,000; Children's Seashore Home for Children at Atlantic City, $1,000, for a free bed and $1,500 for a free bed for a mother and child.

The will of the late Lillian E. Koenig of Philadelphia disposes of an estate of $6,000, out of which sufficient is to be set aside for the endowment of a bed in a hospital as a memorial to her mother and father.

New Clinics for Mothers. — The Maternity Center Association of New York City has decided to open three new clinics in different parts of the city. These will be operated at 72 Market Street, 169 Mott Street, and 36 Manhattan Street. The association has for some time past been conducting fifteen clinics and reports that its work has grown enormously during the past few months.

Addition to Peekskill Hospital.—A campaign is being conducted for the purpose of raising a fund to build a memorial wing to the Peekskill Hospital in memory of the seven volunteer firemen killed recently at a fire at the Fleischmann plant in Peekskill. Thus far $12,000 has been subscribed.

Leper at Large.—John Early, a leper, who several years ago attracted considerable attention by his efforts to retain his liberty, is reported to have escaped from a detention house on the outskirts of Washington and has thus for evaded capture.

Obituary Notes.—Dr. JOHN H. DEMAREST died at his home in White Plains on September 14, at the age of 80 years. He was a graduate of the New York Homeopathic Medical College in 1865, a member of the American Institute of Homeopathy and the New York State Homeopathic Society. He was connected with the Metropolitan Hospital on Blackwell's Island for thirty years.

Dr. MOTT DWIGHT CANNON of New York and Greenwich, Conn., died suddenly at Poultney, Vt., on September 21, aged 59 years. He was a graduate of the New York Homeopathic Medical College in 1882.

Dr. JOHN DALLAS ERDMAN died at Allentown, Pa., on September 6 as a result of injuries received in an automobile accident. He was 62 years of age and had been president of the Allentown Board of Education. He was graduated from the medical department of the University of Pennsylvania in the class of 1872. He was a member of the Lehigh County Medical Society and of the Medical Society of the State of Pennsylvania, and a Fellow of the American Medical Association.

Correspondence.

CONSERVATION OF PLATINUM THROUGH PHYSICIANS AND DENTISTS OF THE COUNTRY.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR: As you know, there is a great stringency in the platinum situation at this time, and it is necessary to employ every possible means to secure a supply. You will, therefore, contribute to the war program by publishing in your journal the following open letter to the doctors and dentists of the country:

In view of the limited supply of platinum in the country and of the urgent demand for war purposes, it is requested that every doctor and dentist in the country go carefully over his instruments and pick out *every scrap of platinum* that is not absolutely essential to his work. These scraps, however small and in whatever condition, should reach Governmental sources without delay, through one of two channels: (*a*) They can be given to proper accredited representatives of the Red Cross who will shortly make a canvas for that purpose. (*b*) They may be sold to the Government through any bank under the supervision of the Federal Reserve Board. Such banks will receive and pay current prices for platinum.

By giving this immediate attention you will definitely aid in the war program.

It is recognized that certain dental and surgical instruments requiring platinum are necessary, and from time to time platinum is released for that purpose. It is hoped, however, that every physician and every dentist will use substitutes for platinum for such purposes wherever possible.

You are warned against giving your scrap platinum to anyone who calls at your office without full assurance that that individual is authorized to represent the Red Cross in the matter.

Lieut. Col. F. F. SIMPSON, M.C., N.A.,
Chief of Section of Medical Industry.

HOW TO TREAT A COLD SIMPLY AND EFFECTIVELY.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR: In the course of a lifetime I have had colds to treat at all ages and under different circumstances. I have tried a great many remedies. At present I offer the following as being the best I know.

As soon as the first premonitory symptoms of a cold manifest themselves, such as sneezing, chilliness, cough, give from 5 to 10 grains of salicylate of ammonia and one-half a grain of caffeine every two hours, for four to six doses, as an adult dose, in capsules or konseals. If it be a child give appropriate dose in solution, with a little syrup of tolu and peppermint water. In many instances the cold will be aborted, or abridged in length and severity. The cold may signify little but passing discomfort, or it may mean the beginning of grippe, bronchitis, or pneumonia. In any event, the salicylate and caffeine are very useful, and sometimes ward off or greatly ameliorate impending trouble.

If there be fever in the beginning, or within a few hours, add one-half to one grain of phenacetin to every dose of salicylate, for an adult. At bedtime stop salicylate and caffeine and take one-half teaspoonful of aromatic spirit of ammonia and one-half teaspoonful of sweet spirit of niter in two tablespoonfuls of water. If the nose is stopped up, or running, with or without sneezing, use a little one per cent. carbolized vaseline or a menthol salve.

The comfort and well-being of a patient, when distressed with nasal obstruction, frequent cough, fever, and general malaise, is much promoted by a hot mustard foot bath, later drying the feet thoroughly and putting on a long pair of woolen stockings, such as golf players wear, and then to bed, with much covering at first to promote perspiration. Of course, if there be constipation a laxative pill after breakfast or a Seidlitz powder before is indicated and desirable.

Whenever the cough persists, with expectoration, stop the use of salicylate and caffeine and give syrup of hypophosphite of ammonium, a teaspoonful every two hours, just as it is, and wear the perforated zinc inhaler, making use with it of equal parts of beechwood creosote, spirit of chloroform, and alcohol. At first, the inhaler should be worn a few minutes at a time. Later it may be worn an hour or more at one time, and repeated several times in twenty-four hours.

Painting the chest with compound tincture of iodine, or rubbing it with equal parts of spirit of turpentine and compound soap liniment, is useful, and either one may be employed, according to the convenience or choice of the patient. If there is notably localized pain in the chest, the use of the electric pad is often most comforting especially at bedtime.

If there is marked fever, with cough, and pain in the chest, bed should be insisted upon, and warm inhalations of creosote vapors from a croup kettle should be begun and kept up more or less continuously until the symptoms have greatly improved. If the creosote odor is objectionable it may be modified by the addition of compound tincture of benzoin, or one of the oils of pine, like *oleum pini sylvestris*, or *oleum pini pumilio*.

The preceding directions, faithfully carried out, will, I firmly believe, bring every cold to its shortest, most agreeable termination. If pneumonia should develop, the only drug to be used internally is tincture of strophanthus under the tongue by means of hypodermic tablets.

"Stuff a cold and starve a fever" is good teaching, somewhat modified, even to-day. I would advise moderate eating and drinking for an ordinary cold; I advise liquid nourishment during the first forty-eight hours, in any event, if there is notable fever. If marked weakness supervenes, the best alcoholic stimulant, as brandy or whisky, with a small cupful of hot, well-made black coffee, or tea, is invaluable. As to frequency of repetition, it should be according to the patient and the symptoms.

BEVERLEY ROBINSON, M.D.

42 WEST THIRTY-SEVENTH STREET,
NEW YORK CITY.

Natality of San Domingo.—The number of births has increased from 26,235 in 1910 to 33,914 in 1917.—*Cronica Medico-Quirurgica.*

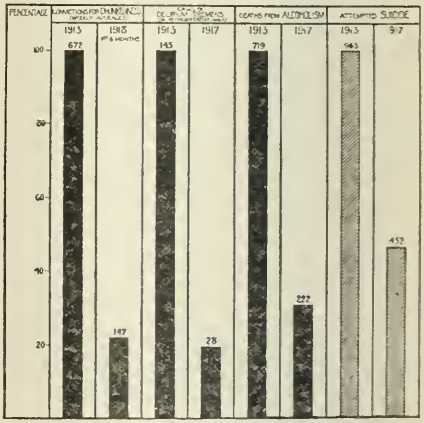
OUR LONDON LETTER.

(From Our Own Correspondent.)

TEMPERANCE ADVANCE IN ENGLAND AND WALES—THE STATISTICS OF BRITISH MEDICINE—THE PREGNANT MUNITION WORKER.

LONDON, August 28, 1918.

NEARLY two years ago the Central Control Board (Liquor Traffic), a government bureau, which came into existence to deal with the temperance question in all its aspects of maintaining manhood and womanhood efficiency throughout the country, appointed an advisory committee to consider the conditions affecting the physiological action of alcohol. The committee, whose personnel has already been stated in these columns, was extremely strongly constituted, comprising Sir George Newman, the principal medical officer to the Board of Education; Professor Cushny, professor of pharmacology at University College, London; Dr. H. Dale, principal biochemist to the Medical Research Committee; Dr. M. Greenwood, statistician to the Lister Institute; Professor McDougall, reader in mental philosophy at Oxford; Colonel Mott, pathologist to the London County Asylums; Professor Sherrington, professor of physiology at Oxford; and Dr. W. C. Sullivan, medical superintendent of the Rampton State Asylum for Criminal Lunatics. Such a body, with Lord D'Abernon as chairman, was particularly well adapted to report in every direction as to the effects on health and industrial efficiency produced by alcohol, and to plan out and direct any further investigations which might appear desirable. The first result of the committee's work was a review of the existing state of scientific knowledge regarding the action of alcohol on the human organism. The conclusions have been published representing "the unanimous judgment of the committee," which, of course, implies that to a certain extent the document was a compromise one; but it is none the less very valuable, defining the position of alcohol rather as a narcotic than as a food or stimulant, indicating the differences between its drug action and its poison action, while pointing out the factors which mainly contribute to the formation of the alcohol habit. The Central Control Board is now issuing in diagram form some useful little cards illustrating the



present condition of the country with regard to temperance, as compared with its condition before the war. The diagrams present extremely interesting pictures. The preceding diagram, which deals with the reform that has taken place in the use of alcohol by women, tells a dramatic story of the temperance advance in England. The present condition, compared with the pre-war condition, is little short of remarkable:

The figures for suicide, where the amelioration which has taken place can only be claimed as partially due to abstinence from alcohol are faintly shaded, the improvements due absolutely to moderation in drink being shown in black. With such evidence before them—and the figures for men are no less striking—it need hardly be said that the medical profession will support certain measures of restraint in the liquor traffic after the war.

The educational number of *The Lancet* contains an article which summarizes, with the necessary tables, the numerical position of the medical and dental professions in the United Kingdom, the information being given to show how far the shortage of medical students promises to embarrass the community in the future. The number of medical students now actually engaged on their studies is certainly very low, 7,600, but that is 1,500 in excess of the number two years ago. The following analysis of the students shows a remarkable rise in the proportion of female students as compared with a few years before the war; but it also shows that since the war began the proportion has not increased; in other words, the young women, like the young men, have found that the war offers opportunities for service of many sorts. I take the figures from a statement made by the president of the General Medical Council:

Percentage of Men and Women Students.

	Men.	Women.		Men.	Women.
First year	68	32	Fourth year ...	73	27
Second year ...	67	33	Fifth year.....	82	18
Third year	68	32			
			All years	71	29

The total number of names on the British Medical Register is now, according to *The Lancet*, 43,819, distributed as follows:

England and Wales, 23,175, being 54 per cent of the whole number.
Scotland, 13,918, being 32 per cent. of the whole number.
Ireland, 6,176, being 14 per cent. of the whole number.

The numbers added by registration, removed on evidence of death, and the totals remaining on the register on the last day of each of the last five years are shown in the following table:

Year.	Number Added by Registration.	Number Removed on Evidence of Death.	Number of Names on the Register on Dec. 31.	Increase on the Previous Year.
1913.....	1,168	746	41,940	501
1914.....	1,433	1,068	42,378	438
1915.....	1,526	800	43,225	847
1916.....	1,202	1,005	43,483	256
1917.....	1,134	831	43,819	338

The yearly additions in the last column do not agree precisely with the differences between the preceding columns, inasmuch as a certain number of names are removed from or replaced on the Register each year on formal grounds. It is noteworthy that during the last three years no name has been removed from the Register on account of the bearer ceasing to practice. So far the number of names on the Register has increased from year to year, but it is quite evident on referring to the numbers of medical students due to qualify in the years 1919-21 that this increase will not be kept up unless the mortality gets smaller, as a greater supply of medical men is obtained from abroad. There are 5500 dentists on the Register of the United Kingdom, the figure being a small rise on the total of last year. The war has produced no shortage here.

The greatest human interest of the present day is perhaps the increase of the race. The world war has shown the value of human life at the moment when circumstances are rendering human life the smallest counter in the vast game of world politics; but alike for the armies that are and for the civilization which is to come the question of population is of permanent importance. Therefore, all measures must be encouraged which tend to promote the greater well-being of the mother before and at the time of confinement, for these, coupled with infant welfare, form the most direct method of insuring the health of the coming generation. If the pregnant woman can remain in a more healthy condition than her ordinary domestic circumstances allow, be better fed during that time, as well as after her confinement, and can feel sure that the infant will be treated as a valuable charge by the State, the birth rate will go up and infant mortality will sink. A woman who is struggling for existence, and who is debarred from earning a good wage *because she is pregnant*, is discouraged instead of helped at a time when she should be given all the aid that is possible, because she herself is giving to the State the aid which it chiefly needs. It has long been held by hygienists, humanitarians and advanced supporters of the rights of women, that the pregnant woman should be encouraged, if possible, to abstain from work for at least one month before and three months after her confinement, so that she may both enter upon the ordeal in the best circumstances and not return to her work until she has completely recovered her normal state of health. Moreover, during the first three months after confinement the nursing of the infant is of paramount importance, and any routine work interferes with this function in every conceivable way.

With some such views as these in her head, Dr. Mary A. S. Deacon, medical officer to a shell-filling factory, read a paper at a recent Oxford Welfare Conference, on the employment of pregnant women in munition factories. It may be premised that the factory was in every way a well-planned, well-managed, and well-found establishment, presenting none of the gross evils of environment associated with many of the foul barracks in great trading centers. Dr. Deacon kept records during the nine months from the beginning of June, 1917, to the end of February of this year, with a view to finding out the effect of munition work on the pregnant employees. Of the total number of women workers engaged during the indicated period, 575 were married and 622 single, and the problem which Dr. Deacon set herself to consider was whether, when the women became pregnant it was better to dismiss them at once or to keep them at work until within a few weeks before confinement, and, without dogmatizing in her reply, she evidently came to the conclusion that for most women the arguments were in favor of their being kept on. Good feeling is in this way

promoted between the employers and the employed, if the workers feel that the management is not ready to penalize them for natural physical disabilities, where all the trouble falls upon the women while the benefits accrue to the State. Such good feeling produces actually better work among all the other women employees. They help. And should there be any work naturally falling to a pregnant woman where a strain is put upon the abdominal muscles, they not only help, they attempt to supersede the weaker sister, and the output of the factory in the long run does not suffer. If the worker continues as long as is safe at her work, she saves more money for the time during which she will be laid by, and can thus afford to take a longer rest after confinement, which implies full opportunities for the breast-feeding of the infant. There is another point which must be borne in mind: Miscarriages are actually fewer in a factory where the conditions of pregnancy are known at an early date, and the worker is not tempted to take drugs or use other means to promote a miscarriage for fear of losing her work. Dr. Deacon's interesting paper was supported by a summary of records showing that women who had worked in sympathetic conditions till shortly before their confinement had not suffered by so doing, and had produced healthy children. The message of her interesting paper is that, to dismiss a woman from a factory because she is pregnant is not only inhuman but thoroughly uneconomical. As a matter of fact, in most factories the work can be classified into light, medium, and heavy, and the pregnant woman can, as a rule, be put systematically into the less arduous class. Such transfer of labor implies cooperation on the part of the factory management which is not always forthcoming, and the sympathy of the other women workers which can always be expected. The education of factory managers is what is chiefly required, and here the opinion of medical men will have great weight. The factory managers are not callous—they are simply without the necessary knowledge of physiology and sociology to enable them to understand the health, temperament, and position of a pregnant woman.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

EXCELLENT WORK OF PARIS AMBULANCE SECTION—REORGANIZING THE MAIL DELIVERY SYSTEM—CAN WAR MUTILATIONS BE INHERITED—INFLUENZA IN PARIS.

PARIS, August 13, 1918.

FEW are aware of the work performed by the American ambulance service in connection with the American Red Cross Military Hospitals. There are three sections, each composed of forty-five men and twenty ambulances, one camion, one camionette, and one motorcycle. The wounded from the front come usually at night and during the day those who can be removed are taken from hospitals in and about Paris to the trains, this part of the work being carried out in conjunction with the French. From the month of June up to date, about 8,000 wounded have been received by the ambulances in Paris, and for the year thus far about 20,000 have been received.

At one of the more important receiving stations the wounded on arrival are placed on the platform, whence ambulance men take them to the sorting room and lay the stretchers on racks. Then food and cigarettes are distributed by the French auxiliaries. A ticket is attached to each wounded man, indicating where he is to be taken. For instance, face and jaw wounds are dealt with at one hospital, leg wounds at another, gas victims at another, and so on. Then the men are wheeled to temporary sheds and placed in front of the ambulances according to numbers corresponding to their tickets. Here is where the American ambulance drivers come in. As there are about 150 hospitals as destination, the work can be imagined. One night, for instance, the ambulance made in all 350 trips, each trip meaning the transport of about ten wounded, so that approximately they carried 3,500 wounded to the various hospitals. Many of the wounded had been hit by machine-gun bullets. They displayed remarkable courage and fortitude. While the utmost care is shown for the wounded, the drivers have to rough it. I asked one driver had he lunched? "No," was the reply. Why? "Oh, I'll get something." When? "Oh, I will eat when I can." I asked others how much sleep they got. The reply was that they got sleep when they got a chance, between trains, and so on. Some of the drivers had not had their clothes off for several days. Self-sacrifice is the order of the day, and not a word of regret or grumbling.

A large number of badly wounded from the American front arrived in Paris on Thursday night and were distributed among the various hospitals, according to their wounds. This is the most important arrival of the kind. They came from Bouresches, from Veuilly, and from Belleau Wood. The men bore their sufferings like heroes and excited the admiration of all who saw them. Asked how the Americans stood the preliminary and other operations, the surgeon replied with pride: "Why, they bear their sufferings like Frenchmen. I cannot say more than that."

Much has been said about the delivery of letters among the troops or, to speak more correctly, the late or even non-delivery of letters. The American Red Cross is "up to the difficulty" in a manner worthy of imitation. In the Avenue Gabriel buildings, Lieut. George F. Miller is in charge of the Red Cross Postal Service. Mr. Miller knows his business. He has had twenty years' experience in New York City, where he was in charge, as a Federal employee, at the Grand Central Depot with 1,400 men under him. He handled about 400,000 letters a day. On retiring from the postal service Mr. Miller took up the position of assistant comptroller of the Bowery Savings Bank. With just two months work in Paris, Mr. Miller has changed the postal service of the American Red Cross in a remarkable degree, adopting New York methods in everything possible. While there are three offices in running order in this branch of Red Cross work, the office in the Avenue Gabriel seems to be the head office or center. The post office used to be conducted by women, many of them French, but none had any experience in post office work. Now there are forty-two employees.

composed of Americans, English, and some French. There are in the Avenue Gabriel offices five "guichets," including the departments of stamping, general information, inquiries, general delivery, cablegrams, and parcels service. Letters for the Red Cross workers, Y. M. C. A., K. of C., and the American Expeditionary Forces are all taken care of.

The American system of daily reports or lists has been adopted, showing where the various delivery vans go and when they return, with the names of the drivers and the mail clerk, whose signatures are affixed, so that the manager can see at a glance where each employee is and where each delivery van is at any time of the day. In addition to this is a list of the personnel showing who are present and who absent and why absent. Altogether the Red Cross postal service is in admirably good hands and the best results may be expected.

A great number of women who have married or will marry soldiers suffering from mutilations received in the war are asking: "Do my children run any risk of hereditary mutilation? . . . Will they be born physically perfect, or can they be born like father?" An answer to this question will obviate much uneasiness and mental suffering. There is abundance of evidence that certain characteristics of the parents can be transmitted to the offspring. It is a matter of everyday observation that children resemble their parents in facial appearance, stature, and build. The Bourbon nose and the Hapsburg lip have been transmitted by the males of the race for centuries despite their alliance with women of very varied descent. The tendency to obesity is very commonly inherited. As regards actual deformities and abnormalities, that common deformity of the face constituting hare lip is definitely transmissible, as are abnormalities of the blood-vascular system and the skeleton. As instances of the latter may be mentioned narrowing of the pulmonary artery and increase in the number of fingers and toes. That pronounced tendency to bleed which constitutes the disease of hemophilia is essentially hereditary.

If there is much evidence to show that such parental characteristics can be transmitted, what can be said of the possibility of transmitting war mutilations? Before answering this question let us look at the case of other acquired deformities not resulting from wounds or conservative war surgery. Is there any evidence that they can be transmitted? In the Chinese Empire it is customary so to manipulate the feet of the children that considerable deformity results. Nevertheless this deformity has to be produced in each generation afresh, for it is never transmitted. The same must be said of those mutilations which are carried out generation after generation by certain races from religious motives or from custom. They have to be repeated upon each individual all through the ages. As regards war mutilations, the answer is also in the negative—they cannot be transmitted. In those cases above which apparently favor the suggestion that the parents may transmit certain characteristics to their children, the reason is that the germ cell is primarily affected, and has, so to speak, ineffaceable characteristics stamped upon it. Such a condition cannot be brought about by mutilations of outlying parts of the body, and there is no evidence worth the name that the children of this generation will suffer from the fact that their male parents have shed their blood or sacrificed limbs in the cause of their country.

The epidemic of influenza which started in Spain and jumped to England has appeared among the German troops in Flanders and a few isolated cases have been seen among the wounded in the Paris hospitals coming from that front. This is all that can be said about influenza in Paris, and it is not possible to say whether the cases already reported, which are at present isolated, will be followed by a real epidemic. It is hardly probable that this will be the case. The 1889 epidemic began right away. It attained simultaneously a large number of Parisians. Then the initial centers of the malady became merged, and the epidemic assumed a general character. The present influenza does not appear to have created centers. The cases seem to have developed quite isolatedly. The evolution of the malady itself indicates the method of treatment. The attack comes to an end by the patient perspiring abundantly. As the best therapy is that which helps nature, the best treatment will be to produce perspiration. When the perspiration has finished the temperature drops and the patient enters into convalescence.

Through the generosity of Captain Mirault, on active service with the French army, the American Red Cross has been given free tenancy of the "Château Normand" at Beauvais, which is one of the most beautiful old landmarks of the district. The house contains more than twenty rooms, with a big garage and extensive grounds. As it is near the Red Cross hospital it is ideally situated for use as a headquarters building. Comforts and supplies are distributed from this base to the American army divisions, and sleeping accommodation and warm meals are given free from time to time to officers and men coming from or going into the trenches.

Progress of Medical Science.

New York Medical Journal.

September 14, 1918.

1. The Relative Value of Pasteurized and Certified Milk. Solomon Solis Cohen.
2. Ovary: Corpus Luteum. Oliver T. Osborne.
3. Toxic Nonexophthalmic Goiter. Edward Hiram Reede.
4. Papillary Cystadenoma of the Ovary. John Corcia.
5. The Food Value of Candy. John E. Leikauf.
6. Painless Meatotomy. Leo L. Michel.
7. Two New French Methods for Staining Blood Films and Blood Parasites. L. Tribondeau.
8. Mobilizing the Spas and Health Resorts of Our Nation. N. Philip Norman.
9. Some Notes on Drugs and Treatment. Mark Sadler.

3. Toxic Nonexophthalmic Goiter.—Edward Hiram Reede defines toxic nonexophthalmic goiter as a neurosis of the craniosacral or parasympathetic branch of the vegetative nervous system, accompanied by perversions of metabolism and associated with a goiter more or less distinctive in pathology; whereas, the so-called exophthalmic goiter is a disturbance of the thoracicolumbar or sympathetic branch of the vegetative nervous system, associated with activity of the thyroid and suprarenal glands and a goiter with a distinct

pathology. The sympathetic system is an exploiter of energy, while the parasympathetic is a conservator of energy and depressor of action. Reede believes the influence of the thyroid obtains through its indirect effect through metabolic variations in the nerve tissue or through metabolites produced in the course of thyreogenic metabolism. Injection of the active principle of the thyroid into the blood stream elicits no effect for thirty hours, nor does this injection, as Levy has shown, have any immediate influence on the cardiac vagus nerves, which corresponds with the massive intoxication occurring on the second day after thyroidectomy. The parasympathetic and sympathetic nerves are theoretically in balance, but seldom so in practice. A sympatheticotonic child who develops an active goiter becomes more sympatheticotonic, and in the same way a vagotonic child becomes more vagotonic. The work of Kendall suggests that the sympathetic stimulation is due not only to the suprarenal, but also to a preurea compound produced by the active suprarenal in the course of protein metabolism, and that, therefore, thyroid activity in the absence of a simultaneous suprerenal cortex activity does not produce the usual so-called hyperthyroid symptoms, but a condition of depression. The pathological histology from the standpoint of the epithelium is that there is always a primary retention of colloid, with atrophy of epithelium and sometimes a regeneration. Grossly considered, goiter may be a colloid, an adenoma, a carcinoma, or an adenomatosis. In childhood primary enlargement of the thyroid occurs as a reaction to neighborhood infection, its later activity being due to other stimuli; it may also occur as part of a general infection. The enlargement of the gland does not determine its activity. Marine considers goiter to be due to an insufficient iodine ration and has instituted iodine medication in schools in a large community in the Great Lakes goiter district. The inciting stimuli to thyroid oversecretion are toxic, metabolic, and psychic. The symptoms are in part an appanage of the original stimulus and not essentially thyreogenic and in part a reflexion of diffuse metabolic disturbance, but in the main represent expressions of parasympathetic dysfunction. The simplest classification is the blood pressure grouping of Plummer into (1) constantly toxic high pressure; (2) constantly toxic low pressure; (3) inconstantly toxic low pressure, and (4) an intermediate group. This classification features the factor of vital moment in the prognosis, *i.e.*, cardiovascular degeneration, which, according to Krumbhaar, may be manifested by any type of cardiac irregularity. The occurrence of a thyreogenic cardiopathy from thyroid oversecretion without appreciable goiter is a physiological possibility. Symmers has identified idiopathic dilatation and hypertrophy of the heart as a thyrotoxic cardiopathy and associates with it a definite structural alteration in the gland, terming it a chronic interstitial and hyperplastic thyroiditis. This may have an interesting bearing on myocardial anomalies occurring in the course of the anxiety neuroses. The toxic high pressure goiter group may be divided into (1) a stage of vascular stimulation; (2) a stage of fixed vascular hypertension; (3) a stage of cardiovascular degeneration. From clinical evidence, Reede has reached the conclusion that the incipient exophthalmic always shows heightened sympathetic tone and that the later vagus symptoms represent an exhausted sympathetic and do not indicate a true vagotony in the sense of primary vagus tone. In cases not distinguished by an exophthalmos, Reede has noticed the frequent occurrence of nervousness of the spastic type associated with stimulation of the sympathetic which antedates the goiter and is increased by its appearance. He offers a tentative clinical classification, citing cases in its support, and points out that the toxic high pressure goiter never becomes exophthalmic, apparently because the capacity of the suprarenals is inadequate to stand the quantity production essential to that sympathetic superstimulation. The first stage—that of vascular stimulation—in the high pressure group is characterized by the presence of an active focus of infection in the body, the occurrence of a psychic repression of high potential, often sexual, and evidences of increased metabolism with psychomotor acceleration and heightened mental tension. The subjective feeling is one of strength rather than weakness and is accompanied by much restlessness. The second stage—that of fixed hypertension—is identical in symptoms with the condition to which Janeway gave the name of primary hypertensive cardiovascular disease with the added feature of a goiter. There is generally progressive infection and often psychic factors of irritative import. Mild vagotonic symptoms appear after periods of definitely prodigal energy expenditure. The third stage of cardiovascular degeneration is a picture of arteriosclerosis and myocarditis plus an asthenia, a pigmentation of the skin, and a slowing, both mental and motor, that suggests Addison's disease; a vascular nephritis adds an albuminuria. It has been suggested by Hoskins that the asthenia may be explained as due to overstimulation of the suprarenals leading to final atropy. The toxic low pressure group includes the great majority of cases of parasympathetic stimulation with goiter. The prerequisites to the study of goiter are: an adequate conception of the rôle played by the vegetative or autonomic nervous system and an intimate acquaintance with its functional expression; a familiarity with the physiological evolution of the normal individual from child to adult with the usual reactions in puberty, adolescence, pregnancy and the climacteric, and some knowledge of the goitrous individual's variants; an elementary study of personality as determined by the phylogenetic instincts termed cognitive, affective, and conative. The action of the vegetative nervous system is primarily autonomic, but this automatism is perverted through three agents, the hormones of the ductless glands, the actions of toxins, and the effect of psychic stimuli transmitted through the central nervous system, and often through the combined action of all three factors. It includes secretory processes of the digestive glands, as well as secretory action of the organs that separate the urine, the sweat, and the milk; the work of the heart and the distribution of the blood in the body through changes in the caliber of the vessels in the different parts; the work of the respiratory mechanism; the propulsion of food through the digestive canal, the emptying of the secretions from the digestive glands, the muscular activities of the ureters and bladder and of the system of genital ducts in both sexes; the state of nutrition of the muscles, the carbohydrate metabolism, the nitrogen metabolism, the heat regulation, the deposition of fat and the growth of bone. The relation of the thyroid to a psychoneurosis is probably threefold; it may sensitize latent tendencies, it furnishes a soil for luxuriant growth, or it may be an end product. Experimental evidence is constantly accumulating as to the important rôle played by the vegetative nerves. Porter and Newburgh observed that in dogs with pneumonia after section of the vagi the violent dyspnea is succeeded by quiet breathing. From a pharmacodynamic study of typhoid fever, Matsuo and Murakami conclude that in the majority of cases a state of vagotonia or one of sympatheticotonia exists, that the bradycardia is a vagotonic phenomenon, and that in their series all the deaths occurred in the sympatheticotonic cases—which may form a basis for prognosis. The inconstantly toxic low pressure group differs from the preceding group only in the history and in the less destructive effects of the intoxication. Intermittent nervous breakdowns are separated by periods of good health. There is not a high health threshold but specific infection or psychic traumata anticipate the several breakdowns. There is usually adenoma. In the intermediate group pressure is between 130 and 160, the arbitrary standard used by Plummer, which suggests probable terminal hypertension and vascular degeneration like the high pressure cases, but also luxuriantly exhibits the vagotony of the low pressure group. In treatment, the consideration in class one is the degree of vascular and myocardial damage present or imminent. As a rule, surgical interference is the surest way of blocking an intensive process. In the low pressure group the question is more as to the degree of ill health than actual duration of life. The following steps should be taken: (1) removal of focal infections; (2) relief of psychic irritation; (3) surgical intervention. Operation should consist of bilateral lobectomy. Vagotonic disorders may be relieved by local palliatives. Many cases of goiter in children can be prevented by prophy-

lactic treatment; Reede believes that the condition is largely the result of deciduous dental sepsis and is of the opinion that girls from five to twelve should be examined yearly and the cephalic extremity kept free from all infections. If a goiter is already present, the transit of the girl through puberty demands protection. Especial care should be taken to keep the body free from focal infection during pregnancy, and attention paid to the condition of the thyroid during adolescence, after child birth, and at the menopause, when the demands upon it are particularly heavy.

Journal of the American Medical Association.

September 14, 1918.

1. The First Year of the Section on Gastro-Enterology and Proctology. Anthony Bassler.
2. Anomalies of the Bile Ducts and Blood Vessels as the Cause of Accidents in Biliary Surgery. Daniel N. Eisendrath.
3. The Therapeutics of Tetanus. Hermann B. Gessner.
4. The Active Constituent of the Thyroid: Chemical Groups that are Responsible for Its Physiologic Activity. E. C. Kendall.
5. The Use of Dichloramin-T in the Prevention and Control of Surgical Infection. Walter Estell Lee and William H. Furness.
6. Goiter in Pregnancy. Leigh F. Watson.
7. The Prevention of Gas Pains. L. A. Emge.
8. Moisture in the Air Spaces of the Lungs and Oxygen Therapy. C. F. Hoover.
9. Extending the Care of Pregnancy. Ira L. Hill.
10. A New Principle in the Surgical Treatment of Brain Tumors. A. C. Strachauer.
11. Uterine Inertia: Summary of a Series of Cases. Paul Titus.
12. Traumatic Lesion of Posterior Roots of the Lumbosacral Plexus: Report of Case. Sigmund Krumholz.

2. Anomalies of the Bile Ducts and Blood Vessels as the Cause of Accidents in Biliary Surgery.—Daniel N. Eisendrath. (See MEDICAL RECORD, June 22, p. 1109.)

3. The Therapeutics of Tetanus.—Hermann B. Gessner. (See MEDICAL RECORD, June 29, p. 1144.)

5. The Use of Dichloramin-T in the Prevention and Control of Surgical Infection.—Walter Estell Lee and William H. Furness. (See MEDICAL RECORD, June 29, p. 1144.)

6. Goiter in Pregnancy.—Leigh F. Watson. (See MEDICAL RECORD, June 22, p. 1110.)

9. Extending the Care of Pregnancy.—Ira L. Hill. (See MEDICAL RECORD, June 22, p. 1111.)

10. A New Principle in the Surgical Treatment of Brain Tumors.—A. C. Strachauer. (See MEDICAL RECORD, June 29, p. 1146.)

11. Uterine Inertia: Summary of a Series of Cases.—Paul Titus. (See MEDICAL RECORD, June 22, p. 1112.)

Berliner klinische Wochenschrift.

July 15, 1918.

The Treatment of Wounds with Catgut Strands.—Neuhäuser states that besides the antiseptic treatment of wounds, modern surgery has discovered the necessity of filling in cavities resulting from deep seated tissue destruction. This neoformation of tissue can be greatly stimulated by foreign bodies, a fact which led the writer to use bundles of catgut strands, placed over the raw surfaces in order to provoke an exuberant growth of granulation tissue. For example, in a funnel-shaped wound the bundle of catgut will itself assume a funnel shape and when pushed into the wound cavity will line the walls. At the end of ten days the granulations are already growing in the direction of the catgut strands and a few days later a compact mass of granulation tissue will be found to fill the cavity. The writer advises leaving the first bundle of catgut in place for two weeks, if possible, without change of dressing, but should this be necessary the catgut can be removed without tearing away the granulations already formed. The results of this method of treatment are all the more marked the greater the vascular supply to the parts involved. Epidermization is also stimulated by this procedure and in this respect the writer has had good results in cases of varicose ulcer, torpid amputation stumps, chronic empyema and osteomyelitis.

The Treatment of Wounds of the Ureter During Laparotomy.—W. Weinreb offers a general survey of this question and reports a personal case. He gives the following reasons for preferring ligature of the injured ureter to nephrectomy. Ligature, followed or not by a nephrectomy later on, allows the fellow kidney to progressively assume the functions of the other organ, so that a nephrectomy done later on will in most probability be successful.

Münchener medizinische Wochenschrift.

July 9, 1918.

The Elimination of Bromine in Man After Digestion of Sodium Bromide.—W. Authenrieth, by the procedure of calcination of the urine, followed by the calorimetric test of bromine, has come to the following conclusions: Bromide given in a single dose or in two doses given near together is retained for quite a time in the organism. In subjects with normal kidneys the largest amounts of the bromine are eliminated during the first three days, after which the remainder is eliminated in decreasing amounts. On the thirty-fifth day the quantity eliminated represents only 72 per cent. of the bromine absorbed. The elimination during the first 24 hours was only 3.2 per cent. of the total amount ingested. In subjects with nephritis the elimination was three times less during the first ten days than in subjects with a normal urinary function. The influence of the exhibition of NaCl is merely an indirect one, in this sense that it does not influence the amount of bromine eliminated, but by producing thirst and, therefore, the ingestion of water, the resulting diuresis carries off the bromine more rapidly. At all events, the elimination is too irregular to allow one to establish an equilibrium between the doses ingested and the amounts eliminated. The writer has also been able to note that the bromine retained in the blood of a nephritic subject is dissolved in the serum and cannot be demonstrated in the corpuscles.

Deutsche medizinische Wochenschrift.

July 11, 1918.

The Results Obtained by Systematic Provocation of Malaria.—W. Hoffmann recalls the importance of detecting soldiers afflicted with malaria, even in the latent form. It would seem to be a confirmed fact that a number of infections and epidemics of malaria are to be attributed to unrecognized instances of the disease, the subjects being the source of infection of mosquitos in a given region. The appearance of malaria in previously uninfected regions and coinciding with the end of winter is essentially attributable to this manner of contagion. The procedures of provocation and consequently those of diagnosis, enumerated by the writer, are as follows: Injection of sterilized milk, faradization of the splenic area, injection of tuberculin, typhoid vaccination and divers other vaccines. Besides, general irradiation with the ultraviolet rays may attain the same end, while adrenalin has been resorted to for the object of contracting the unstriped muscles of the spleen and ergotin and hypophysary products likewise possess a similar action. Hoffmann has employed the following procedure: A vapor bath at 55° C. for ten minutes followed by a bath at 20° C. for three minutes. On the following day these baths are repeated. Then he resorts to faradization of the splenic region until rubefaction has taken place and this is followed by muscular exercises with douching and cold compresses over the spleen. This very varied procedure has not given rise to any untoward effects on the health of the men submitted to it, while the results obtained have been directly utilized from the standpoint both of prophylaxis and treatment. Out of a total of 480 apparently cured convalescents, 9 per cent showed that they were still infected with the plasmodium. Of these forty-one cases four had the organism in the blood which could be detected in the hanging-drop preparations with clinical symptoms of distinct malarial paroxysms. The provocation of the disease had to be renewed in several instances before a positive result could be obtained and one patient, Hoffmann reports, did not react until the provocative procedure had been resorted to twelve times.

Wiener medizinische Wochenschrift.

July 13, 1918.

Expert Military Examination of Epileptics.—A. Schüller estimates at 28 per cent. the number of true cases of this affection sent to special hospital services for expert examination. The writer also recommends the formation of special hospitals for war epileptics following wounds of the head, infectious diseases and from uncertain factors.

Finska Läkaresällskapets Handlingar.

January, 1918.

Migration and Effects of Bacteria in the Central Nervous System.—Homen covers the work of the Pathological Institute of Helsingfors since the 90's of the past century. He discusses the various ways in which bacteria and their toxins reach the central nervous system, including the result of personal researches into injections into the sciatic and other peripheral nerves and the cord. The different toxins establish particular processes and set up special alterations, but these are also modified by outside influences. The bacteria show types of behavior and the various tissue elements show types of reaction. This is especially true of the glia cells, which in various toxi-infectious processes show remarkable ability to proliferate. The differences between local action and action at a distance having been touched on, the author sketches the rôle of the bacteria in both simple and mixed infection, including the mixture of anaerobes with aerobes. There is a local as well as a general predisposition to infection. The distinction between purulent and non-purulent toxi-infection receives considerable attention, as does also the peculiar position in pathology of the meningitides. In all of these study fields, the following should go hand in hand: Clinical study, antemortem pathology, postmortem changes and animal experiment, both from bacteriologic and pathologic viewpoints.

Wound Treatment Without Dressings: Open Air Treatment.—Langenskiöld refers to German labors in this field, especially those of Dosquet. The author has tested the principles and technique of the latter and reaches the same conclusion: to wit, that in both infected and purulent wounds the normal method is the open method, to be renounced only on special indications. Dosquet's method has been carried out in a small hospital in Berlin. The literature thus far is very small aside from Dosquet, but two men have reported on the method. The idea of the latter is by no means new, for it can be traced back to 1800. Initiated in Vienna by von Kern, it held a place in surgery, and Rose was able to show percentages under the open method which were far superior to those of Billroth. But Listerism sidetracked it for the time being, until the peculiar conditions of the present war led to its revival.

Affections of the Optic Chiasm.—Behse describes a case of affection of the chiasm due to empyema of the ethmoid and sphenoid cells. There were bitemporal right sided hemianopsia and left sided hemiamblyopia. The patient had contracted the infection in a cold, damp bedroom. He first complained of a chill and headache. Not until the lapse of five weeks did the eye troubles appear. After surgical intervention he improved somewhat, although there was a permanent defect in one visual field. An exacerbation a year later led to a second operation, which relieved a condition of diplopia, due evidently to paresis of the right motor oculi. Some of his previous improvement was subsequently lost and both visual fields are now defective. The prognosis in these cases is not good.

La Presse Médicale.

June 10, 1918.

Chloremic Edemas of Non-Nephritic Origin.—Labbé refers to cases of edema seen as complication or sequela of dysentery. In the first example the swelling extended upward as far as the thorax, involving scrotum and prepuce. The urine was scanty, but otherwise normal, heart normal. Upon a regimen poor in chlorides comprising theobromine the edema rapidly disappeared in the midst of profuse diuresis. The author believes that the condition arose because of hepatic insufficiency. The man was an alcoholic and heavy eater and showed slight icterus. The urine of the diuresis was rich in chlorides and there seemed to be no doubt of chlorine retention which could not have been due to renal lesion. The second patient, in addition to dysentery, showed marked anemia. In addition to ordinary anasarca, he presented ascites. He improved on the measures used on the first patient. The edema was succeeded by a dehydration, patient losing over 2 kilos daily for a considerable period. At a later period under diet he regained his weight and normal blood count.

Case of Late Tetanus.—Antoine relates the case of a soldier who was recovering from fracture of the thigh. The bones were united and the injuries of the soft parts cicatrized. There was complaint of insomnia and sweating, agitation and anxiety, and finally of rigidity in the affected limb. The incubation period was over eleven weeks. The picture of tetanus gradually appeared, but the course, while severe, was not malignant. The patient responded to treatment, although he had two relapses. He received, in addition to serum, injections of carbolic acid. He had received a prophylactic injection thirty hours after injury and it seems a fair inference that this injection had retarded the development of the disease. The carbolic acid was injected subcutaneously into the affected limb.

Tetanus Localized in a Limb.—Chauvin states that up to 1910 but twelve cases of this type were upon record. Since the outbreak of the war they have repeatedly occurred. The author alone controls six cases. In all of the post-bellum cases, as far as known, serum had been given as prophylactic, and one obtains the impression that it is the action of the serum which localizes the infection. At the same time we must believe that the immunization, while it saves life, is essentially incomplete.

Le Progrès Médical.

June 8, 1918.

Radioscopy of the Stomach After Normal Repast.—Ramond and Carrié refer to the great and continuous interest of this subject which is the order of the day. Even after meals the stomach casts no shadow on the screen, and the best means of obtaining the latter is the suspension of bismuth. The best formula is bismuth (subnitrate or subcarbonate) in half a pint of solution of gum arabic, aromatized with lemon essence. Another good vehicle consists of one pint of a decoction of tapioca or other starch mixed with milk. But these fluids do not, of course, give the true outline of the stomach in its active manifestations. The amount of fluid cannot fill the organ and its introduction does not provoke movements such as follow introduction of solid food. The bismuth also tends to deposit or sediment in the stomach and its presence in the empty organ often causes nausea. Hence the metal should be given with solid food. A bismuth meal best consists of a mince of meat (75 gm.), potato (150 gm.), butter (40 gm.), fat bacon (30 gm.), seasoned with a little parsley, garlic or chive, to which is added 40 gm. of bismuth subnitrate. This hash is eaten by patients with relish. It is not enough for an entire meal, so that the balance is made up of bread, eggs, red wine, coffee, etc., taken at pleasure. Eighteen healthy men were subjected to the same trial meal and examined with the screen in the standing posture. The organ consists of a superior cul de sac, the direction of which is almost vertical, a body which lies horizontally and a pyloric end directed slightly upward. The cul de sac lies wholly to the left of the spine, the pyloris wholly to the right, while the body crosses the spine. The position of the organ may be high, medium, or low. The cul de sac in each position is at about the same level, so that the descent affects the body and pylorus. The medium and low placed stomachs are, therefore, more voluminous and the stomach has a greater length. A medium level is the more commonly encountered, the pylorus corresponding to the navel. After the meal the fluid portion rises to the top, the air being at once expelled. The pylorus commences to function at once.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Second Annual Meeting, Held in Albany, May 20-24, 1918.

(Special Report to the MEDICAL RECORD.)

(*Concluded from page 528.*)

SECTIONS ON OBSTETRICS AND GYNECOLOGY.

Third Day—Thursday, May 23.

Nitrous Oxide in Labor.—Dr. RAYMOND C. COBURN of New York presented this communication. He said that while twilight sleep had had its day, he felt that it had done a great deal of good in waking people up to demand relief for the woman in travail. After drawing the distinction between analgesia and anesthesia, he said that nitrous oxide analgesia should be instituted as soon as the contractions produced a decided pain which was usually at the end of the first stage; the emphasis, however, should be put on the degree of pain rather than on the stage of labor as the guide for beginning the administration of the nitrous oxide. To administer the nitrous oxide a more or less complicated apparatus was required, yet it could be administered by a comparatively simple apparatus and a single cylinder. The patient should be instructed how to cooperate. Upon the first indication of the contraction, either announced by the patient or detected by palpating the abdomen, the mask should be quickly applied and the patient should take three deep rapid inhalations of the nitrous oxide. At the end of the third inhalation she should hold her breath as long as possible and "bear down." This usually furnished complete analgesia for a complete contraction. It was quite essential that the patient should hold her breath as long as possible. The bearing down not only augmented the expulsive effort but also increased the rapidity of the absorption of the nitrous oxide. The number of inhalations was important and should be regulated according to the requirements, no more being used than was necessary to produce analgesia. The nitrous oxide was discontinued during the interval between contractions. Two deep inhalations gave quite a deep analgesia with the average patient and four gave a marked analgesia. The writer discussed the different types of apparatus that might be used and said that different types of inhalers might be used. He preferred the face inhaler. It was possible after instruction for the patient to administer the nitrous oxide herself and this was a psychological aid as it directed the patient's mind to extraneous matters. Five to twenty per cent. of air or of oxygen might be admitted with the inhalation of nitrous oxide as a routine. The writer discussed the technique by which the amount of oxygen could be regulated. When the nitrous oxide was administered only after the uterus had begun to contract and then only for a few inhalations very little if any nitrous oxide reached the fetus, for the contracted muscle prevented it reaching the fetal circulation until the end of the contraction, and by that time most of the nitrous oxide had been eliminated as it left the blood stream about as rapidly as it entered. It was not advisable to allow the patient to become cyanosed. If the patient showed signs of cyanosis more air should be admitted or fewer inhalations should be given. If at first pains were severe but ineffectual and the analgesia did not work well a good sedative should be administered. When the head was passing over the perineum the analgesia should be continuous and deepened into anesthesia if there was danger of a tear. Nitrous oxide would not prevent the pain of a deep laceration. The use of chloroform should not follow nitrous oxide analgesia. He was much afraid of this sequence and reports from a hospital in New York where this sequence had been tried confirmed his fears. If a deeper anesthesia were required ether might be used; it acted about as quickly as chloroform when given after nitrous oxide and was to be preferred as an adjunct to nitrous oxide.

Dr. PAUL TOMPKINS HARPER of Albany said there were several points in the paper that were illuminating, but he must confess that he was not a competent critic as he had had but little experience with nitrous oxide analgesia, at the Brady Hospital. He believed that everything that was said was perfectly true. They had used nitrous oxide but had not employed the perfection of technique that Dr. Coburn had described. Perhaps the most striking illustration of its use was in a case of myocarditis acute in its working up. The operation was a therapeutic abortion at four months. The patient was a most undesirable surgical risk. After about fifteen or twenty minutes of nitrous oxide anesthesia, the percentage of oxygen furnished being about 20 per cent. when the preliminary operation was finished, it was observed that the heart action was better than at the beginning of the operation. It was interesting to watch the lighting up and reddening of the blood as oxygen was increased to give more stimulation and less anesthesia. He had used nitrous oxide anesthesia in perfectly normal patients for the sole reason of relieving pain and the only objection to it was the question of expense, but it seemed likely that the advantages it offered outweighed even its excessive cost. It was a great boon in cases of toxemia in which the heart and the liver were involved and in which it was a question of whether ether should be employed. In such cases it was practically a specific.

Dr. QUIGLEY of Rochester said he had used nitrous oxide in labor for two years. It was not applicable to ward work on account of the expense. Patients who had had it once asked for it if they were confined a second time and were perfectly willing to stand the cost. He always had it given by an anesthetist and did not think it was possible for the obstetrician to give it himself, not because he could not master the technique but because he would be occupied with the conduct of the second stage of labor. In his experience he had used it in only one case in which it was not entirely satisfactory.

Dr. ZINKE of Cincinnati complimented the author of the paper on his splendid presentation of the subject, and said that it was a paper that should be read by everybody. Personally he did not accept obstetrical cases any longer, but he was delighted by the manner in which this subject was treated by the younger men in the profession. Personally he had had no bad results from chloroform, but he thought that where prolonged analgesia was desirable the nitrous oxide would be preferable. The only objection was the expense and the complicated apparatus, the fact that one did not always have an expert to administer it, and that it could only be used in a hospital. It would probably have a more extended use when women were more disposed to go to the hospital for confinement.

The Underdeveloped Uterus.—Dr. CHARLES LYBRAND BONIFIELD of Cincinnati read this paper, in which he said that the development of the uterus might be arrested during uterine life, during early infancy, or at puberty. The rudimentary type of uterus was rare, was usually accompanied by absence of the vagina, and by rudimentary ovaries, and nothing could be done for it. The infantile type of uterus was more common than the rudimentary. It was usually associated with a cervix of small size and there was as a rule no menstruation. If menstruation did occur it was at long and irregular intervals. The pubescent uterus was quite common and varied in size from that of the infantile uterus to almost normal. Some of these uteri were sharply anteflexed and some were retroflexed and in all there was a tendency to cystic ovaries. Menstruation was late in becoming established and early in stopping, often beginning at about seventeen years of age and stopping at the age of forty. The women usually consulted a physician between the ages of nineteen and twenty-four years. The women who had this condition were of three types. The first type was the small frail woman who had just missed being a dwarf. The second type was practically normal in size but had never fully rounded out. The third type was the robust woman with a somewhat male build. These women did not become fecundated. They came with the history of certain conditions existing at puberty. They sometimes gave a history of a severe infection such as typhoid fever, scarlet fever, malaria, or chorea. Such a history was more frequently found in the second type of women. Dr. Robert T Morris had pointed out

that when nature tried to adapt herself to cultural standards, women more often showed arrested physical development than men, and that one seldom found a woman who was 100 per cent. feminine. In fact, there was a class of women who ought not to breed. The third type belonged to this class. The thyroid seemed to undergo enlargement at the time of puberty and this enlargement seemed to indicate an increased demand for its secretion; this furnished an indication for the administration of thyroid extract. In the small woman there seemed to be a deficiency of pituitary secretion. The symptom that usually brought the patient to the physician was dysmenorrhea. This was usually slight when menstruation began but became increasingly severe as time went on. This was because of the anteflexion and the narrowed cervical canal that dammed the secretions back and which finally produced an endometritis. Then just as a weak heart dilated and became hypertrophied so the uterus, with the blood supply interfered with, enlarged in the supravaginal portion and the infravaginal portion became shortened. This type was the most numerous and the least understood. It was the type in which the uterus approached most nearly to the normal development and the ovaries and uterus did not correspond in development. Sometimes one would find normal ovaries with a rudimentary uterus. As in most other conditions prophylaxis was better than treatment so was it in the condition under consideration. If the family physician could be convinced when menstruation did not begin at the usual time that something was wrong he might do much for the correction of the condition and he need not make a pelvic examination. Personally the writer had had little opportunity to treat these girls, as he was not in general practice and did not see them until in later years, but he believed these girls could be helped by medical and hygienic treatment, by attention to the intestinal tract, by diet, laxatives, attention to the teeth, tonsils, appendix, or any other source of focal infection. Thyroid, pituitary, and ovarian extracts should be judiciously administered. The only treatment that would help later in life was surgical in character. This consisted in dilatation, curettage, and packing with gauze. If the uterus, and particularly the cervix, was packed tightly with gauze the uterus would contract and frequently with sufficient force to expel the gauze. He allowed the gauze to remain in the uterus for five days, as the contractions were the best exercise to develop the uterus. For the medical treatment one might give thyroid for two or three weeks and then stop that and give ovarian extract for two or three weeks. In the more severe cases he had the patient come to his office the day before menstruation and gave her a hypodermic of corpus luteum, two ampules of the Parke Davis preparation. He also prescribed hot drinks and a hot sitz bath. If menstruation did not appear he let her go until the period came around again and then repeated the treatment. If the patient was excessively fat he reduced her by diet and exercise. In some cases matrimony gave relief; these women might abort a few times but later pregnancy would go to term.

Dr. James E. King of Buffalo said that of late years a study of the ductless glands had resulted in attributing many curious conditions to some abnormality in these glands. The interrelation of these glands was a very interesting subject and this feature Dr. Bonifield had brought out. The subject had not been given as much attention as it deserved. There was a type of girl who was fat and reached puberty without any sign of menstruation; she was certain to like sugar, did not like school, and led a vegetative life. She was finally brought to the physician because of amenorrhea and he said she had an infantile uterus and the case was dismissed. As a matter of fact this was a case of hypopituitarism. The pituitary gland was one of the most important glands in the development of the sexual organs and particularly in women, and when the pituitary gland was disturbed there would be certain manifestations which could be found if they were sought for. If the pituitary gland did not secrete properly there would be a disturbance in metabolism and the first thing to be observed would be an inability to assimilate sugar. If one gave a normal individual one hundred grams of sugar it would appear in the urine in a certain time, but if there was a diminished pituitary secretion that person could take 200 or 250 grams and there would be no reaction in the patient's urine, and these patients with pituitary perversions would surprise one by the large amounts of sugar that they could take without having it appear in the urine. These facts gave one an indication for treatment. He had tried pituitary extract and had had no definite results, but he felt confident that the remedy for these cases would some day be found.

Dr. A. W. Marquis of Norwich said that in her work she examined a great many girls and found that the girls with menstrual disorders could be divided almost into two classes. In the first class were those in whom the whole body was underdeveloped; they were not well rounded, as Dr. Bonifield had pointed out, and these girls had as a rule enlarged thyroids. They menstruated once in two weeks though the flow might be scant, and they sought relief from the annoyance occasioned by this frequency of menstruation. She had found that if thyroid and a few hypodermics of pituitary extract were administered it made the interval between menstrual periods longer. Then there was a class of girls who went overtime and in whom the thyroid was underdeveloped. They also required thyroid treatment and ovarian extract. It was quite remarkable the number of girls that had overdeveloped thyroids. In the routine examination of 145 girls she had found 16 with overdeveloped thyroids and they almost invariably had menstrual disorders.

The Management of Breech Presentations.—Dr. Paul Tompkins Harper of Albany presented this communication, in which he directed attention to certain clinical aspects in breech presentations and to the broader consideration of the physiological mechanism of labor which should be the basis of the conduct of these cases in which expectancy was the policy determined upon. There was a mechanism of labor peculiar to breech presentations and in connection with this there were three features to be emphasized. (1) The complete dilatation of the service, (2) the engagement, descent, and birth of the arms, flexed; (3) the engagement of the aftercoming head, its descent in the oblique diameter, and birth, after traversing the curve of the pelvic canal, by flexion. These points were mentioned particularly because to the extent that they were not manifested or were nullified by actual interference it could be shown that accidents and complications increased both in frequency and intensity. The familiar complications were: (1) dry labor; (2) retraction, used synonymously with impaction; (3) extended arms; (4) intrauterine asphyxiation from delay in delivery of the aftercoming head, and (5) perineal laceration. Dry labor was an unavoidable accident in most cases. Retraction was a grave complication, but preventable to the extent that premature rupture of the membrane predisposed to it, and ample opportunity for the prophylactic and active treatment of it was offered. Extended arms and extended head were complications that were not primary, that was, they were preventable to the degree to which the operator controlled expulsion and advance. Perineal laceration was avoidable in vertex presentations and due almost or wholly to the manner of advance and delivery of the aftercoming head. Expectancy was the course decided upon in the absence of absolute or even relative pelvic deformity. Granted the case was one in which delivery was not imperative the conduct of the second stage might be summarized as follows: In response to the propulsive uterine contractions, the frequency of which might be increased by persistent gentle massage of the fundus and the intensity of which should be augmented by persistent downward pressure on the fundus exerted by the hand of the assistant, the breech gradually distended the perineum and was born. The feet might be lifted out of the vulvovaginal opening which sometimes retarded their advance. Anterior rotation commonly was incomplete and the buttocks as frequently were born in or approximately in an oblique diameter. Subsequent expulsive efforts were to be awaited and the temptation to exert traction resisted. Since the arms were to descend in an oblique diameter, no attempt should be made to rotate the back to the front. The danger of pressure on the cord at this time was slight; however, it should be anticipated and the fetal heart frequently auscultated. With the next contraction the navel was commonly born. At this point it

was imperative that at each contraction fundal pressure be increased. As advance was accomplished, the child's body was raised and two fingers inserted beneath it were directed upward to meet and pull downward first the elbow of the flexed posterior and then of the anterior arm. It was at this time that firm traction was too frequently employed. Following expuisive efforts resulting in the birth of the shoulders the uterus was frequently inactive and tractile force to deliver the aftercoming head would have to be correspondingly increased. Such force applied about the child's head, face, and trunk entailed the danger of injury to nerve trunks as well as that of extensive perineal lacerations due to rapid advance and delivery of the head. The child's body was raised obliquely over the maternal abdomen and the final expulsion effort of the uterus awaited. The body was raised obliquely so that the anatomical relation between it and the aftercoming head which was to advance in an oblique or transverse diameter of the inlet might be preserved. It was placed over the maternal abdomen that it might be expended upon the head which was to undergo progressive flexion and to follow the curve of the pelvic cavity. Firm, intermittent, suprapubic pressure was the most available and satisfactory force to supplement the feeble uterine expulsive force at this point. When spontaneous or artificial expulsive efforts were insufficient to produce advance the head might be brought into the midpelvis by means of the forceps. Moderate traction might be exerted by the finger in the child's mouth. As to the administration of anesthesia, a little might be used late in the first stage, but in the second stage it should be eliminated as giving it lessened uterine contractions and delayed the delivery.

JOINT SESSION OF THE SECTION ON MEDICINE AND SURGERY.

Wednesday, May 22.

DR. THOMAS F. LAURIE OF SYRACUSE IN THE CHAIR.

Symposium on Goiter.

The Function of the Thyroid Gland.—Dr. HENRY S. PLUMMER of Rochester, Minn., presented this subject (by invitation). This gland, he said was of the highest interest to the clinician, the surgeon, the neurologist, as well as to the embryologist and the histologist. The normal thyroid was doing quantitatively half as much work as it did in exophthalmic goiter, and one third more than the highest grade of myxedema in which there was no thyroid. A certain metabolic rate could continue without the thyroid, but at a very low ebb. Exact measurements of metabolism were made by grouping cases according to the estimated minute volume of blood from the heart. The data on which conclusions were based had not as yet been published. The basal metabolic rates of some 2,000 cases had been studied and classified. In regard to energy, the energy production of a gas engine, for instance, varied as the rate of excitation of potential energy in the cylinder; that was also true of energy transformation in animal cells. All available energy became transformed into motion or heat on excitation. The thyroid hormone (isolated as a pure crystalline compound) was a catalytic agent controlling a quantum of potential energy for transformation to heat or motion, on excitation of the cell. At rest, 14 hours after eating, the dynamic equilibrium was approached. The rate of energy production, 12 hours after eating, in the horizontal position, was 39 calories per square meter, of the body surface. The normal individual varied little from this. When there was little or no variation from this, there was no functional thyroid disturbance. The rate of energy production varied with the amount of the hormone in the cells; the hormone remaining constant, the energy rate varied with excitation. Change of amount of hormone in the tissues caused change in the basal rate of metabolism. These conclusions were corroborated by the medical and surgical aspects of the disease. Administration of the hormone caused the thyroid gland to pick up the hormone. This had been studied in typical myxedema cases, where the characteristic syndrome was that of low energy output. In one-third of the cases of hyperthyroidism, there was excitation of the gland by adenoma of the thyroid. If the condition were removed, the metabolism very shortly dropped to normal.

Newer Methods in the Diagnosis of Thyroid Disorders, Clinical and Pathological.—Dr. EMIL GOETSCH of Baltimore sent this paper (read in his absence by Dr. C. Webb of Clifton Springs). Work in Dr. Halsted's clinic was undertaken and 216 goiter cases were studied. Of these 10 were colloid goiters; 50 were exophthalmic goiters; 150 were adenomata; 6 were unclassified. The work was divided into 2 phases: (1) histological and clinical; (2) as to the local and constitutional hypersensitiveness to adrenalin. In the colloid gland there was accumulation of colloid and symptoms of hyperthyroidism; later, with increase of thyroid epithelium a hypothyroidism occurred. In exophthalmic goiter, there was diffuse pathological change in the thyroid gland. There was epithelial hyperplasia. In the adenomata there was great variation in the type of clinical picture presented. At first there was increased irritation by pressure, and later atrophy. There were no fixed rules of development in these cases. The clinician could not outline the pathological picture, and the pathologist could not realize the clinical symptoms from the appearance of the gland. The presence of mitachondria in all of the ductless glands showed that these were definite histological elements in the cytoplasm of the cell. These were found in enormous numbers in exophthalmic goiter and in adenomata of the thyroid. In the colloid gland there were almost none. The normal gland was between these extremes. The adenomata tended to degenerate into hemorrhagic cysts and at this stage symptoms of hyperthyroidism disappeared. An increased sensitiveness to adrenalin was a symptom of hyperthyroidism. The thyroid hormone evidently possessed a sensitizing action to adrenalin upon the cells of the sympathetic nervous system. The reaction was characteristic. There was rise in blood pressure, tremor, throbbing and vasomotor changes. Nervousness was greatly increased after adrenalin according to the degree of the toxicity present.

Medical Treatment.—Dr. HERMAN C. GORDINIER of Troy presented this phase of the subject. A brilliant therapeutic effect having been obtained by the use of thyroid in goiter, the profession were looking for a cure in Graves' disease. No such treatment had been forthcoming. Patients, thoroughly discouraged, sought relief from treatment by daring surgeons. Surgeons were apt to do too much and physicians too little. The disease was protean in character, often ending in cardiac failure, but many cases improved under medical treatment. In medical treatment of Graves' disease, there must be absolute cooperation of the patient with the physician. The disease must be recognized in the early, atypical forms. Any focal or systemic infection, underlying the thyroid condition, should be sought for. A general toxemia from acute infectious disease might be the causative factor. Treatment was by rest, both physical and mental, for a long time. Fresh air, sunshine, a dry climate with moderate elevation were all indicated, and the treatment should be similar to that for early tuberculosis. An intelligent, optimistic nurse, with experience with nervous patients would have a saving effect. It was better to carry out treatment in a hospital or sanatorium, than in the home. The time of treatment would be decided by the severity of the toxemia and of the cardiac symptoms. It was necessary to recognize the cases early. With irritable tachycardia a delicate fine tremor was an early constant symptom. Falling out of the hair was often seen. A careful white blood cell count should be made. Leucopenia was often found. Feeding of these patients was an important point. They were generally thin. The calcium content of the food should be increased. Plenty of pure soft water was essential and perfect elimination should be aimed at. Drugs in these cases were uncertain in their action, but neutral hydrobromide of quinine, used over a long period of time had been found to have very good effect. Digitalis seemed to be of use only in cardiac insufficiency. There was no agreement of opinion as to the value of various gland products. One worker gave corpus luteum with gratifying results. It was doubtful, however, whether the improvement was not due more to rest and general hygienic methods. Some workers reported good results from radiation. The nerv-

ousness decreased, the gland subsided, and general improvement was noted. The effect could be accurately measured by thoroughly experienced workers and if necessary, operation could be performed later. Most early cases would be found amenable to rest and hygienic measures, and those that showed no improvement should be placed in the hands of a competent surgeon. Success in treatment depended on careful individualism.

Surgical Treatment.—Dr. CHARLES W. WEBB of Clifton Springs presented this paper. The surgical treatment depended greatly upon the correct diagnosis. The work of Dr. Goetsch had evidently done much to properly classify these conditions. Three types could be named: (1) colloid; (2) adenomata; (3) exophthalmic types. The first did not require surgical treatment. The second had toxic effects upon the heart and central nervous system. Operation was necessary in these cases. The third should be operated upon before reaching the dangerous stage, which made the surgeon dread the proposition.

Dr. S. STERN of New York said that it would be difficult to overestimate the importance of the papers presented this afternoon. The thyroid was coming into its own. The tremendous importance of its functional effect on metabolism was being recognized. His experience in the treatment of exophthalmic goiter had been by means of radiotherapy. In the last 17 years he had treated about 250 cases of exophthalmic goiter. The cases of cystic goiter were ruled out as they did not respond to radiotherapy. They were referred to the surgeon. In regard to radio effects,—small doses were stimulating; large doses inhibitory in effect. Very large doses caused atrophy. The question was entirely one of technique. It had to be very carefully regulated to accomplish just the result required on the cells of the gland. The treatment was getting easier year by year as knowledge of radiation increased. The point would be reached when no cases of Graves' disease or exophthalmic goiter would be operated upon. With medical treatment and radiation, relief could be given in all cases. The first symptom to yield to radiation was nervousness and insomnia; the next tachycardia (although it was difficult to get the exact pulse rate as the patient was usually excited by coming to the physician's office). The pulse rate should be taken at home. The size of the thyroid would be reduced in the majority of cases. In some it did not diminish entirely. The exophthalmos was the most difficult symptom to change and the last to disappear, but within the past two years a technique by means of defiltered rays seemed to accomplish more results in regard to this symptom. The last ten weeks had given better results and in 4 cases this symptom had entirely disappeared.

Dr. G. T. MATLACK of Wilkes-Barre, Pa., who discussed this paper by invitation, said that Dr. Plummer's paper was wonderful. He would like to hear more details as to the mitochondria from Dr. Webb. The work of Kocher and C. H. Mayo would show that surgery was a safe procedure, with proper technique. The question arose, what types of goiter should be operated upon. A type of goiter occurring before puberty, in which later marked hyperthyroidism occurred, required operation. It was also necessary in those cases of adenoma of the gland where pressure and destruction of gland tissue interfered with physical and mental development. This beginning cretinism was relieved by operation. The exophthalmic thyrotoxic type required definite surgical treatment. The results obtained would depend upon the method of procedure. One should not operate in the height of an attack, at a stage where the patient was getting worse, as in an attack of diarrhea. The thyrotoxic goiter was not improved by ligation. This type very rarely showed eye symptoms. One point should be emphasized—one should keep track of patients operated on for goiter. Without proper supervision they might get worse than before and the cases were then incurable.

Dr. N. W. SOBLE of Rochester, N. Y., said that he would like to ask if Dr. Plummer used adrenalin as a therapeutic aid in hypothyroidism. Frequently women at the menopause showed symptoms of hypothyroidism. Obesity, loss of strength, loss of sleep, constipation were noted. They did not respond to ordinary thyroid therapy. If adrenalin would increase hyperthyroidism, would it have therapeutic effect on hypothyroidism? Dr. Gordinier had mentioned pigmentation. This had always been considered leucodermia or obstruction of the coloring matter. If anything could be done, it would be interesting, as this condition was an annoying one, especially to women. He did not like to add any more "signs" to Graves' disease, but he thought that a rarification of the outer eyebrow was often seen in hyperthyroidism. There was also a dysuria, without cystitis, due to hyperplasia of the urethra.

Dr. D. H. MURRAY of Syracuse said that Dr. Plummer had mentioned chlorophyll. Chlorophyll released its energy only in the presence of another energy. Was this the case with the thyroid hormone? The testimony of Dr. Gordinier had an important bearing on these cases. Dr. Murray said he was operating much less than formerly on exophthalmic goiter. One of the other speakers had mentioned the difficulty of disposing of the symptom of exophthalmos, even when getting good results from radiation. This was due to spasm of the muscle through the hormone. The relation of this hormone to the arrangement of the ions on either side of the impermeable cell membrane should be considered. A difference in potential occurred because of arrangement of the electrolytes. Did the hormone increase impermeability by increasing osmotic tension? If so the activity of the entire cellular system was increased in response to the action of the hormone.

Dr. T. L. DEAVOR of Syracuse said that the papers were so deep it was difficult to discuss them. Emphasis should be placed on the rest cure. The question was, whether one could not continue that too long, so that while relieving the thyroid, one was causing an effect on the heart muscle. The surgical treatment could, with advantage, be added to the rest cure in properly selected cases. It would seem that extreme elimination was necessary, but just what that meant to metabolism, it was hard to say. Something in the intestinal tract evidently increased the toxicity of the thyroid. In operating on cystic goiter, one should not stop at removal of the cyst. The remaining thyroid tissue should be reduced, leaving the posterior aspect, near the parathyroid. The excessive action of the sudoriforous glands should be encouraged, and a great deal of fluid should be given. No line of treatment was the last word. All lines had their place and the combined efforts of the surgeon, the physician, and the radiologist were necessary to combat this difficult condition.

Dr. MARY DUNNING ROSE of New York asked why preference was given to fish, chicken, and lamb, in the diet of these cases, instead of a good juicy beefsteak. Was this because of the action of the putrefactive proteins in the intestinal tract? The protein content of beefsteak was 2.6 per cent. and much less than that of chicken.

Dr. G. E. BEALBY of Albany said that this meeting should prove of value to patients with hyperthyroidism. He believed there was no dispute as to the value of surgical treatment of goiter when the symptoms were produced by pressure on the gland. The results obtained by surgical technique in properly selected cases were far better than 50 per cent., they came nearer to 100 per cent. of cures. Dr. Goetsch's paper was valuable as a means of basal diagnosis. In regard to the white blood cell count—cases of hyperthyroidism had a very pronounced lymphocytosis, as high as 38 per cent., when the total increase in leucocytes was 8,000. This was a valuable diagnostic sign in the mild cases without exophthalmos, which were difficult of diagnosis. The surgeon should get the cases before complications arose. He had a case treated medically 8 years. That was too long.

Dr. H. S. PLUMMER said that in these cases more blood flowed out from the left heart; this was indicated by high blood pressure. There was loss of weight even when more food was taken. These symptoms should be diagnostic. Signs should be forgotten and men should get down to fundamentals. 90 per cent of myxedemas never got goiter at all. Hyperplastic thyroid was so rare as to be a curiosity. Exophthalmic goiter was a distinct entity associated with hypertrophy of the thyroid. Adenomata were a distinct disease. The profession had not learned about them yet. An adenoma was an adventitious new growth causing increased metabolism by heavy stimulation of the thyroid. When

removed the hyperthyroidism stopped. As to the white cell count, the lymphocytosis was also present in all other cases that might be confused with Graves' disease. Its diagnostic value was nil. As to adrenalin it would increase an already increased blood pressure. In regard to the sympathetic and vagotonic disturbances, 60 per cent. of the cases would get well if left alone. Half of the cases sent to the clinics never had hyperthyroidism. Nobody ever had 70 per cent. get well from medical treatment. Before the days of antitoxin 50 per cent. of diphtheria cases got well, but that was no argument against antitoxin. The hyperthyroidism was simply an increased metabolic rate. That must be brought down and the high calorie burning would stop.

Dr. C. W. Webb of Clifton Springs said that the adrenal test had been used with patients showing hyperthyroidism, and that the effect was always an increase of symptoms. No data was available as to any clinical effect of adrenalin in the hypothyroidism cases.

Perineal Prostatectomy.—Dr. Parker Syms of New York presented a short report on this operation, illustrated with moving pictures of the points in surgical technique. The advantages of this procedure over the suprapubic operation lay in the fact that it was very quickly performed, the prostate could be brought out of the wound and was in full sight during excision. The bladder was not opened at all, the prostate being reached through the incision in the perineum. The mortality was about half that of the suprapubic route. About ten minutes was required for the operation, and the patient was usually able to walk about within a week. There was no dripping of urine as in the suprapubic operation, the internal sphincter and external sphincter being absolutely intact. The drainage tube could be removed within 24 hours and the patient then had perfect bladder control. In selected cases a two stage operation was necessary. The perineal route then offered advantages. The incision could be made under cocaine and drainage instituted. Later the prostate could be removed.

Dr. E. M. Watson of Buffalo said that this was an interesting and graphic description. Looking at the pictures, one would think that the prostate fell out into one's hands. This was not so. He had seen Hugh Young have great difficulty in enucleating a fibrous prostate. The perineal or the suprapubic route was a matter of individual choice. The first perineal operations were usually not successful as the average surgeon did not know much about the perineum. In cases where a man was familiar with the technique the mortality was only about 3 per cent. In any cases where there were lesions of the heart, lungs, or kidneys, the perineal prostatectomy should be the method of choice. Multiple perineal scars would counterindicate this form of operation. In 24 out of 25 cases the internal sphincter remained intact in the perineal operation. It was better surgery to get the internal sphincter as nearly normal as possible. There might be questions connected with fertilization. The ejaculatory ducts might open into the bladder.

Dr. T. F. Laurie of Syracuse said that the proper diagnosis of these cases was important before choosing the route for operation.

Dr. Parker Syms said that he had only touched on work of Dr. Goetsch had evidently done much to prop the technique; he had not covered the subject of indications.

SECTION ON EYE, EAR, NOSE AND THROAT.

Thursday, May 23.

Dr. A. J. Bedell of Albany in the Chair.

Malingering from the Standpoint of the Eye.—Dr. Ellice M. Alger of New York made this presentation. The question of malingering had hitherto attracted attention in its medicolegal aspect, in regard to accident insurance and industrial injuries compensation. At the present time, on account of compulsory military service, a great many problems arose with regard to this question. Among the most difficult of these were questions relating to the eye. Eye symptoms were most easy to simulate, difficult to detect, and loss or deficiency of sight made an emotional appeal to the sympathies of a jury. In the army certain arbitrary standpoints had been adopted, certain definite defects of vision would disqualify a man. In the examinations for the draft, however, the lines were more difficult to draw. Often a man was accepted by the draft board and put to the expense of giving up his occupation and going to camp only to find upon re-examination he had defects of vision which should have been discovered at home and which unfitted him for class A service. In some cases young and enthusiastic men tried to memorize the test charts, so as to pass the standard, and officers had been known to let one candidate stand by while others were examined, so that he had a chance to get acquainted with the tests. On the whole there was very little occular malingering at the present time. This was different a year or two ago when some were pro-German in sympathy, some anti-English, some merely pacifists. Now the social pressure was all the other way, even among foreign citizens, and more were anxious to get through in spite of the tests, than to escape duty. As a rule a certain degree of vision without glasses was sufficient to pass the candidate, and ordinary examination would prove this, but if exemption were claimed on the ground of occular lesions, the services of an ophthalmologist were needed. This advisory board had more work than any other. Competent ophthalmologists were few and occular malingering was difficult to detect. Most important of all considerations was the mental attitude of the recruit. One at once became conscious of the underlying antagonism of the malingerer. He must be put rapidly through unanticipated tests. He very often failed on some elementary point and the more intelligent man was easier to catch than the stupid man who would not fence. It was well to let the man suppose that he was going to be rejected anyway and that the tests were mere forms. This put him off his guard. Very often macular defects were found with perfectly good central vision. The recruit often complained of vision that was not good enough for the firing line. It was important to give just value to the amount of vision, 20/100 being sufficient. The amount of myopia encountered was enormous and most myopes were found to be wearing too strong glasses. This defect would be improved by hygiene and camp life and should not preclude acceptance of the recruit. In testing the recruit one should ask about the occupation, and what the man supposed was the matter with the eyes. The malingerer was generally ready with a long story. His attention should be directed to a distance so that he would relax physiologically, and the patient should then be watched rather than the test card. The examiner should assume a credulous and friendly attitude and not appear to think that the man was malingering. In testing it was well to block out the good eye with strong glasses and in doubtful cases to make several tests at different distances. The honest man read promptly as far as he could, but the malingerer read slowly and with exaggerated difficulty. Often the mirror test was effective, the mirror increasing the distance. The recruit did not know this and read as well in the mirror as without. A recruit would generally admit good vision in one eye. To test the vision the diploscope was the simplest method. In this device things on the left were seen with the right eye, and vice versa, so that the man did not know really which eye he was using and the possibilities of deceiving the recruit with this instrument were many. The results of catching these men were, however, negligible. They would not fight in any case, while robbing the dead and finishing off the wounded were not accomplishments well thought of among American fighting men. The important point, however, was that many good fighting men were kept out on some technicality. Haig was color blind, but it did no harm for a general to "see red." Roosevelt had only one good eye, but no one thought him less efficient for thinking the war was less than 3,000 miles off.

Dr. W. M. Dunning of New York said that more than 400 cases had come up for examination of the eyes. Malingerers were relatively few. More men were trying to get in in spite of their eyes and were appealing against rejection. Even one man with a glass eye wanted to get into the army. He said if he

could not fight he could cook. The Advisory Board passed him back to the Local Board. Very many Hebrews were examined. The Hebrew was racially a myope. Every one with 20/30 vision should be accepted for limited service. Thousands of these men were giving satisfactory service to their employers without glasses; they could do the same for Uncle Sam. Dr. Alger had mentioned the use of midriatics, and perhaps of miotics. Dr. Dunning said he had had great temptation to make use of the latter. He had seen men learn the test cards and then go to the recruiting station and get accepted. He hoped they would soon be ready to fight.

Dr. VIRDENS of New York City asked what one was to do with the class of malingerer who pretended to be very desirous of entering the army, although one was conscious that he was anxious to evade the draft. These men were malingerers of the most dangerous type.

Dr. A. C. SNELL of Rochester, N. Y., said the psychological aspect was of first importance. He thought the method of using the test cards from the top down was useless. He often began at the bottom line, working up that way and 90 per cent. of men read the 20/20 line without mistake. Another method was the psychological one, that was running them off their feet, so to speak. The tests were put at arm's length and Harmon's apparatus for inverted tests was used. This was a question of cross vision. The man who claimed he was blind in the right eye was really reading with it. If this test was used rapidly, changing the distance frequently, the men got so mixed up that in a few minutes the examiner could get at the real facts.

Dr. A. E. DAVIS of New York said he would like to ask if the fields of vision were considered in these tests. One man came to him, accompanied by his lawyer. He was evidently posted on eye tests and he claimed to have only 10/200 vision, which would exempt him from the 2d class. He seemed to know his cues in all the tests, but finally he was put into a better light and the field test was made. He was not prepared for this. There was no sign of retinitis pigmentosa. He was told he was accepted for the draft. He said, "I don't know about that field test." Dr. Davis replied that that was exactly why it was made. The man was called for the draft.

Dr. SNELL of Rochester said he was able to catch a man on that very test, by proving that he really was looking with what he claimed was the blind eye.

Dr. A. J. BEDELL of Albany said that one man, the local optician, came to him. He claimed he had 5/200 vision. The lenses were good 150 with 50/90. The man was accepted, but he appealed.

Dr. E. M. ALGER in closing said that those malingerers apparently anxious to serve often went to the navy first. The navy had a much higher standard and they were often rejected. They expected that this would get them by the local board. The psychological attitude of the recruit was as important as the ophthalmological. The testing of the fields as a rule took too long, but occasionally there was found a hemianopsia due to some neurological condition. He had known a young man with a glass eye very anxious to get into the service. He believed he got in, but very likely not into the first line.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

COLORADO BOARD OF MEDICAL EXAMINERS.

Denver, April 2, 1918.

(*Continued from page 486.*)

TOXICOLOGY.

1. Give symptoms of acetanilid poisoning.
2. Describe chronic lead poisoning.
3. What are the symptoms of arsenic poisoning?
4. Give symptoms of poisoning by cyanide of potassium.
5. Describe laudanum poisoning.
6. Name an acid and an alkaloid poison. Give symptoms.
7. Name chemical antidotes for corrosive sublimate, carbolic acid and tartar emetic.
8. Give examples of (*a*) irritant, (*b*) narcotic, and (*c*) narcotico-irritant poisons.
9. Name five vegetable poisons and give antidote for one.
10. Give symptoms of strychnine poisoning.

PATHOLOGY.

1. Give a description of adenocarcinoma under the microscope.
2. Describe *B. diphtheriæ*.
3. Exclusive of changes in the intestine what is the morbid anatomy of typhoid fever?
4. What conditions result from disease of the pituitary body?
5. Name some of the common fluids used for hardening tissues preparatory to section, with the strength ordinarily used.
6. Describe the phenomenon known as inflammation.
7. Give the morbid anatomy of acute endocarditis.
8. Describe the morbid anatomy of acute lobar pneumonia.
9. Discuss the cause of death from burns.
10. Discuss anaphylaxis.

SYMPTOMATOLOGY.

1. Discuss cholelithiasis.
2. Discuss ileus (intestinal obstruction).
3. Discuss parenchymatous nephritis.
4. Discuss erysipelas.
5. Discuss the prophylaxis and sanitary measures in caring for tuberculous patients.
6. Discuss mitral insufficiency.
7. Discuss chlorosis.
8. Discuss pertussis.
9. Discuss tetanus.
10. Discuss typhus fever.
11. Discuss sunstroke. How handled?

Answer any ten questions.

ANSWERS.

TOXICOLOGY.

1. *Symptoms of acetanilid poisoning:* Chilliness, cold sweat; nausea; pulse is soft, slow, and feeble; respirations slow and shallow.

2. The most *common sources of chronic lead poisoning* are the following: "The contamination of drinking water from lead pipes. Contamination of articles of food or drugs by contact with leaden vessels, or from being enclosed in tinfoil containing an excess of lead. Drinking beer, cider, etc., which has been drawn through leaden pipes or allowed to stand in pewter vessels. The ingestion or constant handling of lead or its compounds, as the acetate, nitrate, carbonate (white lead—painter's colic), Goulard's extract, etc. The use of hair dyes containing lead."

Symptoms: Anemia, emaciation, depression, pain round the umbilicus, hard and retracted abdomen, constipation or clay colored evacuations, diminished urine, fetid breath, blue line on gums, wristdrop, numbness of hand, paralysis, vertigo.

3. In *poisoning by arsenic: Symptoms:* "In acute cases the symptoms usually begin in from twenty to forty-five minutes. Nausea and faintness. Violent, burning pain in the stomach, which becomes more and more intense, and increases on pressure. Persisting and distressing vomiting of matters, sometimes brown or gray, or streaked with blood, or green (Paris green). Purging. More or less severe cramps in the lower extremities."

In *chronic cases:* "Inflammation of the conjunctivæ, with intolerance of light. Irritation of the skin, accompanied by an eruption (eczema arsenicale). Local paralyses. Great weakness and emaciation. Exfoliation of the cuticle and falling out of the hair."—(From Witthaus' *Essentials of Chemistry.*)

4. *Symptoms of poisoning by cyanide of potassium:* Lips and mouth are corroded, burning pain in throat and stomach, face pale and bloated, vertigo, insensibil-

ity, convulsions of a tetanic character, quick pulse, slow and stertorous respiration.

5. The *symptoms of poisoning by laudanum* are as follows: "At first there is usually a period of excitation, marked by restlessness, great physical activity, loquacity, and hallucinations. The patient then becomes weary, dull, and drowsy; he yields to the desire for sleep, from which at first he may be roused. The lips are livid, the face pale, the pupils contracted, and the surface bathed in perspiration. The condition of somnolence rapidly passes into narcosis. The patient cannot be roused, and lies motionless and senseless, with completely relaxed muscles. The pulse, at first full and strong, becomes feeble, slow, irregular, and easily compressible; the respiration slow, shallow, stertorous, and accompanied by mucous râles. The patient rapidly becomes comatose, and, in fatal cases, dies in from forty-five minutes to fifty-six hours, usually in from twelve to eighteen hours. In cases of recovery after the stage of narcosis the pulse and respiration gradually return to the normal, and the condition of coma passes into one of deep sleep, lasting twenty-four to thirty-six hours."

6. An *acid poison:* Hydrocyanic acid. An *alkaloid poison:* Aconite.

Hydrocyanic acid poisoning. Symptoms: "Its action is always rapid. Relatively small doses cause an immediate sense of constriction of the throat, followed in one to two minutes by sense of pressure in the head, vertigo, confusion of intellect, and loss of muscular power. The pulse is quick, the respiration slow and stertorous. Tetanic convulsions and involuntary discharges of urine and feces occur, followed by paralysis. Death follows in from two hours to two days from asphyxia. When large doses are taken no subjective symptoms are observed. The patient loses consciousness in less than one minute. There is a short convulsive seizure, usually accompanied by evacuation of feces, after which the patient lies perfectly still, with no sign of life, save an almost imperceptible pulse and infrequent spasmodic respiratory efforts, in which inspiration is short and expiration protracted. Death follows in from five to twenty minutes."—(Witthaus' *Essentials of Chemistry and Toxicology.)* Death is due to paralysis of the respiratory center and of the motor ganglia of the heart.

The symptoms of poisoning by aconite usually manifest themselves within a few minutes; sometimes are delayed for an hour. There is numbness and tingling, first of the mouth and fauces, later becoming general. There is a sense of dryness and of constriction in the throat. Persistent vomiting usually occurs, but is absent in some cases. There is diminished sensibility, with numbness, great muscular feebleness, giddiness, loss of speech, irregularity and failure of the heart's action. Death may result from shock if a large dose of the alkaloid be taken, but more usually it is by syncope.

7. *Chemical antidotes.* For *corrosive sublimate,* white of egg; for *carbolic acid,* sodium sulphate; for *tartar emetic,* tannic acid.

8. *Irritant poisons:* Nitric acid, sulphuric acid, hydrochloric acid, ammonia, caustic potash, potassium chlorate, phosphorus, iodine, chlorine, arsenic, antimony, mercury, oxalic acid.

Narcotic poisons: Opium, chloroform, ether, chloral.

Narcotico-irritant poisons: Alcohol, belladonna, and most alkaloids.

9. *Five vegetable poisons:* Belladonna, aconite, strychnine, tobacco, and elaterium.

10. The *symptoms of poisoning by strychnine* are "a sense of suffocation, thirst, tetanic spasms, usually opisthotonos, sometimes emprosthotonos, occasionally vomiting, contraction of the pupils during the spasms, and death, either by asphyxia during a paroxysm, or by exhaustion during a remission. The symptoms appear in from a few minutes to an hour after taking the poison, usually in less than twenty minutes; and death in from five minutes to six hours, usually within two hours."

PATHOLOGY.

1. *Adenocarcinoma* "is characterized by irregular or tubular cavities, paved with one or more layers of cylindric cells, and separated by a stroma which may be fibrous, embryonal, or mucous. In structure it occupies an intermediate position between the simple adenoma and true cancer. The cylindric cells are similar to those which cover certain mucous or glandular cavities, and are always implanted perpendicularly to the wall. The epithelial elements are similar to those of the mucous membrane from which they grow, but differ microscopically from the normal mucous membrane in the absence of a basement membrane (membrana propria). The slower the growth, the more typical the gland formation; in rapid growths and recurrences the cells are small and the lumina imperfect. The growths are soft, and often of a gelatinous consistence. On section they present a soft, watery appearance. The most common forms of degenerative changes are mucoid and colloid." (Coplin's *Pathology.*)

2. The *characteristics of the bacillus of diphtheria:* The bacilli are from 2 to 6 microns in length and from 0.2 to 1.0 micron in breadth, are slightly curved, and often have clubbed and rounded ends; occur either singly or in pairs, or in irregular groups, but do not form chains; they have no flagella, are non-motile, and aerobic; they are noted for their pleomorphism; they do not stain uniformly well by Gram's method and very beautifully with Loeffler's alkaline-methylene blue; they grow well on blood serum, slowly on gelatin, and with difficulty on potato.

3. *Exclusive of the changes in the intestine, the morbid anatomy of typhoid fever* is as follows: The mesenteric glands may undergo the same changes as the Peyer's patches, but more often become swollen, red, and tender only, or break down into cheesy masses. Other organs—Spleen and liver are enlarged and softened; heart is soft, fatty, and flabby and may show granular degeneration. The voluntary muscles undergo granular degeneration; in fact, similar changes to those found after death from high temperature. The kidneys are congested.

4. *Diseases of the pituitary body* may result in: (1) *Hyperpituitarism,* analogous to Graves's disease—as in hypophyseal tumors or hyperplasia—is an overfunctioning, perhaps due to chromophile activity. In early life, before the epiphyses ossify, gigantism results; if later, acromegaly. Emaciation, vascular degeneration, calcium retention, thyroid activity (stimulated by the anterior lobe) or adrenal stimulation (from posterior lobe) and lowering of the assimilation limit of carbohydrates may be observed. (2) *Hypopituitarism* or deficient internal secretion is analogous to myxedema; when it operates in early life, it induces dwarfism or infantilism, obesity, hypoplastic sexual organs and secondary sexual characters (Fröhlich's type), diabetes insipidus and great tolerance of carbohydrates; deficient secretion in later life induces reversive sexual infantilism; often there are dry skin, subnormal temperature and pulse, and drowsiness. (3) *Dyspituitarism* combines the above types, to some degree, just as symptoms of Graves's disease and myxedema may occur simultaneously or successively. (From Edwards' *Practice of Medicine.*)

5. HARDENING FLUIDS. *Alcohol,* from 80 to 95, or 97 per cent. *Formalin,* 10 per cent. *Müller's fluid. Orth's fluid. Osmic acid,* 1 per cent. *Corrosive sublimate,* 5 per cent. Zenker's fluid.

6. The phenomena of inflammation are dilatation of the arterioles, capillaries, and small veins. At first the blood current is quickened, then retardation occurs, and may progress to stasis and thrombosis. During this time exudation of plasma and white corpuscles from the small veins, and perhaps the capillaries, is going on. The fate of the white cell may be either to break up and set free prothrombin, or to act as food for connective tissue cells, or to act as a phagocyte and be transformed into a pus corpuscle. Red corpuscles may be exuded and broken up, setting free their coloring matter. The prothrombin of the white cells unites with the calcium chloride of the plasma and forms thrombin, or fibrin ferment, which acts upon the fibrinogen of plasma to form fibrin.

The tissues are thus invaded with numbers of leucocytes. In bacterial inflammation a varying portion of the tissues is killed by the toxins produced, and is either replaced by a mass of small round cells, or liquefied into pus. In the latter case it is surrounded by a

ring of small round cells. The connective tissue cells absorb the leucocytes, and new vessels are formed, thus constituting repair. In nonbacterial inflammation, exudation may separate layers of cells to a large extent and form blebs. In chronic inflammation the formation of new fibrous tissue is the chief part of the process.—(From *Aids to Surgery.*)

7. ACUTE ENDOCARDITIS. *Morbid anatomy:* In the simple form there will be found a cloudiness, followed by edematous thickening of the valvular endocardium; superficial erosions, and the formation of small granulations; deposits of layers of fibrin and corpuscles from the blood, the whole process resulting in the formation of small warty vegetations. These vegetations are most marked at a slight distance from the free borders of the valves—*i.e.* those parts which come into opposition during closure. In course of time they are transformed into fibrous tissue. According to Poynton and Paine the infective organisms are conveyed to the base of the valves by the capillaries, and thence pass to the subendothelial tissues by the minute nutrient channels in the valvular substance; others hold that the organisms are derived from the blood circulating over the surface of the valves. In the malignant form the initial changes are similar, but there are some important differences, inasmuch as ulcerations may completely replace the vegetations. The differences are: (1) The vegetations when present are larger and fungating. (2) The underlying tissues are necrotic and show loss of substance and round-celled infiltration. (3) They contain masses of micrococci, while in simple endocarditis the organisms are scanty. The two forms cannot be distinguished by the organisms producing them; either simple or malignant endocarditis may arise from a pyogenic infection. (4) When the vegetations become detached they form *septic* emboli, giving rise to metastatic abscesses. (5) The ulcerative process causes great destruction of the valves, and may even lead to perforation of the curtains. (6) The subsequent or permanent changes in the valves, if the patient survives, are much more marked. (7) If the vegetation touches the mural endocardium as it flaps to and fro, the part touched becomes affected by contact.

As regards the side of the heart most affected—*Congenital* endocarditis attacks the right side of the heart (but note that many congenital cardiac lesions are due not to endocarditis, but to developmental faults); simple endocarditis attacks the left only; the *malignant* attacks *both sides*, though the *left* is much more implicated than the right side.

The vegetations are upon that side of the valve opposed to the blood-stream—viz., at the aortic valve the vegetations project into the ventricle, at the mitral valve into the auricle.

As in pericarditis, the myocardium almost always shares in the inflammatory affection.—(Wheeler and Jack's *Practice of Medicine.*)

8. ACUTE LOBAR PNEUMONIA. "It is convenient to describe four stages, those, namely, of (1) hyperemia or engorgement, (2) red hepatization, (3) gray hepatization, and (4) resolution. *First stage or splenization.*—The lung is injected, dark red, and heavy, and pits under the finger; on pressure, there exudes a frothy serum tinged with blood and slightly aërated. The lung still floats in water. *Second stage or red hepatization.*—The part involved is solid and friable, presents a granular or red granite appearance, and sinks in water. The alveoli are filled with a coagulated exudation, which shows under the microscope fibrin, leucocytes, red corpuscles, proliferated alveolar epithelium, and pneumococci. *Third stage or gray hepatization.*—The lobe has now the appearance of gray granite, the lung substance is softer and more friable; on pressure, a dirty purulent fluid exudes. The gray appearance is due to four factors: (1) Decolorization of the red blood corpuscles; (2) obliteration of the alveolar blood vessels from pressure; (3) fatty degeneration of the coagulated material; (4) great infiltration of leucocytes. A more advanced stage, in which the lung tissue is bathed in purulent fluid, is known as purulent infiltration. It is probably inconsistent with life. *Fourth stage or resolution.*—Resolution of the inflammatory exudation is brought about principally by absorption (autolysis), but partly by liquefaction and expectoration. Pneumonia may affect a lobe, or the whole of a lung, or it may attack both lungs. Double pneumonia occurs in about 10 per cent. of cases. Different parts of the same lung may at the same time show different stages. There is always some degree of pleural inflammation over the affected area. Modern enlargement of the spleen is very common."—(Wheeler and Jack's *Practice of Medicine.*)

9. *Burns.*—"Much discussion has taken place regarding the explanation of the rapidly fatal issue in extensive superficial burns. On post-mortem examination the lesions found in these cases are: (1) general hyperemia of all the organs of the abdominal, thoracic, and cerebrospinal cavities; (2) marked leucocytosis, with destruction of red corpuscles, setting free hemoglobin which lodges in the epithelial cells of the tubules of the kidneys; (3) minute thrombi and extravasations throughout the tissues of the body; (4) degeneration of the ganglion cells of the solar plexus; (5) edema and degeneration of the lymphoid tissue throughout the body; (6) cloudy swelling of the liver and kidneys, and softening and enlargement of the spleen. Bardeen suggests that these morbid phenomena correspond so closely to those met with where the presence of a toxin is known to produce them, that in all probability death is similarly due to the action of some poison, the source and nature of which are as yet unknown."—(Thomson and Miles' *Manual of Surgery.*)

10. *Anaphylaxis.*—"By anaphylaxis is meant the following train of phenomena: When a foreign proteid is introduced by subcutaneous, intraperitoneal, intravenous, or subdural injection (or in some cases by feeding) into the animal body, after a time there will appear a specific hypersusceptibility of the animal for this proteid. After a definite interval, a second injection of the same substance, harmless in itself, will produce violent symptoms of illness and often rapid death in an animal so prepared. The phenomena are not limited to any given class of proteids, but are manifest in the case of animal, vegetable, and bacterial proteids, and within certain limits are specific."—(Hiss and Zinsser's *Bacteriology.*)

SYMPTOMATOLOGY.

1. CHOLELITHIASIS.—*Etiology:* Sedentary habits, catarrh of stomach and duodenum, microorganisms (*Bacillus coli communis*), obstructions to outflow of bile. *Symptoms:* "While the calculus remains free in the gall-bladder, usually there are no symptoms. Impaction of the stone in the common duct gives rise to intermittent jaundice, following sharp pain in the right hypochondriac or epigastric region, frequently radiating toward the right scapula, nausea, vomiting, sweating, depression, and often intermittent fever (Charcot's intermittent fever). When the stone is impacted in the cystic duct, jaundice is less common, but the hepatic colic is severe, and dropsy of the gall-bladder may occur. The diagnostic points are the age, sex, history of previous attack, with jaundice and intermittent fever, location of the pain, dark, amber-colored urine, containing bile, and sometimes the finding of the stone in the feces."—(*Pocket Cyclopedia*) and see SURGERY, *Question* 6.

2. *Ileus,* or *acute intestinal obstruction,* gives the following symptoms: "Sudden severe pain referred to the umbilicus comes on, perhaps, after an effort. Shock, evidenced by a weak pulse, a cold, clammy skin, and a subnormal temperature, accompanies the pain. The pain, intermittent at first, becomes continuous. Vomiting is persistent, and soon becomes fecal smelling. The patient becomes exhausted by the vomiting and inability to take food. The abdomen becomes distended, and if the obstruction is not relieved, perforative peritonitis follows, so that the patient dies in about seven to ten days from the onset. Constipation is usually absolute, though the lower bowel may empty itself at first."—(*Aids to Surgery*) and see SURGERY, *Question* 2.

3. *Acute Parenchymatous Nephritis* is an acute inflammation of the epithelium of the uriniferous tubules, characterized by fever, scanty, high-colored, or smoky urine, dropsy, with more or less constant nervous phenomena, the result of acute uremia. *Causes:* Cold and exposure, scarlatina, diphtheria, malaria, and other infectious diseases, traumatism to the back, pregnancy,

and the persistent use of irritants, such as turpentine, cantharides, phosphorus, ginger, etc., are the most common causes. It may also be associated with certain skin diseases, extensive burns of the skin, and simple follicular tonsilitis. The affection is most frequent in childhood. *Symptoms:* In mild cases, slowly developing dropsy with anemia, shortness of breath or dyspnea, and weakness are the only symptoms, the diagnosis being confirmed by the results of urinary examination. Usually, however, it begins suddenly with nausea, violent and persistent vomiting, fever, and dull pain over the kidneys, following the course of the ureters. There is a frequent desire to urinate, and diarrhea, harsh and dry skin, and a quick, tense, and full pulse are present. Dropsy soon appears, beginning first in the eyelids and face, but later becoming generalized. Anemia and weakness are marked particularly in post-scarlatinal cases. Uremic symptoms may develop at any time during the attack. The affection lasts from one to four weeks. The *urine* is of high specific gravity, 1025 to 1030, scanty, smoky (like beef washings) in color, due to the presence of blood. Albumin is present in large quantities, and the microscope reveals hyaline, blood, granular, and epithelial casts of the uriniferous tubules, blood corpuscles, uric acid, urates, oxalate crystals, and epithelium. The total amount of urea eliminated during the twenty-four hours is lessened from one-fourth to one-half. The amount of phosphates and chlorides is also lessened.—(From Hughes' *Practice of Medicine.*)

Chronic Parenchymatous Nephritis is a chronic inflammation of the cortical tubular structure of the kidneys; characterized by albuminous urine, dropsy, and increasing anemia, with attacks of acute uremia. *Causes:* It rarely follows an acute attack; in the majority of cases it is subacute or chronic from the onset. It is a disease of young adults, especially males, and is seldom observed after forty years of age. Habitual exposure to cold and wet, malaria, syphilis, alcoholic excesses, chronic mercurialism, lead-poisoning, opium habit, protracted suppuration, phthisis, hepatic disorders, pregnancy, and some undetermined nervous condition are the principal causes. *Symptoms:* The onset of the disease is gradual and insidious, being marked by a period of ill-health, anemia, digestive disturbances, weakness, puffiness under the eyes, most noticeable in the morning, dyspnea, cardiac palpitation, etc. Vomiting, without apparent cause, headache, vertigo, defective vision, and more or less generalized dropsy are also symptoms. Transient blindness is not uncommon in the early stages, but late in its course permanent loss of vision may occur due to retinal disease. Hypertrophy of the heart, with high arterial tension and accentuation of the aortic second sound are common accompaniments. Bronchial catarrh, with edema of the larynx, may also develop. Anemia is pronounced on account of the large loss of albumin and gastrointestinal disorders, and neuralgic pains are common. Uremic asthma and other manifestations of uremia may present themselves at any time. Irritability of the bladder is a very constant symptom, occurring very early in the course of the disease. The *urine* is scanty, high-colored, albuminous, and under the microscope shows hyaline and granular tube-casts, granular epithelium, and if fatty degeneration occurs, fatty tube-casts and oil globules. The increase above the normal amount of the urine, as the disease progresses, must not be forgotten when the specific gravity is low, 1.010-1.015, and the quantity of albumin is increased. The normal constituents of the urine, and particularly urea are diminished. In the hemorrhagic form, blood is present in the urine.—(From Hughes' *Practice of Medicine.*)

4. *Erysipelas* is caused by the streptococcus erysipelatis, which enters through a wound or abrasion. The skin and subcutaneous connective tissue are inflamed, and the lymphatic vessels are also involved; there is little or no pus formation, but leucocytosis is present, and the streptococci are found in and around the lymphatic channels. Round cell infiltration is common. The disease spreads by the lymphatics, and possibly also by direct continuity. Symptoms are chill; high fever; red, swollen mass, with clearly defined edges, itching, burning, and having a tendency to spread. Prognosis is good except in infants and puerperal women.

5. "The preventive measures which may be taken to reduce tuberculosis may be summarized as follows: (1) The compulsory notification of phthisis. (2) The removal of those conditions of domicile and of occupation which are known to promote the incidence of the disease, including the regulation of certain dusty trades. (3) The diffusion of knowledge (by medical men, leaflets, etc.) regarding the nature and modes of spread of the disease, and the precautions which should be taken in order to prevent its extension. (4) The testing of sputum and other suspected discharges, and of milk, meat, etc., supposed to be tuberculous—reports to be furnished free of charge. (5) Local authorities to undertake, without charge, the disinfection of houses recently occupied by phthisical persons. (6) The establishment of sanatoria and isolation accommodation for the cure of phthisical patients, and the isolation of those who are a distinct source of danger to fellow lodgers or workers. (7) The enforcement of measures against spitting in public conveyances and in places of public resort. (8) The efficient sanitary supervision of dairy farms, dairies, and milkshops. The periodical veterinary inspection and testing (by tuberculin) of milch cows, and the slaughter of tuberculous animals. The prohibition of the sale of milk of cows affected with tuberculosis. (9) The proper inspection of meat in public abattoirs, and the adoption of due precautions for the control of imported meat and milk."—(Parkes' *Practical Hygiene.*)

Hygienic precautions to be taken in treating a case of tuberculosis: "The patient's quarters should be free from dust, and admit of spending many hours daily in the open air in all weathers, properly sheltered, and, if very ill, lying wrapped in a hammock or reclining chair. His bedroom should be well aired at night, draughts being avoided. The room should be uncarpeted and free from hangings. It should be often cleaned and periodically disinfected. All sputum should be collected in paper spitcups, which should be burned daily. Smoking should be forbidden. Harm is done by any exercise which results in fatigue, and while fever exists it should not be attempted at all. Patients should be taught the necessity of practising lung gymnastics and breathing only through the nose, which should be kept clear and free from occlusion by secretions, or an hypertrophied catarrhal mucosa. . . . The clothing should be woolen, but not too heavy, or sweating is increased; and a flannel nightgown and loosely knit leggings should be worn at night in cool weather. The skin should be cleansed by daily sponge baths of lukewarm alcohol and water."—(Thompson's *Practical Medicine.*)

6. *Insufficiency of the mitral valves* soon leads to cardiac hypertrophy, in order to compensate for the diminished amount of blood sent onward by the ventricular systole. This condition causes quickened and strong pulse with some shortness of breath on severe exertion. When compensation ruptures, it is manifested by precordial distress, cough, dyspnea, feeble, soft, rapid, irregular pulse, pulmonary congestion, edema of the limbs, ascites, general cyanosis, hepatic congestion, and scanty and albuminous urine; all of which symptoms may present themselves in varying degrees. When extreme, and compensation is not again brought about, death is the result. *Inspection* shows displacement of the apex beat downward and to the left. In children and youths, bulging of the precordium and increased cardiac impulse are present. In emaciated individuals, an auricular impulse may be observed to the left of the pulmonic area in the second interspace. *Palpation* serves to confirm inspection. The displaced cardiac impulse is forcible and diffused in the early stage; as compensation fails, the impulse becomes feeble or absent. *Percussion* shows an increase in the area of cardiac dullness transversely and vertically. *Auscultation* reveals a systolic or blowing murmur, heard best in the mitral area and transmitted to the apex, left axilla, and under the angle of the scapula. It may occur with, or take the place of the first sound of the heart, the second sound being markedly accentuated, particularly in the pulmonic area.—(Hughes' *Practice of Medicine.*)

7. *Chlorosis* is a form of anemia in which there is an excessive reduction of hemoglobin over that of the reduction of red blood-corpuscles. It generally occurs in females under the age of 20. Faulty hygiene, im-

proper food, overwork, constipation, tight lacing, and mental anxiety are etiologic factors. Defective development of the circulatory system and of the organs of reproduction often accompanies the disease. The heart is often in a condition of hypertrophy with dilatation.

The examination of the blood shows a decrease in the amount of hemoglobin, and the presence of microcytes, poikilocytes, and a few nucleated blood-corpuscles. There is no leukocytosis, and the number of red blood-cells is but slightly reduced. The skin is tinged yellowish green. Palpitation and breathlessness are common symptoms. The pulse is soft, but of good volume, and a systolic murmur is often heard near the base of the heart, and a peculiar hum over the right jugular vein. Hysteric and nervous manifestations are common. Gastric ulcer, phthisis, amenorrhea, and exophthalmic goiter may complicate chlorosis. The diagnosis is made by the examination of the blood. Under proper treatment the patient should recover.—(*Pocket Cyclopedia.*)

8. *Pertussis, or whooping cough* is an infectious disease characterized by a convulsive paroxysmal cough, consisting of a number of forcible expirations, followed by a series of deep, loud, sonorous inspirations (the whoop), repeated several times during each paroxysm, and associated with catarrh of the bronchial tubes. The disease is contagious and is due to an unknown microörganism associated with the sputum and mucous discharges. It is a disease of childhood, fully one-half of the cases occur during the first two years of life. Adults may be affected. One attack usually secures immunity. The *catarrhal stage* originates in an ordinary naso-laryngobronchial catarrh, with a loose cough. There is frequently a leukocytosis (chiefly of lymphocytes). Duration, one or two weeks. In the *spasmodic stage* the cough becomes *paroxysmal*, consisting of a succession of short, rapid, expiratory efforts, the face becoming red, the eyes swollen and protruding, the body bending forward, and when these expiratory efforts have exhausted the breath, they are followed by a deep, loud, crowing inspiration—the whoop: each paroxysm being composed of several such spells, the last one followed by the expectoration of a small amount of tough, viscid mucus. The attacks of cough may be so severe as to cause vomiting, and if the vomiting occurs shortly after food has been taken, the nutrition of the patient will suffer. Profuse epistaxis is not infrequent. Duration, about four weeks. In the *terminal stage* the paroxysms recur at longer intervals, are of shorter duration and less intensity, the catarrhal symptoms being more marked, the expectoration freer. Duration, one or two weeks, often followed by the "cough of habit."—(Hughes' *Practice of Medicine.*)

9. *Tetanus* is an infective disease of wounds due to *bacillus tetani.* Predisposing causes are occupations where a person is in contact with earth, going barefoot, carelessness when exposed to rusty nails, dirty implements, etc. Tetanus generally begins with malaise, then in 5 to 15 days after infection the muscles of the neck and of mastication contract firmly, the muscles of the trunk follow, and last of all the respiratory muscles. The spasm is never entirely relaxed, yet the least stimulus such as a noise or draught causes violent tonic contraction. Rapid pulse and dysphagia are present. Consciousness is unimpaired.

10. *Typhus fever* is an acute, infectious, and epidemic fever; highly contagious, and characterized by sudden invasion, profound depression of the vital powers, sickening odor, and a peculiar maculated and petechial eruption, favorable cases terminating by crisis about the fourteenth day. There are no characteristic lesions. It is due to a special organism, the *bacillus typhi exanthematici;* it is probably carried by bed-bugs and body lice. After an incubation period varying from a few hours to two weeks (generally about twelve days) the disease makes its appearance suddenly with a chill, followed by pains in the head, back, and limbs, and fever, the temperature reaching 105° or 106°F. within a few days. A severe angina is frequently the first symptom. The high temperature is maintained for about two weeks when it falls by crisis. The pulse is at first frequent and bounding, but soon becomes small, weak and rapid. The patient protrudes his tongue with difficulty, and often is unable to project it beyond his teeth. Prostration is extreme and is manifested by muscular feebleness, vertigo, tremor, and subsultus. On the third to the fifth day a coarse, red, diffused, measly eruption makes its appearance which rapidly becomes petechial or hemorrhagic. Associated with this is diffuse mottling of the skin which involves the entire body, excepting the face. The face has a uniform deep dusky flush and the skin appears glazed. The conjunctivæ are injected and the pupils are contracted. As the disease progresses there is cutaneous hyperesthesia, muscular soreness, and tenderness over the tibia. Headache is severe and often followed by delirium. Constipation is the rule.—(Hughes' *Practice of Medicine.*)

11. *Sunstroke.*—This condition occurs after exposure to the sun's rays. Premonitory symptoms consisting of headache, dizziness, nausea, and malaise are sometimes present, but not rarely there is sudden coma with high fever (105° to 110° F. or more), flushed face, dry skin, rapid pulse, and stertorous breathing. Muscular twitchings and epileptiform convulsions are not uncommon. Death may occur within a few hours or the temperature may fall, the coma disappear and recovery gradually ensue. Chronic meningitis, persistent headache, impairment of memory, and extreme sensitiveness to high temperature are frequent sequelæ. The mortality is probably not less than 40 per cent. *Treatment.*—The patient should be placed in a bath of ice-water and rubbed with ice. Ice-water enemas may also be employed. The intravenous or subcutaneous injection of salt solution has proved beneficial in some cases. Venesection (10 to 20 ounces) is said to be very effective in asphyxiated subjects.—(Stevens' *Practice of Medicine.*

(*To be concluded.*)

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION †	
Alabama*	S. W. Welch, Montgomery	Montgomery	Jan. 14
Arizona*	A. B. Williams, 219 Goodrich Building, Phoenix	Phoenix	Oct. 1
Arkansas	T. J. Stont, Brickley	Little Rock	Nov. 12
California	C. B. Pinkham, Sacramento	Sacramento	Nov. 21
Colorado	David A. Strickler, Empire Building, Denver	Deover	Oct. 8
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov 12
Delaware	J. H. Wilson, Dover	Wilmington	Dec.
Dist. of Col'bia	E. P. Copeland, Washington	Washigton	Oct. 8
Florida*	W. M. Rowlett, Tampa	Jacksonville	
Georgia	C. J. Colon, Marietta	Atlanta	Oct. 8
Idaho*	Ray H. Fisher, Righy	Boise	Oct. 1
Illinois	F. C. Dodds, Springfield	Chicago	Sept.
Indiana	W. T. Gott, Crawfordsville	Indiannpolis	Jan. 14
Iowa	G. H. Sumner, Des Moines	Des Moines	
Kansas	H. A. Dykes, Lebanon	Topeka	Oct. 8
Kentucky	J. N. McCormack, Bowling Green	Louisville	
Louisiana	E. W. Mahler, New Orleans	New Orleans	
Maine	F. W. Searle, Portland	Portland	Nov. 12
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec.
Massachusetts*	W. P. Bowers, 1 Beacon St. Boston	Boston	Oct. 8
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 8
Minnesota	T. McDavitt, St. Paul	Minneapolis	Oct. 1
Mississippi	J. D. Gilleylen, Jackson	Jackson	
Missouri	G. H. Jones, Jefferson City	Kansas City	Sept. 30
Montana*	S. A. Cooney, Helena	Helena	Oct. 1
Nebraska	J. J. Hompes, Lincoln	Lincoln	
Nevada	S. L. Lee, Carson City	Carson City	Nov. 4
N. Hampshire	Walter T. Crosby, Manchester	Concord	
New Jersey	A. MacAlister, Trenton	Trenton	Oct. 15
New Mexico	R. K. McClanahan, East Las Vegas	Santa Fe	
New York	G. M. Wiley, Univ. of State of New York, Albany	New York Albany Syracuse Buffalo	Jan. 28
N. Carolina	H. A. Royster, Raleigh	Raleigh	June
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks	Jan. 7
Ohio	H. M. Platter, Columbus	Columbus	Dec.
Oklahoma	J. J. Williams, Weatherford	Oklahoma City	Oct. 8
Oregon	B. E. Miller, Portland	Portland	Jan. 7
Pensylvania	N. C. Schaeffer, Harrisburg	Philadelphia	Jan.
Rhode Island	B. U. Richards, Pawtucket	Providence	Oct. 3
S. Carolina	A. F. Boozer, Columbia	Columbia	
S. Dakota	P. B. Jenkins, Waubay	Pierre	Jan. 14
Tennessee	A. B. DeLoach, Memphis	Memphis Nashville Knoxville	
Texas	M. F. Bettencourt, Mart	Dallas	Nov. 19
Utah	G. F. Harding, Salt Lake City	Salt Lake City	Oct 7
Vermont	A. Scott Nay, Underhill	Burlington	Feb. 11
Virginia	J. W. Preston, Roanoke	Richmond	Dec. 10
Washington*	C. N. Suttner, Spokane	Spokane	Jan 7
W. Virginia	S. L. Jepson, Charleston	Charleston	Nov. 19
Wisconsin	J. M. Dodd, Ashland	Madison,	Jan. 14
Wyoming	H. E. McCollum, Laramie	Laramie	Oct 10
National Board	J. S. Rodman, Philadelphia		

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†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State

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Original Articles.

THE MODERN TREATMENT OF GALLSTONE DISEASE AS AFFECTED AND CONTROLLED BY DUODENAL INTUBATION.*

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Relative Frequency of Gallstones.—There must be great variations in the relative frequency of the occurrence of gallstones among different nations, and these variations depend upon the method used in ascertaining their existence, whether by simple clinical investigation, by operation, or by autopsy. One need only look over the alphabetical index of the *Journal of the American Medical Association* or that of the MEDICAL RECORD to be astonished at the large number of contributions to this subject, and also at the varying figures given concerning the frequent occurrence of this disease. Barker, in his splendid new work on the "Clinical Diagnosis of Internal Diseases," states that the percentage of human beings found to have gallstones at autopsy is five to ten. This may serve as an American estimate. Scheel, in *Ugeskrift for Laeger*, November 30, 1911, gives 15 per cent., based on 2,753 autopsies. Pel, in his "Krankheiten der Leber und der Gallenwege," page 312, quotes Halk as finding gallstones in 29 per cent. of all autopsies, and he himself, in his observations on the autopsies on old women performed in Amsterdam, found 20 per cent. of cases of gallstones in cases which had given no symptoms during lifetime. It should be added that Halk's material was composed of individuals over fifty years of age. In the article by Quincke and Hoppe-Seyler in "Nothnagel's Specielle Pathologie n. Therapie," the relative frequency of the finding of gallstones by twelve European pathologists varies from 2.4 per cent. to 29 per cent. The largest autopsy material is that of Poulsen, in Copenhagen, who gives 91,722 sections with 347 findings of gallstones, making 3.7† per cent., but Poulson states that only 9 per cent. of this material showed any symptoms during life.

Three things influence the figures obtained at autopsy. First, the experience, punctiliousness and carefulness of the pathologist; secondly, the age of the patient; and thirdly, the sex. Peters, at Kiel, found that in persons under thirty years of age the percentage of cases of gallstones was 0.62 per cent.; between thirty and forty years, 3.24 per cent.; between forty and fifty years, 4.44 per cent.; between fifty and sixty years, 6.98 per cent.; between sixty and seventy years, 9.53 per cent.; between seventy and eighty years, 13.02 per cent.; and over eighty years, 16.36 per cent. The figures given by Rother of Munich are one to thirty years, 3 per cent.; thirty-one to sixty years, 6.9 per cent.; sixty-one and over, 19.2 per cent. Schroder of Strassburg gives the following figures: Under twenty years of age, 2.4 per cent.; twenty-one to thirty years, 3.2 per cent.; thirty-one to forty years, 11.5 per cent.; forty-one to fifty years, 11.1 per cent.; fifty-one to sixty years, 9.9 per cent.; sixty and over, 25.2 per cent.

*Etiology.**—A perusal of the American publications evidences a unanimity of opinion that in the United States women are affected between three and four times as often as men, and this proportion between males and females appertains at all ages. The same is true of French and German statistics. Reinelt found in subjects between the ages of fifteen and thirty years gallstones in 1.3 per cent. of the men and 3.8 per cent. of the women. From thirty-one to sixty years the figures were 6.4 per cent. for men and 14 per cent. for women, while for over sixty-one years the figures were 17.9 per cent. for men and 25.4 per cent. for women. For the years from 1901 to 1906, 386 operations were performed for gallstones at the Heidelberg clinic; of these, 46 were men and 340 were women; in other words, there were seven times more women than men. This difference is attributed to the sedentary habits of women, influence of tight lacing, repeated pregnancies, and puerperal infection. These etiological factors must have consideration in the treatment.

In speaking of the direct etiology we must consider everything which could produce stagnation of the bile flow. Among these we must consider compressing clothing, insufficient bodily exercise, dislocation or compression of the bile ducts by tumors or cicatrices. Among the causes which are little recognized I wish to call attention to one of which I have convinced myself repeatedly at autopsies; that is, enteroptosis, and gastroptosis especially. The displacement of the stomach may cause traction upon the hepatoduodenal ligament. This I have frequently seen at abdominal sections undertaken for gallstone.

*Paper read by title at the annual meeting of the American Therapeutic Society in Richmond, Va., June 7 and 8, 1918.

†In the above statistics by Poulson an arithmetical error must have sneaked in, for 347 does not constitute 3.7 per cent. of 91,722. I calculate that to obtain this per cent. he must have had 3,393 cases of gallstones at autopsy.

*For the History of the Clinical Recognition of Cholelithiasis, see J. C. Hemmeter in Sajous' Analytic Cyclopedia of Practical Medicine, Seventh Edition, Vol. III, p. 275-276. Also Die Krankheiten der Leber, by Quincke and G. Hoppe-Seyler, in Nothnagel's Specielle Pathologie und Therapie, Band 18, p. 180-188.

Another cause is dislocated or floating kidney. Then there seems to me to be a form of atony of the musculature of the gall bladder, which in some way is produced by the traction caused by dislocated abdominal viscera in enteroptosis. The tugging upon the splanchnic and abdominal branches of the vagus interferes with the reciprocal innervation that exists between the sphincter at the papilla of Vater and the musculature of the gall-bladder. A close relationship seems also to exist between gallstone disease and pancreatitis.

As the successful treatment must be based on a knowledge of etiology, we must repeat the statement of Naunyn that two conditions are necessary for the formation of gallstones: First, stagnation of the bile flow; and secondly, bacterial infection. Up to the present time this is still acknowledged to be a clinical axiom, and was first pointed out by Naunyn in 1892 in the "Klinik der Cholelithiasis," a brilliant classic on this subject. Throughout the many volumes of *Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie* this eminent clinical philosopher has given us the benefit of his broad experience and conservative critical judgment. According to him, the modern era of cholelithiasis begins in 1892. The significant progress of surgical technique in this period is especially noticeable in the American literature on the subject, and this is so great, and comes from so many able operators and surgical writers in the United States, that I deem it inexpedient to cite their experiences in an article that is to be limited to the purely medical treatment of this condition. But I cannot pass over stating one impression that I gain from American surgical literature, namely, that the so-called early operations have in general been given up, and that the special field for the surgeon is the chronically recurring cholelithiasis. Especial indications for operation are: First, the infectious cholecystitis; and secondly, chronic obstructions of the biliary ducts.

In my articles already quoted I have dwelt on the chemistry of cholelithiasis. The stones consist of cholesterin, calcium, and pigment. The calcium occurs in the form of bulirubin-calcium, calcium carbonate, and calcium phosphate. Bulirubin calcium and the inorganic calcium salts are insoluble in the bile, but as normal bile never contains so much cholesterin that it could not dissolve still larger amounts it is probable that cholesterin stones can be dissolved to a considerable extent in human bile. Cholesterin is kept in solution by the bile salts and the precipitation of cholesterin from bile may be produced by withdrawal of these salts.

A remarkable difference of opinion exists between clinicians and physiologists concerning the derivation of cholesterin. Naunyn is of the opinion that the mucosa of the gall-bladder furnishes the cholesterin as well as the calcium of the gallstones, and thereby furnishes an explanation of the local origin of the gallstones in the gall-bladder. Physiologists, however, know that cholesterin is not formed by the gall-bladder or the liver, but is very widely distributed throughout the body, and that it is only eliminated by the liver cells from the blood, which collects it from the various tissues of the body. Cholesterin is a constant constituent of the blood. That it is an excretion is illustrated by the fact that it is eliminated in the feces, but the contrary view has been suggested, also, namely, that the cholesterin is in part reabsorbed and used again in the formation of new tissues. It is insoluble in water and dilute saline liquids. In the bile it is held in solution by salts of the bile acids. I wish to add in explanation of Naunyn's view that the cholesterin is formed by the mucosa of the gall-bladder, that this has reference only to the inflamed gall-bladder. It is, therefore, a pathological production of cholesterin that he has reference to.

Numerous other American as well as foreign authors have investigated the production of gallstones by the intermediation of bacteria. Most of them show conclusively that the presence of bacteria increases and accelerates the precipitation of cholesterin. Heyrovesky and Exner succeeded in producing a decomposition of the bile salts by the addition of the typhoid bacillus and the colon bacillus. By this the cholesterin was also precipitated, because it is held in solution by the bile salts. Kramer succeeded in producing precipitation of cholesterin by inoculating animals with the typhoid and the colon bacillus, contained in tubes of bile bouillon cultures. Heyrovesky had arranged a scale of bacteria, graded according to the intensity and quickness of their effects. The organism which acts most promptly and most intensely, according to this investigator, is the typhoid bacillus. The next in order is the colon bacillus, and the weakest in their effects are the pyogenic cocci, streptococci and staphylococci. His conclusion that the latter cocci could not be the primary and immediate infective agents in the formation of gallstones, but are by him supposed to be causative of the secondary or hematogenous infection of the gall-bladder, is not confirmed by American investigation, particularly by those of Rosenow.

About one-fourth to one-third of the total dry mass of the feces consists of bacteria. That amounts to 4.5 to 5.3 grams in twenty-four hours. The character of food, though it may influence the variety of bacteria, has no influence on the quantity. According to Weinert, sour milk is capable of reducing the amount of the bacteria to about one-half that above quoted.

Meconium of new-born infants is sterile. After the first breast milk is swallowed we find *Bacillus bifidus* of Tissier and *B. acidophilus*. A diet of cow's milk gives rise to *B. coli communis* and *B. lactoaerogenes* (a few streptococci); on a meat diet there are *B. coli gracilis*, *B. lacto communis*, yeast, *Sarcinæ*, and *B. acidi butyric*, *B. subtilis*. According to Metchnikoff, the principal putrefactive bacteria are *B. putrefaciens sporogenes*, *B. welchii*, Oppler-Boas bacilli, and the bacillus of Hauser-Bienstock.

In considering the relative importance of the factors of stagnation and bacterial infection in the pathogenesis of gallstones, two perspectives must be held in mind: First, the factor productive of the precipitation either of cholesterin or of bilirubin calcium; secondly, the particular species of microorganism and its derivation. Among the normal bacterial inhabitants of the intestines above mentioned only the streptococci, *B. coli*, and the *B. welchii* come into consideration. Among the abnormal microbic invaders of the digestive canal we must consider the typhoid bacillus, staphylococci, pneumococci, and the tubercle bacillus. Mieczkowski found in

twenty-three cases of cholelithiasis *B. coli* eighteen times, either in pure culture or mixed with staphylococci and streptococci. Chiari, in twenty-two cases of typhoid fever, found the typhoid bacillus in the gall-bladder nineteen times. The injection of a culture of typhoid bacilli without ligating the common gall duct, produced no infection. These experiments therefore demonstrate the necessary cooperation of the stagnation of the bile. In thirty-two cases of cholelithiasis, Létienne found the following bacterial infections: *B. coli communis* eleven times, staphylococci seventeen times, streptococci twice, pneumococci once, tubercle bacillus once.

That a progressive, infectious inflammation of the wall of the gall-bladder and of the bile ducts is necessary for the development of stones has been demonstrated by the experiments of Mignot ("L'Origine Microbienne Des Calculs Biliare," *Archives Générales de Médecine*, Aôut, 1898). The same experiments emphasize the factor of stagnation. Mignot filled the gall-bladder of rabbits and guinea pigs with sterilized cotton or gauze into which he brought a drop of attenuated culture of a virulent colon bacillus or staphylococcus. He then sewed the bladders shut with catgut. Three weeks later the bladders were again opened. They had now become thick-walled and rigid. A thread 2 centimeters long was passed through the wall of the larger end of the gall-bladder so that it remained freely suspended in the lumen. The wound was sewed up a second time. Six months later hard stratified stones, consisting exclusively of cholesterin, were found in more than one-third of the cases in the biliary passages of these animals.

If these special bacteria were introduced simply on silk threads or sand grains, and thereby a more or less intense cholecystitis was created, a precipitation of the bile was produced, but the process did not lead to stone formation.

Next to bacterial infection, therefore, the most essential causative agent is a paresis of the musculature of the gall-bladder and bile passages, or some form of obstruction.

In the various surgical procedures that have been employed for the cure of this disease surgeons have had in view almost exclusively the question of infection and the bacterial causes. When a cholecystectomy is performed this is the exclusive view that the operator has in mind, but another and equally important element demands consideration, if the views of Naunyn and Frerichs are correct. The former held that the cholesterin was derived from the epithelial cells of the gall-bladder and Frerichs assumed that the calcium to which the bilirubin and the fatty acids are generally bound is not derived originally from the bile but is a product of the mucosa of the bladder. If these statements were correct, the removal of the gall-bladder would not only be urgently necessary to remove the bacterial etiology and prevent the source of infection but at the same time to obviate the recurrence of deposition of calcium salts and cholesterin.

The percentage contents of human bile in calcium phosphate is 1.7 (Jacobsen) and in fresh dog bile Hoppe found 0.04 per cent. of phosphate of calcium and 0.03 per cent. of carbonate of calcium. Therefore, the percentage contents in calcium salts found in normal bile would be sufficient for the formation of stones without drawing in a hypothetical calcium and gall-stone secretion by the gall-bladder. Cholesterin and bilirubin calcium are both soluble in sodium glycocholate and also in alkaline liquids. Whenever the bile becomes acid in consequence of long stagnation, or abnormal secretion of gall-bladder mucous, then the sodium glycocholate is split up into its constituents, namely, glycocol, cholalic acid, water and a sodium salt. The consequence is that bilirubin is precipitated as a calcium salt and then cholesterin, and eventually also sodium taurocholate. These processes can occur under the abnormal condition of stagnation.

A. Dochmann (Theorie der Gallenstein Bildung, 1889, *Vratch*, No. 3. Abstracted from Maly, Jahresbericht, Band 20, p. 271) analyzed the liver bile and the gall-bladder bile separately. The bile in the bladder was drawn after ligation of the cystic duct. In these separate analytic determinations he found considerable difference between the two samples. In the bladder bile, the sodium was reduced and the potassium increased, as compared to the bile drawn from the hepatic bile duct. Now, the increased content of calcium reduces the solubility of the bilirubin and thereby leads to the precipitation of bilirubin calcium and of cholesterin.

In this controversy between those who hold that precipitation of bilirubin calcium and cholesterin from the bile as it comes from the hepatic duct is possible and those that hold that the epithelium of the gall-bladder secretes these substances, a more recent pathological and chemical study is of interest. I refer to the work of Achoff and Bacmeister (Die Cholelithiasis, Jena, 1909). These investigators believe that in most cases of inflammatory cholelithiasis there has been a non-inflammatory stage which preceded. They also set up the principle of different chemical origin of the different varieties of gallstones. They claim that the radiated cholesterin stone is formed singly and exclusively as a consequence of bile stagnation and without the cooperation of bacteria, but the cholesterin-pigment-calcium stone and the stratified cholesterin-calcium stone, as well as the pigment-calcium stone, are of inflammatory origin. These conclusions are based upon the following consideration:

The structure of the radiated stone is purely crystalline. From a center of crystallization rods of unequal length radiate in all directions toward the periphery. These cause the uneven surface of the stone, which is very porous, contains an albuminous skeleton structure and very little calcium. This stone is found only in gall-bladders that are not inflamed, simply in a state of stagnation. The morphology of this stone is indicative of a very slow process of deposition of its contents by crystallization from the bile. Its chemical composition corresponds to the composition of the normal bile, not of the bile changed by inflammatory processes. It is this type of gallstone that can be produced from the normal bile without infection by simple chemical decomposition. The radiated cholesterin stone occurs almost exclusively as a solitary stone.

Bacmeister experimentally proved that precipitation of crystalline cholesterin from stagnated bile could take place in the entire absence of bacteria or albumin. It is true this precipitation could be aug-

mented by the addition of sterile epithelial cells. In these observations he found the proof that the cholesterin does precipitate from simply stagnated bile, not by infection but by sterile autochthonous decomposition of the bile itself, in which, of course, the protoplasmic elements participate.

The material for the formation of the solitary cholesterin stone crystallizes out of the sterile bile. The process is augmented by the scaling off of the epithelial cells of the gall-bladder. By accurate investigations of gall-bladders extirpated by operations or found at autopsy, they came to the same conclusion, namely, that when a single cholesterin stone was present, every sign of inflammation of the gall-bladder was missing and only the evidence of gall-bladder stagnation was found. In order to arrive at this conclusion, it was necessary to study minutely the anatomy and histology of the gall-bladder, of which they give an admirable description. The distribution of the blood and lymph capillaries in the gall-bladder and bile-ducts is minutely described. They assign to the epithelium of the gall-bladder a two-fold function: First, secretion of a pseudo-mucous substance (nucleo-albumin (?). The beaker cells secrete pure mucin. Secondly, the absorption of fat and pigment.

Naunyn and Fink had claimed that gallstones could be formed from myelin, secreted by the epithelium of the gall-bladder. This Achoff and Bacmeister deny.

In connection with the possibility of the recurrence of gallstones, after so-called cures, Aschoff and Bacmeister call attention to the fact that the mucous glands, while they occur normally only in the neck of the gall-bladder and in the cystic duct, proliferate and extend throughout the entire gall-bladder and into the walls of Luschka's duct after inflammatory irritation. These ducts of Luschka extend into the musculature and fibrous tunic. The normal structure of the gall-bladder undergoes certain changes in chronic cases of bile-stagnation. The normal folds are effaced. The muscularis is hypertrophied. A diffuse small-celled infiltration takes place, as a consequence of the increased resorptive processes. Especially the fat absorption is increased in a stagnated gall-bladder. This leads to a dilatation of the subepithelial lymph capillaries. In consequence of this stagnation and the increased internal pressure Luschka's ducts are dilated and often filled with a detritus of a bile-stained mass. On the base of this altered and stagnating gall-bladder the solitary radiated cholesterin stone is formed.

The formation of inflammatory gallstones is entirely different from this. The gallstones which are due to inflammatory conditions of the gall-bladder are the following: (1) Combination stones, showing interiorly the primary radiation of the cholesterin stone and exteriorly a stratified mantle rich in calcium. (2) The stratified cholesterin-calcium stones. (3) The cholesterin-pigment-calcium stones. (4) The largeer oval barrel, or cylinder-shaped stones. (5) The common multiple facetted or mulberry-shaped stone. (6) The bilirubin-calcium stones.

Sometimes one can distinguish several cholelithic generations. It is sometimes also possible to trace different clinical pictures in the precedent history of gallstone disease in connection with these differently shaped stones. The markedly crystalline and relatively calcium-poor stones grow slowly and occur as solitary stones. Those stones that are rich in calcium grow rapidly and are generally found in larger numbers. Aschoff and Bacmeister assert that in the majority of all cases of cholelithiasis a non-inflammatory process precedes, and that definite relations exist between the different stone formations and the various diseased conditions of the gall-bladder.

As long ago as April, 1895, when I gave a demonstration of the first method for duodenal intubation practicable upon the human subject (Johns Hopkins Hospital Bulletin, April, 1895), I expressed the hope that the method might be available for the diagnosis of gallstones from the chemical and physical conditions found in the duodenal contents. (See also Hemmeter, Diseases of the Intestines, Vol. I, pp. 263-272; also Versuche uber Intubation des Duodenums, *Archiv für Verdauungs-Krankheiten*, Band 2, S. 98, 1896, and Band 17, S. 136, 1911.)

This was long before any one else had ever conceived of the possibility of duodenal intubation.

When one considers, however, the widely different chemical composition of these various gallstones and the different clinical history of each as above alluded to, one must be at once impressed with the difficulty of this kind of clinical research. If we are to determine from the bile aspirated from the duodenum not only whether there are gallstones present, but their kind and the condition of the biliary apparatus, we should have reason to expect a different composition of the bile for each chemical type of gallstone. If in one case the stone is built up from the cholesterin of the bile, and in another case from the calcium, and in a third case from the bilirubin and calcium, it must be evident that we can expect no uniform and constant change in the bile that flows out into the duodenum under these conditions. This conclusion has been confirmed by my investigations, for all of my efforts to establish a constant chemical factor in the duodenal contents, and these efforts extend off and on throughout the last twenty years, have led to no definite chemical diagnostic factor discoverable in the bile as aspirated from the duodenum in cholelithiasis.

In an article entitled "Direct Examination of the Duodenal Contents (also Bile) as an Aid in the Diagnosis of Gall-Bladder and Pancreatic Affections" (*Amer. Jour. of the Medical Sciences*, CXLVIII, pp. 490-495, 1914), Einhorn states that the microscopic appearance of the bile is of great diagnostic importance. If it is golden-yellow and clear, it usually indicates a normal gall-bladder. When it is greenish-yellow and turbid, it portends a diseased gall-bladder, which frequently contains gallstones. He states that golden-yellow bile containing mucus is observed in catarrhal jaundice, but he admits that golden-yellow clear bile may occasionally exist, notwithstanding the presence of gallstones, so his first conclusion is vitiated by the latter statement. But I would also add that sometimes greenish-yellow bile which is turbid can be drawn from the duodenum when the gall-bladder is not diseased, because the color may be due to a duodenitis, and occurs also in duodenal ulcer. The remaining conclusions of this article refer to pan-

creatic disease and not to cholelithiasis. In only two instances do I notice a reference to the degree of alkalinity. In Case No. 9, p. 492, the alkalinity is stated as equal to 20, and in Case 16 as equal to 25. I presume this is expressed in terms of the titration method ascertained by 1/10 normal solution of NaOH. Now, the chemical reaction of the duodenal contents, when the hydrochloric acid of the stomach can be excluded, is due more to the alkalinity of the pancreatic juice than to that of the bile. I will later point out that this alkalinity of the duodenal contents is an important factor in the diagnosis, if it can be traced as due to the bile, which, of course, is exceedingly difficult. In the article in the *Archiv. für Verdauungs-Krankheiten*, Band 17, p. 147, I described a case of varying gastric secretion to which I have given the term "heterochylia." This patient had periods during which no gastric juice was secreted, and other periods during which the gastric juice was either normal or excessively acid. When the total acidity of the gastric juice was normal I found that it required 3.5 to 5 c.c. of $\frac{N}{10}$ H_2SO_4 to neutralize 10 c.c. of pancreatic juice. This patient had a small drainage tube inserted in a dilatation of the pancreatic duct after an operation for pancreatic cyst, performed by Dr. L. McLane Tiffany. The case is described fully by Dr. Harry Adler and myself in the MEDICAL RECORD for August 6, 1898. The case is cited here as a rare instance where the human pancreatic juice was studied during life and its alkalinity ascertained; but it was found that the alkalinity varied with the character of the diet. For complete data reference must be had to the original article, and also the articles on duodenal intubation published in the *Archiv. für Verdauungs-Kr.* 1911.

So much must be evident: The alkalinity of the duodenal contents does not inform us concerning the alkalinity of the bile. If Einhorn finds an alkalinity of 25 this may be entirely due to the pancreatic juice. The bile itself, it is true, is alkaline, but only feebly so. Expressed by the above method, the bile that flows from the common bile duct during health has been found by me to be equal to 5; that is, 100 c.c. bile were neutralized completely by 5 c.c. $\frac{N}{10}$ NaOH. This is an average of 12 titrations. Nevertheless, a marked diminution in the alkalinity of the duodenal contents is a significant sign of the presence of disease of the gall-bladder. Should the alkalinity fall below 5 we can assume that both the pancreatic juice and the bile are prevented from entering the duodenum. I have had two cases in which a persistent low alkalinity of this type was followed in from three to six weeks by jaundice.

In estimating the alkalinity of the bile the hydrochloric acid of the gastric juice must as far as possible be excluded and the duodenal juice drawn at a time when the stomach is empty.

The most complete chemical study of the bile—from which most of my figures are obtained, is found in Bottazzi's "Chimica Fisiologica," Vol. II, p. 401, "Il fegato e la bile." The tables Nos. 79 and 80 give the complete results of eight brilliant chemists on their analyses of the mineral contents and the organic contents of the bile.

Liver bile is much less concentrated than gall-bladder bile. Determinations made on gall-bladder fistulæ in man give a total solid residue of about 0.11, but this bile is not normal. The findings are due to the great loss of bile from the body, for normally bile makes an intermediary circulation, being reabsorbed from the intestine and excreted again from the liver. If it is lost through a gall-bladder fistula this must lead to an impoverishment in solid substances. The liver bile contains 3.21 to 4.66 per cent. of solid residue, according to Hammarsten ("Ergebnisse der Physiologie," 4 Jahrg., "Chemie der Galle," p. 4).

The gall-bladder bile contains 15 to 17.03 per cent. of solid substances. There is a reabsorption of salts of the bile which takes place in the gall-bladder and bile duct, and simultaneously with this reabsorption of salts, organic bile constituents are secreted into the gall-bladder. The bile, if drawn at all from the duodenum, must be gall-bladder bile, and, even normally, greatly different in its solid constituents and salts from the liver bile.

The gall-bladder also secretes mucus, which can be precipitated from human bile by alcohol. It seems to be a mixture of nucleo-albumin and mucin. The genuine mucin in human bile is derived from the bile passages, and if there is a marked presence of mucus in the duodenal contents it either speaks for duodenitis or for inflammation of the gall-bladder and bile ducts. A marked diminution in the total solids of the bile, apart from the organic constituents, means that the calcium or the cholesterin or the bilirubin and pigments are being retained for the formation of gallstones. There is a stage of the cholelithogenic process where the stones, after being completely formed, may undergo partial solution, provided the human subject still retains a fairly normal bile secretion. It is known that gallstones formed in man undergo complete dissolution when sewed into the gall bladder of a dog. In this stage the total solids of the duodenal contents may exceed that of normal bile from 3 to 15 per cent. This is the cholelitholytic stage or phase of gallstone disintegration.

There are, therefore, four diagnostic factors to be obtained from the chemical composition of the duodenal contents. (1) Diminution of the alkalinity. (2) Increase of the mucin. (3) Diminution of the total solid residue below the normal. (4) There may be a stage in the litholytic process where the bile as it issues from the common gall duct (*i.e.* in cases where the pericholangitis has not progressed far enough to prevent the issuance of the bile, partly or completely) contains more total solids than normal bile, the excess of solids being then mainly made up of Ca, Cholestrin, Bilirubin, or a mixture of these according to the composition of the calculi. It is conceivable that there are *cholelitholytic* bacteria, *i.e.* microorganisms that disintegrate already existing gallstones.

It has been observed by Naunyn that gallstones which were already partially disintegrated and dissolved when not expelled were reconstructed into new stones by the secretion of the inflamed gall-bladder mucosa, which is rich in calcium and bilirubin.

As regards the color, I should say that normal bile is always yellow, due to urobilin. A green bile is pathological.

If we have in view the factor of infection in a diagnostic study of cholelithiasis, the bacteriology of the contents of the duodenum can afford us very little aid, for even if the bile is excreted into the duodenum the bacterial flora which we succeed in obtaining (if we obtain any) will be that of the contents of the gall-bladder and not of the gall-bladder tissues. E. C. Rosenow has perfected newer methods for the study of the bacteriology of various infections (*Jour. A. M. A.*, Sept. 12, 1914, p. 903), and in the article, which I shall quote more fully, he pointed out that streptococci of a certain grade of virulence and from different sources are capable of producing cholecystitis and gallstones after intravenous injection, and that large numbers of the cholecystitis-producing organisms constitute the nuclei of the stones.

Rosenow describes an interesting case in which cholecystitis developed in the sequence of an acute tonsilitis. The symptoms began ten days after the tonsilitis, and continued three weeks without jaundice. Then the pain shifted, and jaundice began, which deepened for a week. Five weeks after the beginning of the attack Dr. A. D. Bevan performed an operation. There was found a healing area of necrosis at the fundus of the gall-bladder, which was moderately distended with bile containing mucus, and three mulberry cholesterin stones. Cultures made from the bile were sterile, but cultures made from the center of the stones developed streptococci, colon bacilli, and the gas bacillus. An emulsion of the excised piece of tissue of the gall-bladder developed only streptococci. The culture and tinctorial properties of those special streptococci are described by Rosenow.

A dog was injected on January 22, 1914, with the growth of streptococcus from the wall of the gall-bladder, in 90 c.c. of ascites-dextrose broth, suspended in 7 c.c. of sodium chloride solution. On January 24 the dog was lame in the left hind leg, fluid from knee joint was turbid. Cultures were made. January 26, cultures from knee joints showed four green-producing but no hemolyzing streptococci. January 30 the animal was found dead. Examination showed acute cholecystitis, enteritis, pancreatitis, nephritis. The wall of the gall-bladder was edematous 3 to 6 mm. thick, the cavity distended with brownish fluid. A plug of muco-pus closed the diverticulum of Vater. Pressure on the gall-bladder failed to discharge bile until this plug was removed by passing a probe and making firm pressure. A number of dark concretions of the consistency of putty were found in the muco-pus of the gall-bladder and in the plug. The liver was normal. The kidney showed nephritis. The lower end of the small intestine was hyperemic and covered with an exudate containing many streptococci. The stomach, large intestine, adrenals, heart, and thyroid were normal. The bile, the plug of mucus, and the walls of the gall-bladder yielded large numbers of streptococci. The blood remained sterile. Sections of the wall of the gall-bladder showed marked thickening and degeneration.

This extremely thoroughly worked out case demonstrates, first, that a streptococcus tonsilitis may induce a cholecystitis and gallstones in the same patient within three weeks; second, that a culture of streptococci gained from this patient and injected into a dog may produce acute cholecystitis, puttylike masses in the gall-bladder, a plug in the diverticulum of Vater causing complete obstruction, and the death of the animal after eight days.

This contribution of Rosenow's is of such importance that I venture to abstract it in the following:

In five cases, the cultures from the wall were negative and in these the microscopic evidence of any changes was slight. In the remaining twenty-four cases, in all of which increase of thickness and other changes were more marked, streptococci were isolated in all but three and in pure culture in ten. In sixteen cases streptococci were found in the wall when the contents were sterile or contained only colon bacilli. The colon bacillus was found with the streptococcus in only ten cases, once in pure form, once in association with the *Bacillus welchii*, and once with staphylococcus. *Bacillus mucosus* was found in two cases of very acute cholecystitis. In two, diphtheroid bacilli were found and in one the fusiform bacillus was found. The fluid contents, usually bile, were examined in twenty-six cases: In twelve it was sterile; streptococci were found six times, colon bacilli nine times; staphylococcus three times; the *B. mucosus* twice, and the fusiform bacillus once. The center of gallstones were examined in thirty cases. Only two proved sterile; from the rest streptococci were isolated in all but three, fourteen times in pure form and five times in association with the colon bacillus; the center of the stone, in one case, showed the typhoid bacillus in pure form while the center of two stones and the wall of the gall-bladder in a case with a clinical diagnosis of typhoid cholecystitis showed streptococcus in pure culture; in two cases the center of stones contained colon bacillus and the *B. welchii*, and one of the latter organism only; in some instances, streptococci were demonstrable in smear preparations from the center. Cultures from other portions of stones were usually sterile. The adjacent lymph-glands were examined in five cases. Streptococci were found in four, pure in three cases and in association with *B. welchii* in one case. In the cases in which a pure culture of the streptococcus was obtained from the tissue of the gall-bladder there seemed to be a definite relation between the number of colonies which developed and the degree of change, especially if relatively recent inflammation was present.

A comparison of the results obtained from the bile, the stones, and the wall of the bladder, in the individual cases, shows that a bacteriological examination of the fluid contents gives trustworthy results only in the acute stage of the disease; during convalescence and in chronic cholecystitis the results are of little value and may be misleading. In chronic cholecystitis the bacteriology of the center of the stones is similar to that of the wall of the bladder.

The effect of the various organisms on intravenous injection has been tested in dogs and rabbits. All of the five strains of streptococci isolated from the wall of the bladder, one strain from an adjacent lymph-gland, and two out of five strains from the center of stones exhibited marked affinity for the gall-bladder soon after isolation, and frequently produced no lesion elsewhere. Varying doses produced cholecystitis in nearly every animal injected. The severity of the lesions in the animals often corresponds to that found in the cases from which the strains are isolated. This affinity is soon lost, however, on cultivation as well as on animal passage. Five strains of colon bacilli, the one strain of typhoid bacillus, and one strain of the bacillus mucosus in no instance showed any tendency to localize in the gall-bladder. It was not possible to produce cholecystitis with the streptococci by injecting them into the portal system, even with strains which produced cholecystitis practically every time when injected into the vein of the leg, and only localized cholecystitis developed at the point of puncture when the injection was made directly into the gall-bladder. In the animals which lived for a time, there was not infrequently observed the beginning formation of gallstones containing numerous streptococci similar to the conditions found in several of the patients.

The strains of streptococci from the different cases show a striking similarity and resemble closely those from ulcers of the stomach. They produce either small,

moist, grayish-brown or grayish-green, non-adherent, non-hemolyzing colonies on blood agar; they ferment mannite, lactose and salicin; they produce short chains in liquid mediums with clumps of cocci somewhat resembling staphylococci; they are of a rather low virulence, yet somewhat more virulent than strains from gastric ulcers, as manifested by their resistance to phagocytosis, by the smaller dose necessary to kill, and by the fact that, when cultivated for a time, they acquire affinity for the stomach and duodenum while the strains from ulcers, when passed through one or two animals, acquire affinity for the gall-bladder at the same time as they lose affinity for the stomach.

On animal passage, two of the strains produced both cholecystitis and pancreatitis, the lesions in the latter being most marked in the head of the pancreas.

The lesions most commonly observed other than cholecystitis, when these strains are injected especially in rabbits, are: ulcer of the stomach, hepatitis about the gall-bladder, myositis and myocarditis, arthritis, appendicitis and colitis. The common presence of streptococci in the wall of the infected gall-bladder and in the center of gall-stones, often in pure culture, while absent from the bile and their affinity for the gall-bladder in animals are strong evidence that streptococci are the cause of cholecystitis in man far more frequently than believed and serves to explain the good results reported by some as following cholecystectomy in cases of myocarditis, arthritis and other conditions.

So far as the diagnosis of the bacterial cause of cholecystitis from the contents of the duodenum is concerned, these studies of Rosenow are discouraging for the efficacy of duodenal intubation in this direction, inasmuch as the bacteria which have caused the cholecystitis are not present in the bile as issuing from the common gall duct. They cannot even be detected in the blood, but were found only in the wall of the gall-bladder itself. The problem is more promising of solution when we are dealing with the Eberth bacillus of enteric fever. If this is the cause of the cholecystitis, it is as a rule present in the bile coming from the common gall duct, and it is this class of patient that constitute the so-called typhoid fever carriers.

The bacterium which is the cause of the gall-bladder infection cannot always be isolated from the liquid contents (the bile), although it may be from the wall of the bladder and the center of the stone.

It is not necessary to undertake puncture of the gall-bladder through the intact abdominal wall, as Levy and Naunyn have done, in order to endeavor to ascertain the specific mecroorganism. This can be obtained by duodenal intubation, often gentle massage of the gall-bladder through the abdominal walls, by setting up of the bile evacuating mechanism by injecting HCl and albumoses into the duodenum.

In case there is an obstruction of the cystic or of the common gall duct, this procedure cannot prove successful. It is therefore necessary first to find out whether these ducts are permeable. The most practical method to ascertain this is the examination of the stools. If there is fecal acholia, then duodenal intubation can bring no bile. I must add, however, that there have been two cases in my experience where I obtained bile in quantities of one-half to one and one-half c.c. even when the chemic test and appearance of the stool gave no evidence of it. It is possible that the small amount of bile that reached the duodenum was reabsorbed before it reached the colon.

But if any bile reaches the duodenum at all it can be aspirated by the method of duodenal intubation which was first practised by me in 1897, in the University of Maryland Hospital. Physiologically, the sphincter at the papilla of Vater opens only when the gastric chyme spurts into the duodenum; when the stomach is empty there is no evacuation of bile, but I will show later that this sphincter can be made to open by injecting a solution of hydrochloric acid and pepsin into the duodenum. It has been said that hydrochloric acid by itself will effect this, but it is more efficient if pepsin is added. The most efficient substance to effect the relaxation of the sphincter at the common bile duct is a filtrate of human gastric contents obtained from a normal individual.

All of these substances have a certain degree of acidity which has to be ascertained beforehand, to deduct the amount of 1 10 norm. KOH necessary to neutralize their acidity in calculating the alkalinity of the duodenal contents after they are drawn. 1 c.c. of normal gastric filtrate from a human individual may cause the evacuation of between 10 and 12 c.c. of bile. A few drops of the HCl pepsin solution suffice; these can be aspirated and the subsequent bile expulsion used, which is, as a rule, free from the injected HCl.

The hydrochloric acid or the filtrate of human gastric contents thus injected causes the formation of secretin from prosecretin, which in turn evokes the secretion of pancreatic juice, and is supposed also to cause a secretion of bile, though not all investigators are agreed on this latter point. (See Falloise, quoted in Maly's "Jahresberichte der Thier-Chemie," 33, 611, 1904.)

Treatment.—The course to pursue in aiming at a treatment of cholelithiasis that is based upon the cause would be to first ascertain the specific bacterium which is causing the infection, and thereafter to obtain a serum by inoculating animals with this special strain of organisms. In one of my cases of chronic cholecystitis with occasional attacks of high fever that followed three months after a severe streptococcic tonsillitis, anti-streptococcus serum apparently cured the patient, for she has remained without symptoms for two years and two months.

There is a justified doubt in this case, for there are periods of two years quiescence in many gall-stone cases, after which the cholelithiasis may again give rise to symptoms. Moreover, according to Rosenow, only the particular strain of streptococci that had been derived from a case of gallstone disease should be used to produce the serum. It is conceivable that the specific strain of streptococci might be cultivated in these cases from the tonsil.

The difficulty will be to secure the proper strain of bacterium which is doing the mischief, but I believe that with patient research by the method of duodenal intubation, and making use of the neurochemical mechanism which controls the sphincter of the common gall duct, marked advances in the diagnosis and therapy of this condition will be made.

The treatment of cholelithiasis has different aspects in view, and varies according to the diagnosis of the conditions present. It will also vary according to the causes of the conditions.

It is necessary to plan a special treatment for the following four conditions: (1) The gallstone colic

with the acute occlusion of the common gall duct and the recurrent cholelithiasis. (2) Inflammation of the biliary vessel and reservoir system (gall-bladder, cystic duct), the acute cholelithic cholecystitis, with its consequences: (*a*) perforation peritonitis, (*b*) diffuse cholangitis, (*c*) chronic cholecystitis, with empyema and dilatation of the gall-bladder. (3) The invasion of the deeper bile passages by the stones, chronic occlusion of the gall duct. The differential diagnosis and management of the various types of icterus. (4) The consequences and complications of cholelithiasis and malignant neoplasm of the gall-bladder.

The principle of non-surgical treatment of cholelithiasis is to bring about a period of quiescent latency in the disease. Complicated infections, and all factors that tend to stagnation of the bile, may have stirred up a dormant disease. Of course, this can be treated by operative removal of the gall-stones and draining the gall-bladder. From what we have seen in the preceding, however, only 5 per cent. of all gallstone carriers ever have symptoms. This makes it clear that there must be a great majority of the subjects of cholelithiasis who harbor their stones throughout life with a comparative degree of comfort, or are not aware that they have gallstones.

I am not at all opposed to the operative treatment of gallstones. On the contrary, I favor it. (See article on "Cholelithiasis" in the Analytical Cyclopedia of Practical Medicine, Volume 3, page 295.) I also there call attention to the technique and value of duodenal lavage in the treatment of cholelithiasis. But there are plenty of patients who refuse to be operated upon, or who never have a second attack, or who have been operated upon already and in whom the cholelithiasis returned; such cases, in short, that demand nonoperative treatment.

For the present I shall pass over one of the most effective therapeutic methods of the internists, namely, the treatment by hot mineral waters and diet.

I wish to emphasize what I have repeatedly condemned, namely, the employment of so-called cholagogues, especially a number that appear to be proprietary articles. Any agent that causes a hemolysis of red blood cells will increase the flow of bile, and the same effect is produced if a solution of hemoglobin is injected directly into the blood. The bile pigments are excretory products of hemoglobin. Most all so-called cholagogues are hemolytic and also protoplasmic poisons to the hepatic cells.

The use of olive oil, either by mouth or rectum, in large doses, has in my experience not been followed by gratifying results. It has been claimed that concretions can be found in the stools after the oil treatment, and that they are the result of broken down gallstones. I have convinced myself that these concretions are nothing but fat conglomerations, and that the large doses of olive oil, as given by Stewart and Mays, derange the digestion. It would be pardonable if a slight improvement followed the treatment with the substances which I have just mentioned, if we were sure that they did not do harm. Cholelithiasis is such a complicated and variable disease that improvement frequently follows rest in bed, hot Carlsbad or Bedford magnesia water, and hot applications over the liver.

It is entirely irrational to speak of a solution of gallstones by medical means. What the cholagogues are supposed to do is to increase the flow of bile, in order to wash out the biliary passages. If it were really possible to increase the *secretion* of bile it is not at all proved that an *increased* flow of bile through the gall-bladder, common gall duct, and into the duodenum would follow. It is not sufficient to increase the amount of bile secreted. What is needed is an increased flow of bile through the biliary vessels. This is, in the normal individual, prevented by the sphincter of the common gall duct. In 1887 Oddi showed this sphincter anatomically, and he also demonstrated that it is controlled by a group of ganglion cells which regulate the constriction and relaxation of the sphincter. See illustration in Luciani's Physiologia del Uomo, Vol. 2, pages 187 and 188.) The same sphincter was studied by Hendrickson (*Johns Hopkins Hospital Bulletin*, September, 1898.) Oddi found that the force with which the sphincter closes can only be overcome with a column of water of 700 mm.

Freese (*Johns Hopkins Hospital Bulletin*, June, 1905) found the force of the maximal contraction of the muscle of the gall-bladder to be 220 mm. of water; almost the same pressure was found by Haidenhain. This pressure varies according to the animal experimented upon, and Naunyn assumes that the force with which the sphincter of the common gall duct is kept closed is equal to a pressure of 700 mm. of water. This is Oddi's estimation. Such a pressure is far greater than could be overcome by an augmentation of bile secretion, for the secretory pressure of the human bile apparatus doesn't go beyond 250 to 300 mm. of water. Whenever the pressure in the bile ducts exceeds this the hepatic cells no longer secrete into the gall ducts, but any bile that is formed is received into the lymph vessels which surround the hepatic cells, and eventually reaches the thoracic duct.

The reciprocal neuromuscular control between the sphincter of the papilla of Vater and the muscle of the gall-bladder can only be set up normally by the products of gastric digestion, and in such a manner that the sphincter at the orifice of the common gall duct is inhibited when the gall-bladder contracts, and *vice versa*.* To produce an increased flushing of the gall ducts and gall-bladder with bile, the sphincter of the common gall duct must be opened. Physiologically this occurs during gastric digestion and evacuation through the pylorus. Assuming that cholagogues could augment the formation of bile, as yet there is no evidence that they can open the sphincter of the common gall duct, the tonus of which will remain 400 mm. of water pressure higher than the pressure of bile secretion.

*The reciprocal innervation of the gall-bladder and biliary ducts has been studied by Doyon (*Archives de Physiol.*, 1894, p. 19).

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Egg Intoxication.—According to Linossier egg intoxication must be distinguished from egg anaphylaxis. The egg may contain a toxalbumin which is destroyed by heat. Poisoning from this source is therefore readily prevented.—*Le Progrès Medical.*

PLEA FOR A MORE SYSTEMATIZED STUDY OF A PATIENT'S LIFE NEEDS.*

THE BREAD LIFE.

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NEUROLOGISTS nowadays are on the lookout for cases of life-maladjustment, and the spirit of the times is socially remedial and constructive. We all endeavor most laudably to view a patient's ills in the light of his personal relation to life in general, and thus to suggest more permanent, because more socially sound, measures for his relief. This I recognize, and it is not with the notion of advancing something really new that I ask your attention to the adjustment problem, but simply because it has repeatedly come home to me that we lack a convenient system for its daily individual solution. Also, by way of preface I wish to remark that in ordinary office cases, one main life tract, that of sex (the love life of Jung) has been explored out of all proportion to the other three, and that therefore its importance (not biologically but psychologically speaking) has been by comparison overestimated.

To begin with then, we must realize that we are now contemplating individual life or conscious continuance, which connotes two essential instincts—the self instinct and the race instinct, which may be further divided: The self instinct into self preservation and self progression; the race instinct into race preservation and race progression. We are viewing primitive essentials only, all else being subsidiary or superstructural. And these four great emotional life tracts, based on the two primordial needs of self and race, compose a satisfactory working map for our profitable review of the basic demands of individual human motives. It is the purpose of this paper to deal with self preservation, which for convenience and strength of concept can be termed the food life, or better perhaps, because of the traditional force of the phrases "making our daily bread," "bread is the staff of life," "bread-winning," etc.,—the Bread Life; for while many other factors enter into the idea of self preservation, the principal and characteristic factor is by all odds that of food.

This "bread life" consists of two factors—food and the fight for it, nutrition and livelihood. The first factor, the need of nutrition, present of course at all ages, becomes progressively very gradually less important as the years go on, as the period of decline approaches and succeeds that of growth and maturity. The food needs of the child are greatest, and so on proportionately down the scale to old age; and this side of the question—the actual food or nutritional necessity, the use of food, being almost wholly biological, we pass on directly to that of food winning, which is, as all know, quite another matter, and one that intensely concerns the daily practice of the neurologist.

Maladjustment from the problem of insufficient livelihood, the worry and fatigue, the increasing strain, the actual illness consequent on or incident to failure to make enough money for self and dependents is so common and so intelligently (even if in the main unsuccessfully) dealt with by most neurologists and many good family physicians, that it would seem superfluous to discuss the subject further, were one not brought daily face to face with the fact that, despite the energy we put to its consideration, we should put more. The army of defeated men and women who are taking nux vomica or thyroid or galvanism for some compensatory symptom (too often their only positive compensation) who would be relieved entirely by a raise in salary or news of an unexpected inheritance is so distressingly large that we should at least be systematically sure we shall not neglect any individual of its forces, who, it must always be remembered, are recruited from the seemingly rich and well-to-do as well as from the poor. Of course where a patient's means are frankly insufficient, even though he is working hard, we cannot always help him very much. Even in such cases, however, if we are dealing with ordinary intelligence, an examination of the livelihood ground will yield some profit if, only at its conclusion, the patient has been made to realize the underlying cause of his seemingly inexplicable insomnia or tremors or feeling as if his head would burst. Sometimes we may be successful in doing more. Last month in the clinic I talked with a man of 40, single, no dependents, who had been earning a bare subsistence in a tailor shop, but this extremely confining mode of livelihood making him nervous and sleepless he gave it up and became a dish carrier or "passer" in a hotel, which, also bringing in but a bare pittance, proved equally unsatisfactory and did not diminish his neurosis. Now this man is no weakling. He is educated, intelligent, even intellectual, and with many indications of character and developed will power. He has a gift of human association, public speaking, gaining the confidence, and, in a certain moral and impractical sense, the leadership of his fellows. He would make an excellent teacher, or secretary perhaps of some large civic or philanthropic concern. At all events he is freshly encouraged by this view of his case, and encouragement based on real understanding is so truly effective a force that very possibly his efforts henceforth, based on a renewed faith in his powers, may lead him to a distinct betterment of his condition. Surely neither bromide nor veronal could have done even this much.

Then the spending side as well as the earning side must come in for scrutiny. To cite an instance: A stock-broker earning probably forty thousand a year came to me suffering from claustrophobia; he could not go in trains, to church or theater without a sort of terror. He suffered agonies on the floor of the Exchange. No treatment availed till it came out that at the time of a seemingly impending business failure, on the Sunday following a night of most unusual mental strain, he was taken dizzy in church and thought he should die, yet hoped he would not, not alone from fear of death, but shame of making a scene—a state probably symbolic and compensatory, I believe, of his business difficulty. And now when business depressions occur he is inclined to this anxiety state. Explanation as to the nature of his disorder and improved condition of business have helped him markedly and equally. We must always remember that men are ashamed of

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not making good at a livelihood, and ordinary questioning in that respect is therefore not always enough to elicit the actual circumstances, for just because of the primal intense biological necessity of going forth to get food, the sensitiveness consequent on failure thus to achieve is rooted in what might be termed an insulted instinct, which causes a crippled emotional condition leading to a consciousness of something very like biological inadequacy. It is a truism that an individual prizes far more his inherited than his acquired attributes. Generally speaking, men are far vainer of pure race, good lineage or native abilities than of trained acquirements or hard-won social position. Who would not rather be called a born genius than a man of made aptitudes? And this is well, perhaps, for the conservation of racial excellence, and is not mere vanity at all, but an instinctive pride in what is in the long run worthy, of what lasts beyond the individual life-history, of what is biologically best. Thus with the power of going out into the arena of the world and bringing back the livelihood prize, man hesitates to admit his failure because of the suggested inferiority. Very likely he doesn't know this, but his instinct surely does—and good or bad, moral or unmoral, instinct is master. And if the neurologist is wise he will not induce his patient to make too open a confession. Here, even as in sex matters, the truth-seeker should heed Ibsen's character called the Boyg, who, in blocking Peer Gynt's path up the steep mountain of knowledge, bids that impatient aspirant "Go roundabout." It is wonderful advice, and will certainly hasten one's journey to a troublesome peak. I think it is over the portals of Aberdeen University that the following adage is inscribed—and this I particularly recommend to all who deal in the mysteries of psychological therapy: "He says. What does he say? Let him say."

Well at first he will likely say, "Doctor, I've a pain in the back of my neck that runs down the spine and up into the head and sometimes shoots straight into the heart." It takes a while—two or three visits, perhaps—before he will want to translate this into terms of creditors and notes falling due. But in such a case, if we don't carefully attend, he will brazen out the whole matter, from the biological fear of being thought inferior, and give us the impression that his secondary sex or domestic difficulties (because a man in money trouble always has secondary psychologic upsets) is the main trouble. And then all treatment must go for naught. What to do? Well, the first canon of treatment is accomplished after he in his own way and at his own time has made a clean breast of it. This shows that he has faith in you, in somebody, something. The next and at least equally important indication is to restore his faith in himself, to make clear to him what is probably the truth, that his livelihood difficulty is transitory and circumstantial and has nothing in it of the essential, the biologically feeble. Drive home to him the point that if this actual inferiority existed he would be willing to accept its mandate and not be writhing, sensitive and rebellious. At the same time don't forget his physical ills. That is a great mistake. They are actual, no matter whence they arise. If the Christian Scientists have made us more clearly cognizant of the value of the word Faith, so have all the little body healers, osteopaths, chiropractors, what not, helped us on to a recognition of the necessity of physical touch. All those rubbings, kneadings, strokings, vibratings, have a distinct symbolic value. A sick man comes to be healed, whatever the infirmity, and from time immemorial the warm, friendly, distinctively human touch of him who does the healing has been as a magic wand to release the patient from his ills. When a dog is hurt we say "poor fellow," and pat and stroke him kindly. Don't neglect it with your fellow being, and then the other touch, that of the pocket-book, will come much easier.

Cases of this kind, frankly depending on difficulty in breadwinning, are, as we all know, of daily occurrence in our work. Let us pass on to that more interesting side of the same problem, the instinctive necessity of a fight for livelihood—not the point of the livelihood itself, but the essential fight to obtain it—an angle of the question which it seems to me has been rather neglected.

Man, like all other animals, originally had to battle physically for his food; else he didn't get it. When the flesh on which he and his family had subsisted was gone he girded his loins, took down handy knife or spear and started out on a meat quest. Not much difference here between man and tiger. Both were fierce, both showed their fangs and woe betide what came in their way. We all know what happens to the tiger when we cage him and feed him and liberate him from the magic lure of the mysterious food forest which his forbears have ranged since the first sun warmed their stripes. He shrivels in spirit, grows restless, paces his cage, feels life to be tamely inadequate, rebels at the crowning futility of this civilizing force which would debase him from the glory of a tiger to the purring level of a hearth cat. Now, man is not a tiger, but there is much of the tiger in him, and when we take all the wild beast out of him we miss something in him; also he misses something in himself, though he does not know just what it is. Yes, the open fight and the wily stratagem (which is a part of fight) in the vast, unending conflict of food getting are primal human needs, and no picture has quite such a droll pathos as that of the energetic adventurous man who has too early salted away his flesh pots, and knowing that his nutriment is secure without further effort on his part, dilates to his friends on his wonderful good fortune; yet who, when those friends have departed, yawns away the heavy hours and reads about calories and "How to Prevent Old Age."

I have now in mind one such individual. He is a lanky, big-limbed Westerner of 55, one of the erect, hustling, nimble-witted captain of industry types. He began life as a clerk in a country store at fourteen, and, totally unaided, worked up for himself in real estate till at 48 he owned a juicy slice of the New City of Cleveland, and soon after managed with difficulty to retire from the many sided corporations of which he was an important member. After this, on the further advice of his family physician, he gave up his own most interesting business, in which he had become a millionaire, and proceeded so to arrange his life that it would declare, with no work, maximum dividends of daily happiness. Needless to say, such a stock, being

watered with dilute artificialities instead of enriched with robust necessities, never yields up to expectation. This gentleman is not happy at all; he is, in fact, completely miserable. Golf, billiards, travel, theaters, family and friendly associations, and interest in religion and war-relief work, though he has all of these and employs them assiduously as diversions, avail little, for they do not meet the central need, which is, in his case, the cry for fulfillment of the food-fight instinct, the spark that burns in the bosom of energetic man and tells him to go forth and provide. Unluckily in his case the provision is already secure, and there could be no deeper misfortune.

Well, what does he eventually do that brings him to the neurologist? He makes compensations. Innately realizing that the final giving up of business is the cause of the maladjustment, yet burning to deny it, to excuse it to the world, to himself, and particularly to his family, who are perhaps inclined rather cruelly to see paternal matters in their true light, he believes or strives to believe that he is ill, and has been compelled by illness to this surrender of his normal activities. "You wouldn't have a sick man plug on forever, would you?" "Keep a lame horse in harness till he breaks?" High blood pressure, uric acid diathesis, nephritis with hypertension (resounding titles for the similarly afflicted) headaches that drive him frantic until they have achieved their aim in driving all others frantic, vertigoes, dyspneas, neuralgias, fears of appendicitis—indeed the whole hypochondriac gamut. We see to what absurd yet tragic physical lengths he is driven by the whip of that still vigorous tyrant, his self instinct for fight. This thrilling force, which one time had been used squarely and successfully against the real world enemy, is now absorbed in trivial and self-debasing skirmishes with the grotesque Bolsheviki of his imagination.

What shall we do with such a patient? Games are good, being sham fights, and it is just this fighting element which ensures their popularity and permanence. The drawback is that he has played the greater game and all else stales by comparison. When possible, if you can't get him back into business, give such a man something with a spice of physical danger. He will take gladly to it—high mountain climbing, conquering the noted peaks one by one, beating across famous deserts. Try him with the Amazon and the Andes or tiger-hunting in India. Yacht-racing is fine, riding cross country, an experience in an airplane—briefly, those sports with most hazard and dash. Then interest him in controversies; anything with scrap in it. He is saved if he goes in for practical politics. But enough is said to bring out my point that due regard must be had for the primitive food-fight section of the Self Instinct. I would simply add—and this is a serious objection to the millennium and indeed to all forms of ideal socialism, where the State safeguards the individual at the cost of individual enterprise—that men on salaries who have no definite hope of advancement beyond the salaried stage and thus striking out for themselves, are far more prone to these neuroses than those whose efforts spell adventure. Put an average man in a good safe business situation year in and year out with reasonable compensation, yet with no particular hope of ever being on his own business legs, give him love, home, family, friends and leisure for meditation, give him everything, indeed, traditionally conducing to his content except this one satisfaction of his craving for adventure, hazard, essential food enterprise, and what is the usual outcome? Smouldering discontent and a neurosis. You can't shut out a man from the fresh air of his instincts and expect him to thrive.

In pre-war Germany a considerable part of the population, as compared with other countries, was in a measure taken care of, safeguarded and shepherded by the State, and in pre-war Germany all forms of neurosis were extremely common. Has that circumstance nothing to do with the present war? Was there not previous to the outbreak an overwhelming popular suppression of the enterprise instinct, which must have universally welcomed a world upheaval of release? In such a case, though the movement would be national and racial, the root instinct that started it would be individual. The surmise, though presumptuous, is attractive.

Women, too, have this instinct, though in negative form. They are not quite content to fight for the sake of the fight as men are. They want to help man in his fight, to aid, encourage, abet, and above all to hoard. The man brings back the carcass and the woman salts it away for the winter. He risks his life to obtain strange nuts, and she piles them up in hidden crannies against the dark days. Woman is the saver, the consumer, the straw to the masculine brick without which the family livelihood building would come quickly down. She fights negatively, receptively to his positive and initiative, but hers is just as truly as his an overwhelming primal instinct without which release and function she is quite as miserable and "left out" as he. Picture the multitude of women of means who need just this opportunity and nothing else, who have love and associative ties and leisure for contemplation, yet who, because of a good income, which is and has likely always been perfectly secure, miss inevitably and profoundly that wondrous fulfillment of woman's intended activity in upholding man in his daily labor of supply. We all of us know cases where people have suddenly lost all their worldly possessions. Paterfamilias comes home and announces: "The worst is here. I am bankrupt, ruined. I have lost all. Henceforth, etc." And what does wife do if she is a typical woman? Rear up, rant, scream, speak of spring hats? Nothing of the kind. The scene is stereotyped. Sweet tears, supporting silence, words of comfort, deepest joy and contentment in her heart that she can at last be of real help to him, that henceforth her daily efforts to plan and conserve will count, that she must save and hoard wisely, that she is not longer what such persons dread beyond measure and yet which so many become—a woman who is insignificant. And she is right. Any average woman of a good sort can be a member of committee, head an auxiliary, do semi-public and civic work and the countless general and impersonal duties of modern feminine existence, but only one woman can adequately help one man. The treatment of women who are at odds with life—and these are of vital interest to the neurologist—is, of course, first to find out the cause of the maladjustment. Well, more likely than not

the trouble is right here in the Bread Life Caption —either their daily bread comes too hard or too easily. And each case carries its own interpretations and recommendations for remedy.

My point of view is now made clear, though, of course, only in briefest outline, the subject being of the magnitude of life itself. And if I have drawn attention to the troubles of the rich rather than of the poor, it is perhaps because I believe that in this one respect they are more likely to be therapeutically passed by as a class. And also, for the sake of brevity and integrity to the main presentation of the matter, I have, in speaking of men, intended to signify typically masculine men, and of women, typically feminine women, thus avoiding that most interesting secondary theme, the relation of livelihood to those of the intermediate sexes. But my concluding word is to suggest that in no patient whose condition is not frankly physical should we neglect a just consideration of the possible maladies of that primary and perhaps all too obvious expression of the Self Instinct—the Bread Life.

47 East Fifty-seventh Street.

INTERNAL USE OF RADIUM.*

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It was only after much mental vacillation that I asked for an opportunity to present a paper on the use of radium internally at our meeting to-day. This was so, not because there is any question in my own mind as to the value of radium as a unique therapeutic measure, but because I appreciated that my conclusions are empirical, as they are largely clinical observations. I do not believe that rational deductions for the administration of a therapeutic remedy in pathological conditions of the human can be drawn from experimental studies on normal animals. It is quite impossible to have "a control" in clinical work, and so one is not able to check up one's work in a definite manner; and without biological and physiological data with which to corroborate my deductions they are open to question.

Whether the action of radium, when administered internally, is autolytic, catalytic, or by its electrical force exerted on the individual cell, as believed and taught by Von Noorden, is beyond my determination. But I do know from my laboratory findings that radium promptly and invariably increases the number of red blood cells. From this single finding it is obvious that the remedy is a potent one and must of necessity augment all of nature's processes, no matter how complex they may be; and I might add whether understood or undetermined. It is not difficult to appreciate that, when a lowered vitality is markedly improved or brought to normal in red blood cells, faulty functional conditions will be corrected by nature. Thus the results might be said to be secondary, though they are usually attributed to the direct therapeutic action of radium, and include a general stimulant and tonic action, the increasing or modifying of secretions and excretions, the raising of suboxidization processes, combating toxemias, stimulating universal cell activity, and so on, *ad infinitum*.

In 1915, Dr. Field read a paper before our local medical society on the efficiency of radioactive waters in cases of faulty elimination, in the course of which he stated that the National School of Mines had found that some of the Saratoga mineral waters were radioactive, while others contained radium in solution. This statement interested me particularly, as it possibly explained a point which I had brought to the attention of our medical men in a paper on the Saratoga waters in 1908. At that time I emphasized the thought that the clinical results obtained from the use of our Saratoga mineral waters were greater than we had a right to expect from their published analyses; and I intimated that there might be an element, or combination of elements, which was not accounted for by the chemist in his analysis. I later concluded that this action was due to their radium content, and after some further investigation became convinced of the value of radium and determined to try it out.

I commenced with 15 milligrams of the element in the form of a soluble chloride, 10 milligrams for an emanatorium, and 5 milligrams with which to activate water. I have continued its use regularly in my practice since that time, as opportuniy presented, with many successes and few disappointments.

Every practitioner meets cases of functional disturbance incident to overwork and nerve strain, associated with the all too common dissipation and gormandizing; in fact such patients have usually abused nature in every conceivable way. These are the cases so classically described by Bishop, and which, as he has pointed out, are prone to and usually do end later in some form of myocardial, cardiovascular, or cardiovascular-renal degeneration. This type of patient is very common in our work during the season.

For years I have been treating such cases after a formulated regime, drawn from the suggestions of Bishop in his few-protein diet, of Kellogg in his vegetable protein diet, and my own personal experience. This regime comprehends the regulation of the diet, the habits, exercise, periods of rest, and the external and internal use of the Saratoga mineral waters.

When treating my first cases with radium, I decided to omit all other measures, and endeavor to determine whether radium possessed the merits so lavishly attributed to it. I took the cases one after another as they came along. The following points were determined in each instance, when they first came to me and at weekly intervals during the period of treatment: (1) blood pressure, (2) blood count, (3) urine: (A) quantity, (B) specific gravity, (C) casts, (D) kidney efficiency (as determined by phenol sulphonephthalein test).

My method of administration and dosage were essentially the same in all cases; clinical conditions did not govern dosage. Each case was treated daily for a period of six weeks; in the emanatorium for two hours, where there were 270 Maché units of radium emanation to a liter of air, with varying quantities of activated water internally, usually a half liter which contained 113,000 Maché units to the liter, and some of the cases had also intra-

*Read at a meeting of the American Radium Society, Chicago, June 10, 1918.

venous injections of radium salts. Three of the cases developed a marked reaction from the treatment (without intravenous injections) which was manifested by increased pulse rate, temperature, nausea and vomiting, and great prostration, lasting in each case about 48 hours. On resuming the treatment, a second reaction occurred in two of them. I finally succeeded in establishing a tolerance for radium in these cases by commencing with a very small dose and gradually increasing it. The number of cases observed were 19, of which there were: 2 gout, 2 arthritis deformans, 3 diabetes, 2 intermittent claudication, 11 cardiovascular-renal disease. The two cases of gout were old ones and had experienced many previous attacks. Both were enthusiastic over the remedy, stating that the attacks were of shorter duration and less painful.

The cases of *arthritis deformans* were decidedly improved, particularly as to the relief of pain, the diminished swelling in the joints, and the increased action. In one of these cases I was too anxious, and used 40 micrograms intravenously, in addition to the usual procedure. The patient became very ill and in a few hours practically collapsed; blood pressure dropped from 230 to 110 mm.Hg. We gave her stimulants and pituitary extract, and after 24 hours she was all right, except for malaise.

The cases of *diabetes* were negative, except for lowered blood pressure and an increased red blood count.

The cases of *intermittent claudication* were relieved, that is, the attacks of pain subsided and remained quiescent for about eight weeks.

The eleven cases of *cardiovascular-renal degeneration* were all rather advanced; yet notwithstanding this fact, they all took on a feeling of well-being and comfort, and the dyspnea, blood pressure and kidney elimination were unquestionably modified. Though the number of cases treated was only 19, yet the following facts stand out so constantly that I accept them: (1) general feeling of well-being and betterment, (2) diminished blood pressure, (3) increased kidney efficiency, (4) decided increase in number of red blood cells, varying from 150,000 to 1,500,000.

The prognosis naturally depends upon how far the pathological process has developed. However, given two cases which are identical in all particulars, if they receive exactly the same treatment, except that one is given radium internally and the other is not, there will be, in my judgment, a very large percentage of betterment in favor of the case which has the radium. How could it be otherwise, with the increased red blood cells with which nature may do her work? Just as a pneumonic may be carried through a crisis, with a large number of cells out of commission, by the use of oxygen which stimulates the remaining cells to increased activity, so radium stimulates and gives fighting material where there is cell life; of course, where the cells are destroyed as in anterior poliomyelitis, there is no remedy.

Duration of treatment. This must be prolonged, as radium is largely indicated in chronic morbid conditions, in which the balance is not only difficult to establish, but in which it is also easily upset.

In conclusion, I would not be understood as thinking, for a single moment, that radium could in any measure replace other drugs, which have a specific and immediate action in controlling conditions in which decompensation is present; neither does it take the place of other measures which are prophylactic or corrective in chronic conditions, particularly myocardial, cardiovascular, and cardiovascular-renal degenerations. Nor does it replace the achievements of Bishop in his few-protein diet, nor of Kellogg with his vegetable protein diet and hydrotherapy, nor of Guelpha and his new fasting treatment of chronic disease (this was presented to the British Medical Association in July, 1910); all of these relieve faulty elimination and correct perverted metabolism, intestinal stasis, fermentation, putrefaction, and constipation, with their resulting toxemias.

It is not contended that radium per se is a specific in any disease. But I do know that it has a specific action, in promptly and efficiently increasing the red blood cells; and it does not detract from the methods of the men quoted to say, that while their measures afford remarkable results they do not materially increase Nature's resources, in so far as red blood cells are concerned. So I feel justified in positively urging the use of radium internally, in conjunction with those or other procedures, as I have been doing for the past two years, with results the same as in my first nineteen cases.

Radium is certainly a valuable adjunct to the carrying forward of Nature's beneficent processes.

OVERFLOWING TEARS (EPIPHORA) AND ITS MANAGEMENT.

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THE successful remedial management of this most distressing symptom, overflowing tears (epiphora), depends upon a careful study to determine the cause and when found attacking the same by appropriate measures. Diseases of the lacrymal system make up 3½ per cent. of the writer's clinical opthalmological practice. Diseases of the lacrymal gland produce an excess of tears, but these affections are very rare and are usually of metastatic origin traceable to gonorrhea, influenza, the exanthemata, mumps, diphtheria, and typhoid fever.

Epiphora is a usual symptom in irritations and inflammations of the cornea and conjunctiva. Occasionally it is the result of errors of refraction, extrinsic muscle imbalance, some nervous diseases, neurasthenia, and tabes dorsalis notably, and it may be an early sign of exophthalmic goiter.

The lacrymal drainage apparatus, consisting of the lacrymal puncta, lacrymal canaliculi, lacrymal sacs, and nasal ducts, is found to be faulty in by far the great majority of patients who present themselves for the relief of the overflow of tears and it is essential that the exact portion of this channel that is affected be determined, as the treatment that is to be applied largely depends upon this knowledge.

An occlusion or stenosis of the punctum is determined by dilating it with a canaliculus probe

sufficiently to admit the tip of a lacrymal syringe and then passing a solution of boric acid and menthol into the opening. If the solution finds its way into the nasal chamber the obstruction is at the punctum. If the solution returns, then the stenosis is beyond the punctum. In this event the canaliculus probe is passed in the canaliculus until its tip touches the bony wall, it is then withdrawn and the solution instilled once more in the opening at the punctum; should the solution now reach the nasal chamber the stenosis is in the canaliculus; if, however, the solution returns or passes around the upper canaliculus and out its punctum, the stricture is in the lacrymal sac or nasal duct.

When the punctum is found to be occluded by mucus or other foreign material this may be wiped out by absorbent cotton and the drainage channel subsequently flushed. One such cleansing is usually sufficient.

If as the result of blepharitis marginalis or chronic catarrhal conjunctivitis the punctum is closed, treatment must be directed to the correction of these diseases. In misplaced puncta due to ectropion, entropion, or senile lack of tone of the lower lid the stated operations are done to correct these conditions.

Patients who have a stenosis of the punctum or canaliculus not attended by inflammation will not as a rule present themselves for gradual dilatation with probes as frequently as is necessary on account of the discomfort and pain attending this treatment, and even among the most faithful in this respect the stenosis returns in most instances after the discharge of a case that is deemed sufficiently dilated. At the present time it is advised that the canaliculus be slit in every case of stenosis of the punctum and canaliculus that is definitely made out, and a permanently good result may be reasonably assured every such case.

The canaliculus is slit by first dilating it with a canaliculus probe that is passed as far as the bony wall and then withdrawn; now the tip of a Weber's knife is entered at the punctum with the cutting edge inclined slightly toward the globe and the instrument is passed in the dilated canaliculus until its tip reaches the bone, the handle is then elevated. The incision thus made is kept open by dropping liquid petrolatum at frequent intervals in the conjunctival cul-de-sac. If the sides of the incision become adherent a probe is passed between them to keep them apart.

When the constriction is made out to be in the lacrymal sac or nasal duct the canaliculus is first slit and a rapid dilator (Ziegler's) is passed through the drainage channel into the inferior meatus of the nose. The passage of the rapid dilator is sufficient to keep the channel patulous in 25 per cent. of these cases.

The technique is as follows: The dilator is passed in the lower canaliculus until the bony wall is reached, the anterior rim of the opening of the nasal duct is then made out and the tip of the dilator is placed behind it in the opening of the duct, the handle of the dilator is elevated to an almost perpendicular position and pressed in a downward, outward, and backward direction. A false passage is never made if the above technique is followed out carefully. Should the first dilatation fail to give a result it is done twice more one week apart; if these do not succeed then a leaden style is placed in the lacrymal channel.

A leaden style is about 20 mm. in length, is $1\frac{1}{2}$ mm. in diameter, with an arm bent at right angles that fits in the canaliculus and is 6 mm. in length. To insert it most readily the rapid dilator is first placed in its usual position in the lacrymal channel with its tip in the inferior meatus of the nose. It is then slowly withdrawn and the style is passed down alongside it, replacing the dilator as it is removed. When inserted properly the style is not visible and produces no perceptible irritation. The after-treatment consists in grasping the arm of the style with forceps daily and moving it to prevent the lining of the lacrymal passage from becoming attached to it, and this is followed by flushing the channel with a cleansing solution. After daily treatments for a few weeks no further regular attention will be found necessary. The tendency of the lacrymal channel is to constrict when the style is removed earlier than six months and it is the practice of the writer to allow it to remain even a much longer time.

Seldom is it found necessary to resort to more heoric measures than the placement of a style for the correction of epiphora, but if this does not suffice then the excision of the palebral portion of the lacrymal gland or the extirpation of the lacrymal sac may be done.

When the epiphora is the result of existing inflammations of the lacrymal drainage apparatus one of two diseases is usually present, a chronic catarrhal inflammation of the lacrymal sac (chronic dacryocystitis) with regurgitation of mucoid material into the conjunctival cul de sac, or a phlegmonous dacryocystitis. Should either one of these exist the extirpation of the lacrymal sac becomes imperative and the patient is confronted with the choice of operation.

The extirpation of the lacrymal sac through a facial incision over the sac area (European method) seems to be most in vogue to-day, but in this procedure, if the incision on the face does not heal by first intention a broad scar remains. To obviate the possibility of a facial scar the writer has devised an extirpation operation of the lacrymal sac through the slit canaliculi that has given repeated excellent results. A report of which appeared in the MEDICAL RECORD, August 19, 1916.

In brief the technique is as follows: Ether anesthesia is preferable, but it may be done by injecting a local anesthetic into the skin over the sac. The upper and lower canaliculi are slit and the bridge of tissue that remains between the distal ends of the incisions is severed with a bistoury, the internal canthal ligament is divided at its attachment to the anterior lacrymal crest, then with appropriate curettes the diseased sac and granulation tissue about it are scraped out through the canalicular incisions. A bandage is then applied to keep the walls opposed and prevent swelling. The bandage is renewed for two or three days.

The advantages of this operation are (1) there is no scar remaining on the face; (2) there is less difficulty in obtaining consent to operate when the absence of a facial scar is assured; (3) there is little hemorrhage during the operation; (4) there is no possible return of the condition because the mucous lining is ablated from the punctum to the upper portion of the nasal duct.

Conclusion.—1. Overflowing tears is the result of stenosis of the lacrymal drainage apparatus not attended by inflammation.

(a) A stenosis of the punctum or canaliculus is corrected by a Bowman's slit of the lower canaliculus.

(b) A stenosis of the lacrymal sac or nasal duct is corrected in 25 per cent. of the cases by passing a rapid dilator through the slit canaliculus to the inferior meatus of the nose. Nearly all of the remaining cases are corrected by placing a leaden style in the lacrymal drainage channel and allowing it to remain six months or more. An excision of the palpebral portion of the lacrymal gland or an extirpation of the lacrymal sac is done if the above measures fail to check the overflow of tears.

2. Overflowing tears the result of stenosis of the lacrymal drainage apparatus attended by inflammation.

(a) An extirpation of the lacrymal sac is imperative when the epiphora is the result of a chronic catarrhal or phlegmonous inflammation of the lacrymal sac.

(b) The extirpation operation of preference is the one in which the lacrymal sac is removed through the slit canaliculi.

127 West Fifty-eighth Street.

PYORRHEA ALVEOLARIS.

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This is a very serious and a very common disease, which, according to Barker, Bass, Johns, and others is an amebic infection.

Barker[1] says: "By pyorrhea alaveolaris I mean a disease in which there is inflammation of several structures—the gums, the peridental membrane or ligamentum circulare, and the periosteum, and the alveolar process of the jaw; it is therefore a combined gingivitis, paradentitis, and osteitis; the inflammation may cause destruction as high as the apex of the tooth, and ultimately the tooth falls out. By paradental inflammation is meant an acute inflammation of the periodontium and its neighborhood, not due to extension from the interior of the tooth or the apex of the root-canal, but arising in a gingival pocket. Tartar collects on the teeth at the gum-margin and inflammation of the gum (gingivitis marginalis) develops. As the tartar descends, or ascends, into the alveolar socket, there is gradual atrophy of the gum and alveolus, and later the teeth will become loose and fall out. This process is associated with infection and suppuration. The *Entameba buccalis, spirochetes,* and bacteria can be found in the pus. Inspection and palpation usually settle the diagnosis. The entameba should be sought microscopically. In incipient cases, a skillful dentist may discover "pyorrhea pockets" at a stage when they might be overlooked by the physician. Pyorrhea alveolaris must be differentiated (1) from scorbutic and other forms of "spongy" gums, and (2) from simple atrophia alveolaris praecox (retraction of gums without any signs of inflammation).

"Systemic or toxic sequelæ of this affection are many. I have observed a case in which there was marked enlargement and tenderness of the liver in association with a very severe pyorrhea alveolaris with fever. The liver edge was at the level of the umbilicus. The teeth were loose and bathed in pus. Attempts were made at first to clean up the mouth with antiseptic washes, but they were of no avail, and large quantities of pus were swallowed by the patient. Finally, an anesthetic was given and all the teeth were extracted. In a few days the oral sepsis had been overcome and the temperature fell to normal. The liver, to my surprise, rapidly decreased in size, and a month later the edge was at the costal margin. The general health of the patient rapidly improved."

Chronic arthritis, secondary to pyorrhea, is quite an every-day occurrence with the observing practitioner. Irritable heart, dysentery, and tropical abscess of the liver should not surprise one.

The amebæ in man now recognized are *Entameba coli,* a harmless commensal, *Entameba histolytica,* and *Entameba buccalis.* These last two are pathogenic forms. *E coli* is 10 to 20 microns in diameter when free, grayish in color, spheroidal, sluggish, and has a distinct nucleus and only one vacuole. *Entameba histolytica* is larger, irregular, greenish yellow, and has a distinct nucleus and many vacuoles. *Entameba buccalis* I take to be identical with *E. histolytica,* its habitat bringing about an apparent difference, if any. Amebic cysts containing spores enter the mouth through contaminated water, fruits, vegetables, etc., and pass to the large intestine. Here they may set up an acute necrosis with its sequelæ, or may remain apparently latent, infecting the whole system.

This latest condition may for a long time present no clinical symptoms, but the amebas may be found in the stools, urine, and in the serous cavities of the body—abdominal, pleural, pericardial, synovial, tooth sockets, etc. It is this tooth socket necrosis we are dealing with, and why this socket necrosis should be more common than that in other localities is apparent when we consider the action and function of the teeth, trauma produced by biting hard substances, tartar, their septic location, etc.

Treatment here will be practically the same as that for amebic dysentery, modified only as the location will permit. And from what I have said one will see the fallacy of any purely local treatment unless that local treatment should also act systematically.

Ipecac or its active principle, emetine, is good, and should always be tried. Concerning the use of this Bass and Johns[2] advise that the mouth be rinsed once a day (at night) with a solution of fluid extract of ipecac or of emetine, by forcing the solution back and forth between the teeth. The solution should be made up just before use

by adding one or two drops of fluid-extract of ipecac, or one or two drops of a solution of 5 grains of emetine in one ounce of water, to half a glass of water. If ipecac or emetine is used constantly as a mouth wash in this manner, it is doubtful if the individual would ever contract the disease. It has struck me that if this drug or its active principle, in the proper dose, be added to chewing gum, it might serve a good purpose to the afflicted jaw-waggers in the early stage.

"Scaling or scraping the roots of the teeth: If a tooth surrounded by a pyorrhea pocket is extracted and examined, considerable accumulation of deposit of various kinds is found on the part of the root that was between the level of the edge of the gum and the edge of the remaining peridental membranes. This may be either soft or hard. There is a deepset opinion held by the dental profession that it is important to scale or scrape this off to facilitate healing. This might be true if there was any hope that the destroyed peridental membrane would be regrown and again cover the root of the tooth where it formerly existed. We have not the slightest evidence, however, that such a thing can occur. Apparently, therefore, the only benefit that would result would be what results from cleanliness and removal of foreign material.'"

For this purpose I have found that the occasional use of cream of tartar on one's brush will cause this tartar to release its hold and give better results with less trauma than anything I have yet tried. However, that we have to handle our cases intelligently, know the action of our drug and give it to get that action is well portrayed by Jepps and Meakins[3] of the British Medical Research Committee in examining soldiers returning from the Mediterranean region, suffering from irritable heart. Sixty-five cases were examined, 24 were found to be *Entameba histolytica* carriers. The treatment here was emetine bismuth iodide, carried out by the employment of the drug in three different ways. When given in a powder, this drug causes nausea and vomiting, so it was administered in tablets and pill form and was either mixed or coated with some material supposedly insoluble in the stomach. In all 23 courses of treatment were given with these preparations. No nausea or vomiting was produced, but in eight cases severe diarrhea and abdominal cramps occurred. Some looseness of the bowels was observed in all cases where the drug appeared to have any action. In the treatment with the stearin-coated tablets, there were eight out of twelve cases treated, or 66 per cent. With the second, the stearin-coated pills with resin ointment basis, there were no cures, while with the third, another form of stearin-coated tablets, there was only one cured out of four cases treated, or 25 per cent. Then the emetine bismuth iodide was given in cachets of 3 grains each to eleven cases. Ten cases, or 91 per cent., were cured after twelve daily doses. Jepps and Meakins found as the result of this detection and treatment that (1) additional infections with intestinal protozoa may be detected at the sixth and later examinations. (2) Infections of *E. histolytica* in which no cysts measuring over 10 microns in diameter are found in the stools are far from uncommon. (3) The use of emetine bismuth iodide has cured a large proportion (95 per cent.) of the amebic dysentery carriers. (4) The best method of administration of this drug is in the form of the loose powder in cachets in daily doses of 3 grains; at least 36 grains should be given in all. (5) Symptoms of irritable heart in amebic dysentery carriers are reduced in a large number of those patients who have been cured of the amebic infection. (6) Infection with intestinal protozoa has no marked effect on the differential leucocyte count.

Another drug and one that I have had much experience with in common with many other physicians of South Texas and Mexico, a drug which we conider as much a specific for amebic infection as we do quinine for malaria, is *Chapparro amargosa*.[5] It may be of interest here to state that this drug was first brought to the notice of scientific physicians in 1884 by J. L. Putegnat, a druggist of Brownsville, Texas. He observed the natives, after running the gauntlet of the medical man, for intractable bowel troubles, would invariably find relief in this drug. He had an abundant opportunity to try it out on the U. S. soldiers stationed at Fort Brown, made for them decoctions and infusions with such universally good result that his product succeeded in getting quite a local reputation. Even to-day it is not uncommon for soldiers who have returned from the Philippines and the Canal Zone, infected with amebas to send for this drug, the men having had the accepted treatment.

(4) This drug has an active principle, a glucocide, isolated by Putegnat and called by him amagosin. There is no doubt that this drug, *Chapparro amagosa*, needs to be studied anew, and if the clinicians in active practice are any criterion, it would prove more efficacious than ipecac. The likelihood of not getting a pharmacologically active product, I really believe, is the reason we are so slow in having this product accepted. The native Mexicans make an infusion or decoction, which with them is best. A fluid extract is now to be had, and this, combined with a digestant, agrees better with the stomach. Given in teaspoonful doses, three or more times a day, it will bring results that will surprise the most skeptical.

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3. Jepps and Meakins: *British Medical Journal*, Nov. 17, 1917.
4. U. S. Dispensatory, 19th Ed.
5. Tyson: Practice of Medicine, Sixth ed., p. 192.

Transmission of Lepra by the Mosquito.—Suarez de Figueroa refers to the cumulative incidence of leprosy in certain localities on the Catalan coast in Spain. The culex, anopheles and stegomyia mosquitoes are all prevalent here and malaria is common. In certain areas only the culex could be found, and it is precisely here that one finds no leprous foci. Otherwise stated the anopheles and stegomyia, one or both, could be an agent in transmitting lepra, even as they are known to transmit other diseases. Every other possible cause of lepra may be excluded.—*Gaceta Medica Catalana.*

Military Medicine.

ADRENAL INSUFFICIENCY IN THE COMBATANTS.

Much has been written on this subject from various viewpoints during the past year or two. In the *Journal de Médeeine de Bordeaux* for July, Carle expresses himself to the following effect: The syndrome of Addison's disease is the result of slow, progressive destruction of these bodies. The symptoms fall under five heads: (1) Lumbar and lumboabdominal pains; (2) brown pigmentation of the tegumentary structures; (3) a variety of circulatory disturbances; (4) digestive disorders, which comprise anorexia and vomiting; (5) progressive asthenia, which culminates in somnolence and dread of movement. As a consequence of these symptoms the patient soon succumbs, developing a cachectic state before death. When the pericapsular sympathetic plexus or the adrenals themselves are involved secondarily in other processes, as tubercle or malignant disease, the same condition develops.

The mechanism is readily understood in these secondary cases of Addison's disease, because the glands are destroyed outright; but this destruction is not a *sine qua non* for the supervention of the syndrome, which may occur as a functional manifestation. In acute infectious diseases during the period of convalescence, as a sequel of chloroform anesthesia, after antityphoid inoculation and the exhibition of salvarsan, we see the syndrome develop, and not insidiously, but suddenly and brutally. All of the symptoms of Addison's disease are recognizable, but in a different setting. One subject may show incoercible vomiting, with or without diarrhea, and abdominal pains. Low blood pressure, or somnolence and prostration, may dominate the scene. According to the particular grouping of symptoms, these cases may be confounded with cholera or acute poisoning or acute peritonitis.

Out of all this confusion the syndrome of acute adrenal insufficiency has been isolated, and distinguished clinicians have elaborated it. Next in order, the abortive syndrome demands our attention, this often being grafted upon other disease pictures. We see evidences of it in pregnancy. The author even goes so far as to state that symptoms of toxemia of pregnancy belong here—the pigmentation, vomiting, etc. In ordinary pulmonary tuberculosis, without reference to localization of the process in the glands, the same picture may assert itself.

The so-called "war addisonian" is a subject *sui generis*. His malady is not directly associated with any of the preceding syndromes. As a rule, he has undergone shell shock. The symptoms are chiefly abortive, and perhaps not readily recognizable at first. The expression may be a dyspepsia—a disgust for food, and vomiting. It is perhaps the presence of the white line of Sergent or the striking improvement which follows adrenalin injections, which gradually suggests the adrenal motivation. In the opinion of many clinicians the response to adrenalin is the acid test in the diagnosis of these states. A psychasthenic state may also exist, due purely to adrenal insufficiency. It stands in some relationship to the general asthenia, which is one of the most characteristic manifestations of this insufficiency. Another manifestation is myasthenia of the same origin. Now and then these abortive cases may pass into full-fledged adrenal insufficiency. Of thirteen cases especially studied, two were examples of total and the rest of abortive insufficiency. The antecedents of these patients showed great variety. In the midst of much confusion the asthenia and low-blood pressure always stand out prominently. It seems reasonable to conclude that these abortive states are due to functional overtaxing of the organs, and that after a prolonged rest the subject will have recovered his equilibrium. The facts thus far bear out this view.

Constipation in the Army.—The recent literature of this important subject seems less than its importance warrants. In *La Presse Médicale* for July 25 Labbé considers it very thoroughly. Despite the great prevalence of diarrheic and dysenteric cases in the army, the constipated outnumber them, and Labbé holds that of the two classes of enteric disturbance constipation is the more serious, which is saying much. The prevalence of constipation is the result of factors which differ considerably from the causes of constipation in civil life. The diet of the soldier is notably deficient in vegetables and fruits, to which even the poorest civilian has access. The second factor is no less significant—the soldier often lacks opportunities to defecate. Moreover, he is quite unable to resort to laxatives and enemata. Labbé makes four forms or rather degrees of constipation, viz., simple, spastic, atonic, and toxic. The simple form is expressed by the usual symptoms of retention, such as discomfort, bad taste, coated tongue, loss of appetite—all of which vanish after a movement. In the spastic form the patient may not know that he is constipated, because he may pass some fecal matter daily, but he really retains a large amount and there is a good deal of local and reflex disturbance. Since the retention is due to spastic contractions of the colon, the condition is more or less inveterate and does not improve after the use of laxatives and enemas. Different in type is atonic constipation, for here fecal impaction may go on indefinitely if artificial relief is not obtainable. In this form there is often partial intestinal obstruction and much meteorism may result. The fourth or toxic form may follow both the spastic and atonic types. There may appear to be a serious affection of the general health, a failure of nutrition, but the most careful exmination fails to discover anything beyond constipation. In a specimen case the chief symptom was crises of vomiting, while a second patient, in addition to nausea and vomiting, had a notably cachectic look and was extremely emaciated. These subjects appear to present symptoms which have a cyclical evolution, as if the organism was able to disburden itself of toxic material at stated intervals. The author also recognizes a form of constipation in which colitis is a sequela. So-called stercoral typhlitis causes symptoms of chronic appendicitis, but the appendix does not necessarily participate in the process.

The treatment of constipation in the soldier is a matter of vital importance, because obviously we cannot speak truthfully of a prophylaxis which

can apply to all troops. If the men can get whole wheat bread, legumes, and fruits the problem will, of course, be vastly simplified. If there is a lack of latrines the installation of a plentiful supply will prove of immense value. Toilet paper must always be supplied in abundance. Some of the men who have not good habits of defecation can, of course, profit by personal hygiene along these lines. The best way to overcome simple constipation is by agar or mineral oil and one may drink cold water on rising, while tobacco often acts as a laxative. Of drugs for internal use castor oil and salines are the best. These are often of value in daily laxative doses. The good results of belladonna in constipation are probably due to its favorable action in spastic cases. Other antispastics like valerian have some value. Strychnine acts well in the atonic form and in recent years suprarenal extract and glycerophosphates have been used with benefit. If autotoxemia is present the patient is placed on a non-putrefying diet and given intestinal antiseptics.

Malaria in the Army.—Lieut.-Col. E. J. Williams writes in the *Canadian Medical Association Journal* for June, 1918, on the treatment of malaria in the British army. He says that while the question as to the absolute cure of malaria by the administration of quinine, arsenic, and other drugs is still unsettled, one thing is certain, viz., to prevent a recurrence of the malarial symptoms of a patient a systematic prolonged course of treatment is necessary. The form of quinine best suited to combat the disease, the length of the period over which the treatment shall be continued, the procedure adopted for the carrying out of the treatment are matters worthy of consideration. Quinine has long been recognized as the one drug which acts most favorably upon the plasmodium of malaria. The value of the drug is enhanced by the addition of arsenic in the majority of cases. The tablet or powder form has not proven as efficacious as the solution with sulphuric acid. The sulphate of quinine in the acid solution is the most commonly employed form for administration by mouth. However, in some cases where the desired effect is not obtained the hydrochloride or the bihydrochloride in solution has been given with better results. The dose of the sulphate is from 20 to 30 grains daily, of the hydrochloride or bihydrochloride 7 to 15 grains. The intramuscular method has met with better results, on the whole, than that by the mouth. Still abscess formation at the site of injury is not uncommon, and thus this method does not meet with general favor. The bihydrochloride is used, the dose being from 5 to 10 grains. The intravenous method is without doubt the most efficient one when ordinary care and skill are employed, and is practically devoid of danger. The action of the drug is much more rapid and the amelioration of the symptoms more marked than in the other forms of administration. Five to seven grains are given in 200 to 300 c.c. of physiological saline solution, once or twice a day. In severe cases 30 grains may be given in twenty-four hours. In malignant cases and especially those of the cerebral type, this is the only form of administration which seems to produce any appreciable effect. The administration of arsenic in addition to quinine is advisable in practically all cases. The length of period over which the drug should be administered is estimated differently by different authorities, some advising a daily use for three months, others intermittent dosage over a period of from 12 to 18 months. In the experience with the troops in the East for two malarial seasons, the recurrence of attacks during the second summer in those who had suffered from malaria during the first season was so common that in the opinion of Williams the twelve months' period of treatment seems to be the minimum.

Use of Caustic by Simulators.—The ingenuity of the simulator is proverbial, and to produce artifacts, the nature of which he so little comprehends, using, like the old masters, so few utensils, and often deceiving the elect, strikes the medical man as remarkable. It is not the lesions but the peculiarities of incidence that usually unmask the malingerer. In an article in *La Presse Médicale* for May 30, Minet considers the effects of actual caustics—acids and bases. The simulator usually applies the caustic solution with a pledget of cotton or a brush over a circumscribed area of skin. The sharp even definition of the margin has therefore come to suggest the artifact. Sometimes he dips a finger or joint in the solution and the "glove finger" effect may also betray him. Minet has never known a simulator to immerse his whole hand in caustic, and this conservatism betrays at times, for the simulator controls his injury, or at least tries to do so. The caustic substance is often revealed by the appearance of the lesion—it may be silver nitrate, sulphuric acid, nitric acid, hydrochloric acid, caustic potash, caustic soda, or the mixture known as copper water, which contains oxalic and sulphuric acids. One familiar with these burns has little trouble in determining the causal solution. The crude simulator may explain his injury as caused by a contusion or other trauma.

The practice of provoking abscesses by the hypodermic injection of turpentine or benzine has been extended to caustics. As a result a simulator appears with a peculiar lesion on the forearm or hand which is ultimately recognized as a beginning slough. If one looks a little beyond the periphery he will find the telltale needle puncture. The sphacelus presents a red areola. If the affected tissues are incised blood or other fluid does not escape. There is an odor of gangrene. As the slough separates the surrounding tissues have become edematous. At this period the lesion shows no evidence of its subepithelial origin; no one would believe that the caustic had not been applied directly to the integument. But the needle puncture, the reaction in the cellular tissue—not seen in the superficial lesion—and the contour of the sphacelus which is distinctly polycyclic, serve to differentiate it. Phlegmon is a complication or sequel and the expulsion of the slough usually exposes the tendons, muscles, and ligaments. Pus may burrow. The simulators explain these lesions by invoking mechanical injuries or claiming that they are the result of blood poisoning following slight punctures, and they exhibit at times considerable ingenuity as liars.

Official Announcement Regarding the Volunteer Medical Service Corps.

The following is addressed to Executive Committees and County Representatives of the Volunteer Medical Service Corps and State Committees of the Council of National Defense:

No official or committeeman representing the Volunteer Medical Service Corps or the General Medical Board of the Council of National Defense is now authorized or has been authorized to favor any organized or unorganized method of coercion in inducing members of the medical profession to join the Medical Corps of the Army or Navy, or the Volunteer Medical Service Corps. Our committeemen are especially urged against favoring any movement that would threaten to impair a medical man's standing in his local, state or national society because he refused to enroll in the Army or Navy, or the Volunteer Medical Service Corps.

It must be made clear that the Volunteer Medical Service Corps is a volunteer organization which has for its object the enrollment and classification of the profession. Its members are entitled to wear an insignia which will clearly indicate that they have offered their services to the government, when such services are needed. Patriotism cannot be created by coercion. It also must be made clear that the Volunteer Medical Service Corps has for its primary object furnishing its classification to the Army, the Navy, the Public Health Service, the Red Cross and Provost Marshal, as well as to civilian institutions and communities, as a guide in providing for their needs to the best advantage.

The object of the Corps is not to disturb any medical man in the performance of any duty to which he has been assigned by any governmental agency either for service at the front or at home.

(Signed) Edward P. Davis,
President, Volunteer Medical Service Corps.

Franklin Martin,
Chairman, General Medical Board, Council of National Defense.

Influenza in the Army and Navy.—For the week ended September 20, the Surgeon General's office reported a death rate of 4.4 per cent., compared with 2.3 per cent. the preceding week. This increase was attributed in large measure to influenza, but these figures do not show the seriousness of the situation since the disease had been greatly on the increase since that time. The total for all camps, on September 27, was 42,367 cases. Pneumonia cases showed a slight decrease, 717 new cases being reported, compared with 723 the preceding day. The situation at Camp Devens, Mass., seems to be coming under control, the number of cases reported daily being on the decrease. The number of pneumonia cases also shows a decrease, though thus far since the outbreak of the epidemic there have been 81 deaths from pneumonia. At the Great Lakes Naval Training Station, 8,475 cases of influenza have been reported, but they have been mostly mild in character, only 77 deaths having occurred. The epidemic in Camp Dix, N. J., is also subsiding. On September 28, 2,677 new cases of influenza were reported to the Surgeon General's office from the various camps. While it is believed that the crest of the epidemic has been passed in the Eastern camps, it is expected that the disease will spread westward, and that there will be an increased mortality in the Western camps during the next few weeks. It is reported that tests have been carried out in the army camps with a serum which has been found to be an almost sure preventive of pneumonia. It is stated that this serum is now being manufactured in quantities sufficient to treat 50,000 persons daily, and that only one injection is sufficient to afford protection. Strict quarantine is being enforced at all army camps for the present.

Nutrition Section Studies Army Rations.—Officers of the Nutrition Section of the Surgeon General's office are studying the army diet in the various army camps in the United States and France, as well as in the trenches. Twenty-nine officers of the Nutrition Section have been sent abroad, four of whom have been detailed to rest camps in England, where their knowledge of what the American soldier wanted and required was applied in a practical way. Reports on the observations will be made to the Surgeon General's office, together with suggestions for the better preservation and conservation of food in the camps.

Army Hospital at Saratoga.—George W. Pratt, State Conservation Commissioner, with the sanction of Governor Whitman, has offered the Federal Government sixty acres of the Saratoga Reservation as a site for an army hospital. Commissioner Pratt agrees to provide the plumbing system by which the medicinal waters may be carried to the hospital baths and to furnish the bottled waters to all the patients.

Surgeon General Gorgas May Be Retired.—It is reported, though without official confirmation, that Major General William C. Gorgas, who will reach the age of retirement next month, will probably be succeeded as Surgeon General of the army by Major General William M. Ireland. It is also rumored that General Gorgas will be recalled to active service, and assigned to the Inter-Allied Military Council in France.

Dr. Lucius P. Brown, Director of the Bureau of Food and Drugs of the New York City Health Department, has been granted leave of absence without salary for the period of the war and will shortly enter the army with the rank of captain. He will be in the food and nutrition division of the sanitary corps.

Deaths in the Service.—Lieut. Sidney Pearson Lewis of Jersey City, N. J., was killed by a shell on August 10, on the Somme battlefield, while serving with the Fifty-second Field Ambulance. Dr. Lewis entered the service last March, and after receiving his training at Fort Oglethorpe was transferred to the British Expeditionary Forces.

Capt. Rae Wygant Whidden, M. R. C., U. S. A., of New York City, died of pneumonia following influenza, contracted while serving at Camp Dix on September 25. He was a graduate of Harvard Medical School in 1911. Before entering the service he was visiting physician to Bellevue Hospital and assistant physician at the Presbyterian Dispensary. Captain Whidden was wounded during the bombing of a base hospital in France in 1917.

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THE LIBERTY LOAN.

THIRTY thousand medical men have given up everything—practice, home life, ease, recreation, and in some cases life itself—for their country. There are over one hundred thousand of us left behind; some are physically unfit, some too old, some are in one way or another more useful here than they would be over there. Those of us who would go if we could—and that means at least ninety-nine out of every hundred—can make ourselves feel better by also making sacrifices by economizing, by pinching ourselves to the limit, and then buying bonds. Suppose each one of the one hundred thousand physicians still in the country bought only one thousand-dollar bond—and surely they could average that amount for a good investment—there would be $100,000,000, one-sixtieth of the entire amount of the loan taken by one-thousandth of the population. We have given more than our proportion of men to the army and navy, let the rest of us live up to our reputation, and for the honor of our profession buy more than our proportion of Victory bonds.

The business men of the country are contributing largely to the success of the Fourth Liberty Loan, not only by buying bonds but by advertising the loan. In this issue of the MEDICAL RECORD many of them have generously given space to the cause which they might have kept for advertising their own products. Our readers will note their names and not forget them in their future dealings.

SOME DIAGNOSTIC ASPECTS OF TYPHOID FEVER.

FROM the clinical standpoint, typhoid fever is a septicemia having a subacute evolution, initial symptoms of which are well known. The evolution and symptomatology of a normal typhoid are of such common knowledge that the affection is readily diagnosed, but there are many exceptions to this rule. There are certain processes which resemble typhoid fever very closely, such, for example, as acute miliary tuberculosis or the typhoid form of endocarditis, so that the diagnosis may remain in suspense until a laboratory examination settles the question.

But there are also types of typhoid which differ so greatly from the classical picture of the disease in the adult that their diagnosis is difficult, if not even impossible. Very frequently the early symptoms of typhoid are those of an ordinary infection, with headache and lassitude, so that the condition is supposed to be an infectious process due to any agent other than the bacillus of typhoid. And if among the symptoms of an ordinary infection a single symptom which ordinarily occupies the background, or may not even exist in an ordinary typhoid appears in the foreground and assumes a considerable intensity, the diagnosis may easily fail.

Many are the atypical forms of the early symptomatology of typhoid, among which may be mentioned a sudden commencement, more particularly met with in children, where the patient suddenly passes from a state of absolute health into the phase of full development of a typhoid, the period of incubation having passed by without offering any evidence of its presence. Chills, fever, headache, and vomiting suddenly supervene, so that typhoid is about the last disease thought of.

Pneumotyphoid, which comprises the pneumonias which mark the beginning of typhoid fever, the symptomatology of which is usually so intense that it overshadows the gastrointestinal phenomena, causes the clinician to overlook the true condition of affairs. Pleurotyphoid is characterized by the association of the general and functional signs of a normal typhoid with the physical signs of a pleurisy; but here the diagnosis should be a simple matter from the discordancy existing between the general signs and the local pleuritic signs. There are likewise the bronchotyphoid, with its violent initial bronchitis, and the pharyngotyphoid, with an angina as the primary manifestation. The nephrotyphoid type, with lumbar pain, albuminuria, hematuria, edema, and mild uremic symptoms, gives rise to the erroneous diagnosis of nephritis, until the temperature chart and rose spots indicate the true condition.

Finally, there is the typhoid beginning with meningeal phenomena, with symptoms of an ordinary meningitis, and only lumbar puncture, done at this time, will show the presence of the bacillus of typhoid in the cerebrospinal fluid, indicating the initial localization of the typhoid infection. The meningeal accidents are due to an infection of the meninges with the typhoid bacillus, either pure, or associated with the staphylococcus, pneumococcus, or tubercle bacillus, and these infectious meningitides have the same pathogenesis as the majority of the so-called primary meningitides; that is to say, they represent a meningeal localization of the bacteria which have, in the first place, invaded the organism by way of the circulation. In some instances a typhoid meningitis undergoing its evolution without the typhoid syndrome, has been diagnosed, while in others the meningeal syndrome has undergone its evolution during a typhoid fever

without giving rise to any changes in the cerebrospinal fluid and without the presence of any bacteria therein. The meningeal phenomena may arise toward the end of the third week during a confined typhoid, and here the differential diagnosis from the tuberculous form may offer considerable difficulty.

MONEY MAKES THE WAR GO.—Buy Liberty Bonds and speed it along.

ITALIAN SAVANTS AND ENDOCRINOLOGY.

SINCE the outbreak of the present war the Italian medical journalists, like the French and others, have shown their patriotism by citing the early labors of Italian scientists in various fields which have heretofore passed unrecognized. In *La Reforma Medica* for April 20, Ferraninni calls attention to the extirpation by Restelli in 1845 of the thymus gland and the record of the resulting symptoms as the first practical step in endocrinology. In 1879, Pellecani of Modena injected suprarenal extracts into animals, beneath the skin and into the peritoneal cavity, which was the first step in this direction since Brown-Sequard had shown in 1856 that these glands are essential to life. Pellecani was followed in this field by Foà in 1883. These two men brought to light many interesting biological facts.

One might, indeed, go back to Eustachius in this connection, for he described the adrenals minutely in 1563; and to Bartholinus, who in 1641 termed them the "atrabilious capsules," thus giving them a sort of endocrinous significance; and to Malpighi, who was the first to record their histology, in 1687. But this, of course, is another story. To return to the moderns, we find after Foà's work with suprarenal extracts, Ciaccio developing a histological technique based on differential staining of cell constituents, the consequences of which for endocrinology were far-reaching, inasmuch as the chromaffin granules were isolated. He was followed by an entire series of Italian investigations, and much detail was worked out in connection with the endocrine glands. A still more numerous Italian school were at the same time engaged in macroscopic studies; thus Ronconi covered the thymus, Cutelli the pineal body, Caselli the hypophysis, Pepere the parathyroid, etc., to mention only a few.

In 1889 De Dominicis was the first to extirpate the pancreas and cause experimental diabetes; while in 1892 Vassale began his well-known contributions on endocrinology. Although known chiefly in connection with the parathyroids, he did much work on the thyroid and hypophysis. In 1894-1898 Lo Monaco and others demonstrated the bone changes which follow extirpation of the thymus. Pende, who recently published a huge monograph on the internal secretions, was studying the ovary during this period, while Castellino at the same time investigated the relations between the endocrini glands and the autonomous nerves. In 1897 Rumms described geroderma, a type of endocrine dystrophy. Falta, Italian in name, but an Austrian, one of the leading endocrinologists, cannot, of course, be claimed in this connection. He was at work on endocrine dystrophies in the 90's, and has since published a large monograph which has been translated into English. The author of the review, Ferraninni, was also active in endocrine sympathetic research, and read a paper before the Academy of Sciences, Paris, as far back as 1890 on the therapeutic use of a gastric extract, while in 1887 he proposed pluroglandular extract treatment, although credit for this innovation is usually assigned to Renon and Deville, 1908. He showed also for the first time that hypotension can occur in arteriosclerosis. These names by no means exhaust the list, for numerous Italians have also done pioneer work in the less known glands and their extracts (spleen, parotid, etc.).

TWO MILES OF BANDAGES COST FIFTY DOLLARS.—Buy two miles' worth of Liberty Bonds every day as long as the cash holds out, and then get some more on tick.

AEBLY'S CANCER STATISTICS.

RECENTLY, as noted in the MEDICAL RECORD, Dr. Aebly, a Swiss statistician, in analyzing the Freibourg cancer material by a new method, was able to show that the knife did not prolong the lives of cancer patients in the aggregate. These finds were evidently sufficient grounds for the substitution of irradiation for the knife at the clinic in question, although the latter course was probably decided on independently, because of the very small percentage of ten-year survivors found on tracing all of the material. The chief peculiarity of Aebly's method is that he traces the duration of the malady from the first appearance of the cancer, and not from the day of the first consultation. In the August 10 number of the *Correspondenz-Blatt fur Schweizer Aertze*, Labhardt, representing the operating surgeons, attacks Aebly's figures and conclusions. He does not attempt to answer him by statistical arguments, for the figures adduced seem to be final, but he insists that they hold good only for Kronig's material. If we glance over the latter's work, we shall see that he is an abdominal operator, pure and simple. Aebly does not know, or fails to take into account that Schauta had sixty ten-year survivors out of 219 vaginally operated cancers of the cervix. Labhardt has no ten-year figures at the Basle clinic, but he has 27 five-year survivors out of 165 women operated upon. Some of these have survived considerably more than five years, and he believes that there will be plenty of ten-year survivors. At Freibourg the exclusively abdominal intervention means a heavy primary mortality which cuts down in advance the ten-year possibilities. The author, in the interest of humanity, would maintain the original conception of the Winter propaganda that earliest possible intervention holds out the only hope for the cancer sufferer.

The rejoinder of Aebly to Labhardt's communication deals with the need of progress in cancer statistics. He concedes Labhardt's objections to the patient's word as to the duration of the malady, but he does not understand a reflection by the Basle Professor von Kronig for urging radium treatment for cancer, as if his motives were mixed. In regard to the suggestion that Kronig's clinic is not fairly representative of others, Aebly states that he has other figures to submit, and that his researches in cancer statistics have shown uniform results.

THE BULGARIAN BACILLUS couldn't grow in so foul a kultur medium. Let's sterilize it. Buy Bonds.

Radium Therapy in Hyperthyroidism.

Radium therapy has a wide field, and although divergences of opinion still exist as to its value there is little doubt that as a remedial agent its employment has largely increased. It has been employed for some years in the treatment of pathological conditions of the thyroid gland, more especially when pathological increase of function has ensued than when the gland has been merely enlarged. Dr. Albert Albe was the first to extend the field of radium therapy in this direction, and met with a considerable amount of success in the new field. Dr. W. H. B. Aikins of Toronto discusses the rôle of radium in the treatment of hyperthyroidism in a paper read by him at the meeting of the American Radium Society, held in Chicago, June 10, 1918, and published in the *International Journal of Surgery* for July, 1918. The writer has treated 45 such cases with radium, the majority during the past three years. Of these, 23 have been clinically cured; that is, the tachycardia, tremor, and restlessness have disappeared, and symptoms of excessive thyroid secretion have abated. In 17 cases there has been an improvement. The characteristic point in connection with the treatment was the relief of the nervous symptoms. In only a few of the cases did the gland diminish in size. However, the fact should be borne in mind that an operation would be necessary for this purpose, and that so long as the nervous symptoms persisted an operation would be a hazardous procedure. The merits of radium therapy in exophthalmic goiter, therefore, are that by relieving the nervous symptoms the operation for the removal of the goiter is robbed of one of its dangerous features.

IT MIGHT BE THE LAST CHANCE.—The rats are deserting the sinking ship. Bulgaria has gone; Turkey will be ready by Thanksgiving; Austria is Hungary; and as for Germany it's all bosh! Suppose the war were to stop suddenly and there were no more Liberty Loans, wouldn't the man who had no bonds feel pretty small?

Pneumonic Tendency of the Influenza Pandemic.

The ancient question as to whether pandemic influenza is air borne has naturally been asked in reference to the present visitation. In the *Correspondenz-Blatt für Schweizer Aerzte* for August 17, Lanz, a hospital physician, expresses the opinion that influenza is a contagious miasmatic affection, which spreads not only by contact but by air transmission. The air must become impregnated with germs, and then the uncertainty remains how far it can carry the infection and what is the viability of the microbe. The epidemic of 1889-90 tended to attack the upper air passages and the middle ear, while the present one is manifested as lobar and lobular pneumonia. The *x*-ray shows the implication of the hilus glands, and the pneumonia is largely of the pseudolobar, bronchopneumonic type and hence bilateral and very serious, with death following cyanosis and heart failure. Autopsy of previously healthy individuals shows the hilus glands as large as walnuts and bronchopneumonic foci. As a rule, there is no pneumonic sputum and no crisis; but the urinary chlorides are invariably decreased when the lungs are extensively involved, so that this test has considerable prognostic value. In the absence of specific remedies, physicians have gone back to the remedies of 1889—salicylate of sodium, infusion of digitalis, antipyrin, and codeine. In the direction of prophylaxis, Lanz suggests that patients should cough, spit, and sneeze into toilet paper, or similar substance, so that the latter can be burned. Turpentine fumes are recommended as a disinfectant for the respiratory passages.

The Wittenberg Thaler.

In the 16th century, in order to commemorate the arrest of an epidemic, perhaps of typhus fever, the good people of Wittenberg—it was when they really were good, worshipping not Gott, but God—had a coin struck off. On the obverse was a representation of the Crucifixion, with a biblical quotation, and on the reverse was the prototype of this, the serpent lifted up by Moses in the wilderness. This is known to collectors as the Wittenberger Thaler. A new Wittenberg Thaler is needed to commemorate the perfidity of Dr. Aschenbach and his cowardly crew of assistants who deserted their posts when typhus fever broke out in the prisoners' camp in that place two years ago. Let us buy bonds to serve as modern Wittenberg Thalers.

News of the Week.

The Influenza Situation.—During the past week the epidemic of "Spanish" influenza has spread through practically the entire country. Cases have been reported on the Pacific Coast, in California and Washington, and a few cases have been reported from Minnesota and Iowa. East of the Mississippi there are few States where the disease has not been found. The situation is most acute in the New England States, where the disease first made its appearance in epidemic form and where the death rate has been comparatively high. Boston has begun a concerted effort to stamp out the disease. The Executive Council in special session set aside $100,000 and created an Emergency Public Health Committee. The first step taken by this committee was to call on the American Red Cross at Washington for physicians and nurses to replace those who have died or become exhausted

by their arduous labors, the request being for 500 doctors and 1,000 nurses. With the help of the Army and Navy medical organizations and the Red Cross, it was expected that within twenty-four hours several hundred additional physicians and nurses would be available for service. The Massachusetts State Health Committee recommends that specialists, who can temporarily give up their practice, should register with the State Health Commissioner for service against the influenza epidemic. All unnecessary public assemblages have been dispensed with in Boston and the neighboring cities. The disease appeared suddenly in Norfolk, Va., on Monday, some 600 cases being discovered among workers in the Quartermaster depot there. In New York City the epidemic seems to be gaining momentum. The number of cases reported daily has gradually increased until, on September 27, 324 cases were reported. On this date the city registered its first 1,000 cases. Dr. Copeland, the Health Commissioner, made a request for $5,000 as a safeguard in combating the disease and the Board of Estimate gave him $25,000. This fund will be used in the employment of additional doctors and nurses. A resolution introduced into Congress by Senator Weeks of Massachusetts appropriating $1,000,000 for the Public Health Service campaign against influenza was adopted on September 28. The money will be expended in equipping hospitals and paying physicians and Red Cross nurses. It is reported from Boston that Dr. Timothy Leary of Tufts College has produced a curative serum which is said to possess remarkable efficiency. A preventive serum is stated to have been discovered by Dr. Park of the New York Health Department laboratory.

Naples Swept by Epidemic.—An epidemic of influenza is sweeping through Naples, Rome, Milan, and other Italian cities. Many cases are complicated by acute pulmonary conditions. It is estimated that in Naples about 100 deaths are being caused daily by the disease.

Garbage Plant Must Abate Nuisance.—Dr. Royal S. Copeland, Health Commissioner, has declared that the methods used by the Metropolitan By-Products Company, which conducts a garbage reduction plant on Staten Island, constitute a public nuisance. The company has been allotted five days in which to abate the nuisance, and unless it complies with this order the street cleaning department will be notified that no more garbage is to be taken to the plant. This is the outcome of a long and bitter fight which the residents of Staten Island have waged to force this company to modify its methods of handling garbage. As the plant is the source of a large part of the country's glycerine supply it is believed that a method of garbage reduction less objectionable to those residing in the vicinity than that at present employed will be devised which will admit of the continued operation of the plant.

New York City Curtails Work of Eye Clinics.—The New York City Department of Health has decided to curtail its clinical work on the eyes of children by suspending the fitting of glasses during the period of the war. This is purely a war measure and when the war ends there is no question that the clinics will be resumed. Clinic stations where the fitting of glasses has been the exclusive work will be closed, but other eye clinics where diseases of the eye are being treated will be continued.

Shortage of Guinea Pigs.—Because of the great shortage of guinea pigs a representative of the New York City Health Department has written to the Chief City Magistrate requesting him to urge the different City Magistrates to use their influence to induce any private institutions or persons who own guinea pigs to place them at the disposal of the health authorities and to make a vigorous effort to impress on the public the importance of guinea pigs for medicinal laboratory purposes.

Hospital Employs Women Ambulance Drivers.—Owing to the shortage of men ambulance drivers, the New York Hospital recently called on the women of the Motor Corps of the National League for Women's Service to drive the hospital ambulances until men can be obtained. Several women are now serving in this capacity.

North Atlantic Tuberculosis Conference.—Under the auspices of the National Tuberculosis Association a conference will be held in Pittsburgh, Pa., on October 17 and 18, at which the States of Delaware, Maryland, New Jersey, New York, Pennsylvania, Virginia, West Virginia, and the District of Columbia will be represented. Dr. Thomas McCrae of Philadelphia is the president. This year, at least, the conference will for the most part be devoted to the discussion of tuberculosis problems related to the war. After a year's additional experience in endeavoring to meet these problems the discussion will concern itself mainly with methods, concrete results to date, and definite measures needed for the future. Further information may be obtained by addressing Miss Alice Stewart, Bedford Avenue and Wandless Street, Pittsburgh, Pa.

The Malden (Mass.) Medical Society at its meeting on September 14 elected the following officers: *President*, Dr. L. F. McCarthy; *Vice-president*, Dr. C. H. Staples; *Secretary*, Dr. Samuel Hoberman; *Treasurer*, Dr. W. W. Kingsbury.

Obituary Notes.—Dr. William A. Hendryx of New York died suddenly in Allentown, Pa., on September 21, aged 69 years. He was a graduate of Rush Medical College and practised medicine for twelve years in Grand Rapids, Mich. During his residence there he became Lieutenant-Colonel in the National Guard. Dr. Hendryx became interested in mining and retired from the practice of medicine. He invented the cyanide process of separating metal from ore, as well as various types of mining machinery now in general use.

Dr. William Pickard Megrail, a graduate of the Western Reserve University Medical Department, in 1888, died at his home in Wheeling, W. Va., following a paralytic stroke, on September 13, aged 60 years.

Dr. William F. Barclay died at his home in Pittsburgh, Pa., on September 9, aged 76 years. He was a graduate of Jefferson Medical College, in 1866, and a Civil War veteran.

Dr. Emory Judson Walker of New Haven, Conn., a graduate of Hahnemann Medical College and Hospital, Chicago, in 1868, died on September 11, aged 75 years.

Dr. John B. Sanders, formerly of Mounteville, Ga., a graduate of the Southern Medical College, Atlanta, in 1888, died at LaGrange, Ga., on September 16.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE BRITISH HOSPITALS ASSOCIATION—THE VOLUNTARY HOSPITAL SYSTEM—THE COMMON SURGERY —MEDICAL WORK AT BRADFORD.

LONDON, September 5, 1918.

THE British Hospitals Association has for its main object the facilitation of the means for considering and discussing all matters connected with hospital management; where advisable the association takes measures to further any decision arrived at by its governing council, and in all events promotes opportunities for the acquisition of a knowledge of hospital administration. To this end the hospital arranges for the reading and discussion and publication of approved papers, and holds conferences where all matters relative to hospital construction and management can be threshed out by experts actually engaged in the practical side of the work under deliberation, so that the many difficult points which arise in the granting of medical relief to the poor in charitable institutions, in semi-charitable dispensaries, and under the Poor-Law may be elucidated by a pooling of information and a comparison on sifting of ideas. The council of the association has just circulated a pamphlet dealing in a clear and exhaustive manner with the important question of the future relation of the voluntary hospitals to the impending Ministry of Health. The statement has not yet been formally considered by the council, but it has been printed and circulated under their ægis, having been written by Mr. Courtney Buchanan, secretary and house governor of the Metropolitan Hospital, who is also the secretary of the British Hospital Association. The main message of the pamphlet is to urge that the voluntary hospital system, which is threatened by many of the tentative schemes now being formulated for medical treatment under the impending act, should be permanently maintained. Mr. Buchanan defines the functions of a voluntary hospital as those of a medical, surgical, and nursing school; the institution should supply "treatment by specialists, such treatment being made in every respect as perfect as possible." He postulates that the hospitals in which treatment of this order is given should be equipped and maintained, in all their special and general departments, in the highest state of efficiency and adapted to the requirements of the latest medical, surgical, and nursing science and education. With this ideal ahead, he indicates that the service of the voluntary hospitals should be supplemented where necessary by any service, State or municipal, that comes into being by the creation of a Ministry of Health, and should be directed to three main purposes:—(1) to treat the most grievous forms of disease; (2) to raise the general standard of all medical and nursing education; and (3) to advance and facilitate, with bacteriological and pathological investigation, all scientific research. This last item in a sweeping program is a direct challenge to those people, many of whom are as silly as they are nobly intentioned, who protest that scientific research in a hospital is another word for experimentation upon the suffering bodies of the poor, and who view the association of a medical school with a hospital as a method whereby the student can get his prentice hand in by bungling endeavors to deal with defenseless patients. There are such people, and they have a noisy voice even in the House of Commons, so that it is well that the issues should be put directly before them. Centers of learning such as Mr. Buchanan has in his eye would be open only for the treatment of acute accidents, and for serious cases, selected as suitable by the general practitioners of the district. It should be possible to eliminate trivial cases, and send to the hospital for treatment only those which constitute pathological problems, and as the diagnosis would in the first instance be left in the hands of the general practitioners their energies would be brought into correlation with hospital practice in a way which does not now obtain. The elasticity of organization and flexibility of adaptation which can be obtained in a voluntary institution with much greater certainty than in a State institution, would develop this correlation in a striking manner, while it will be easy to further support this fusion of general therapeutics and scientific research by the establishment, under the new act, of clinics, surgeries, and subsidiary medical centers, grouped around and in touch with the voluntary hospitals. Mr. Buchanan makes out a strong case for maintaining the voluntary hospital system.

The drain upon the personnel of the medical profession by the demands of the navy and army has brought about a revolution in medical service which would not have occurred in two generations of peaceful development. Medical men have been driven to some extent to pool their resources, with the result that the way is already being prepared for the institution of just such local centers as Mr. Buchanan asks for in the pamphlet upon the voluntary hospital system which I have just annotated. A writer in the *Evening Standard*, who is obviously well acquainted with the condition both pre-war and now in existence, has written a forceful article pointing out the waste of medical labor involved in the neglect of the services of the capable nurse. The common surgery, as he styles the therapeutic center at which the general practitioners of a district would make a combination of their efforts, ought, he points out, to be provided above all things with a trained nurse, capable and properly instructed in the conduct of a medical practice. His definition of the duties of such a woman certainly asks a great deal of her, and one weak spot in the idea is that the supply might not be equal to the demand. He writes: "It would be the nurse's business to receive messages, interview callers, and decide what cases were so urgent as to demand immediate attention. A highly qualified woman, possessing tact and initiative, could greatly lessen the burden of the medical man's work, without in the least diminishing its efficiency. Fully half the cases in which a doctor is called in present no difficulty of diagnosis which an educated woman, with clinical experience, could not meet. Many of them could actually be treated, at least in the preliminary stages, by the nurse, and the doctor could be relieved, after full diagnosis, of a great deal of sheer routine attention. Such an arrangement would not merely save time and labor; collaboration would freshen the ideas of the general

practitioner, who is exceedingly apt to get stale, and the fact that a second or third mind would be always available in difficult cases, without special expense, would be a great advantage to the patient." Another weak spot is that a person not a doctor (for "highly qualified" in the above quotation does not mean "holding high medical qualifications") would be apt to be blind to her own limitations. It is true that many cases in general practice could be effectively treated by a capable nurse, if the diagnosis had been accurately made, but the risk of not seeing the serious condition underlying the apparently trifling symptom might be serious. To relieve the hard-worked general practitioner of such part of his routine as demands no basic scientific knowledge would be an admirable thing, but the diagnosis of cases in the first instance must be made by the man having the necessary education and outlook. For this reason the economical idea of having a resident nurse at a medical center, where the joint work of a group of medical practitioners is being carried on, must be received with caution, and I doubt very much if the General Medical Council would sanction such an innovation, however highly qualified the nurse were in her strictly nursing duties. Under the scheme of the writer in the *Evening Standard* the nurse would be doing medical work under the names of her group of employers; these employers would thus be guilty of the professional misdemeanor of "covering" and would be liable to removal from the Medical Register.

Bradford has for many years been in the vanguard of work for children, serving as an example for other municipalities, and Councillor E. J. Smith, the chairman of the Health Committee of the Bradford Corporation, has written a useful volume entitled "Race Regeneration" out of the fullness of his experience. Mr. Smith has been long a voluntary worker in Bradford's schemes, and his book is perfectly equipped with the technical detail and overflowing with useful suggestions for the future development of similar civic work. The book contains a chapter on a Ministry of Health and a detailed description, with illustrations, of the Bradford Maternity and Child Welfare Scheme and the Bradford Post-war Housing Scheme. It must not, however, be supposed that the book has merely a local interest, for such national questions as the endowment of motherhood, the race suicide brought about by venereal disease, the poverty of our educational system, and the effect of industrial conditions upon the great mass of the people are ably and sympathetically discussed. Messrs. P. S. King & Son are issuing early in September a shilling pamphlet on Housing, also from the pen of Mr. Smith, which sets out, *inter alia*, the Bradford plans for post-war housing of its workers in ten model villages of the garden-suburb type. Students of housing should critically examine these proposals. They present several new features in keeping with new ideals of race regeneration, recognizing as an indispensable factor the improvement of the environment into which the children of our workers are born. Shortage of living room presses heavily on large towns, but the cottage famine in rural districts is equally notorious. Since, as Mr. Smith points out, the future is largely dependent upon the "security of unborn children," the ways and means by which this security may be conserved and consolidated must be seriously considered.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

INCREASING THE HOSPITAL ACCOMMODATIONS—SHIFTING CANTEEN NEEDS—THE HUN'S REVENGE, BOMBING A HOSPITAL—JUNE REPORT OF THE AMERICAN RED CROSS—Y. M. C. A. HEROES—ITALY HONORS AMERICANS—A HEROINE DECORATED—PAPWORTH HALL COLONY FOR THE TUBERCULOUS.

PARIS, August 20, 1918.

THE number of beds in American Red Cross Hospital No. 5, near Paris, has been increased from 500 to 1,000, and it is now regarded by all authorities as our model hospital. Doctors hold it up as a standard. Plans are under way greatly to increase five of our hospitals. The Red Cross Hospital at B—— handled more than 1,300 cases in June. We are negotiating for two most important hospital undertakings, one as a special hospital for skin diseases and the other as an Allied hospital for gas cases. One hospital, serving as an evacuation hospital for American troops in the French sector, did more than 100 operations in twenty-four hours. Another hospital for the navy is filled and its capacity is being increased. Still another hospital for the navy is planned. We have established a dispensary and a medical and dental office for the auxiliary personnel and are opening dispensaries at Bordeaux, Lorient, and Nantes. There are three convalescent homes serving officers and enlisted men, and another is about ready for aviators. A fifth convalescent home is to be opened this month. The nursing service has furnished thirty-seven teams of French-speaking American Red Cross nurses to French hospitals with American wounded. They assist in the care of the American patients and act as interpreters between the American wounded and the French staff.

The line of communication service section has opened new canteens at three points and reopened two which had been temporarily discontinued. Canteen needs shift rapidly in some cases. One canteen serving 2,000 meals early in June dropped to 300 meals a day, while another, after closing for lack of work, reopened and served 7,000 meals the first five days. The canteen garden at an aviation center is much appreciated by the soldiers. At Limoges the dormitories are crowded every night, and 500 men are served daily. The requisition and equipment section between June 8 and 29 received 1,412 requisitions. We have carried out requisitions with goods from Paris warehouses valued at more than $517,000, in addition to shipments from points outside Paris. The home and hospital communication section received 4,435 letters and was able to give the information requested in 2,980 cases. In the field service section our canteen service at the front with the French troops now operates thirty posts, with seventeen representatives. A new office of corps representatives and a new system of storage and

supplies greatly facilitate our work with the American troops in the field. Newspaper and magazine contributions to American Army divisions are increasing. Thirty thousand magazines were distributed to more than 150 units in June and 600,000 newspapjers, an increase over May of 7,000 magazines and 200,000 newspapers. We are developing the system to supply all men in hospitals or on active service with reading material.

The American Red Cross Military Hospital No. 1, in Neuilly, has again been able to increase its number of beds in preparation for receiving the wounded from the present big battle. Owing to the fact that the entire upper floor has been released by the men who formed the Paris sections of the United States Army Ambulance Service and who were housed there until they were transferred to the Longchamp racecourse, new wards are being installed.

Mr. C. S. Wheeler, representative of the Red Cross Hospital at Jouy, reported to Paris headquarters yesterday morning that German aviators deliberately bombed the hospital at that point at 11 o'clock on Monday night. Two enlisted men among the personnel were killed and nine persons injured. Doctors were operating on four tables at this time and the hospital was full of wounded. The operations continued throughout the raid, during which at least three bombs dropped. One of them destroyed three tents. Additional teams of doctors were telephoned for immediately and the work at the hospital continued without interruption. Whenever the Hun loses a battle or suffers a reversal he takes it out by bombing a hospital, sinking a hospital ship, or making an air raid on Paris.

Following a careful investigation by a Red Cross officer a more extensive report of the bombing at Jouy was presented to Colonel Harvey D. Gibson, Red Cross Commissioner for France. Four bombs were dropped on the hospital at 11 o'clock, at least two German machines participating in the raid. Two bombs fell fairly on the roofs of hospital tents, one fell 7 feet from the wall of another tent, and one failed to explode. The bombs made only a hollow depression in the ground and were evidently designed not for penetrative power, but to scatter their fragments over as wide an area as possible. There are no structures of any kind near the hospital, and the railway tracks are nearly two miles away. In addition to the usual markings of a hospital, on the lawn immediately adjoining is a cross formed of white duck, the extreme dimensions of the arms of the cross being 30 yards. Photographs recently taken from an aeroplane show that this cross is visible several thousand feet in the air. All question as to the deliberate character of the raid is removed by the corroborative statements of seven witnesses, who state that the Boche aviators flew back and forth several times, then shut off their engines, came down to within a few hundred feet and dropped their missiles after careful observation that could not have failed on a bright, clear night to show that they were bombing a hospital.

Of the enlisted men killed one was fatally injured in the stomach as he stood 40 feet from the window of the operating room, which was pierced by two pieces of bomb. These fragments passed within 4 feet of Major J. C. McCoy, the surgeon-in-charge. Major McCoy was holding the exposed femoral artery of a patient when the bombs fell and all lights went out, leaving his own and two other operating tables in darkness. The other orderly killed was holding up a patient to give him a drink, when the orderly's chest was torn open by a bomb fragment. One of the nine hospital attendants injured had his leg amputated on Tuesday. One of the four patients rewounded received a piece of shell in the identical wound in his back from which a piece of shrapnel had been removed a few hours previously. He is Private Joseph A. Siline of Philadelphia, and will recover from both wounds. Miss Jane Jeffery, the only Red Cross nurse who was wounded, was struck near the spine by a piece of metal which traversed the entire length of a ward only a few inches above a long row of surgical and gas cases, and penetrated the end wall of a tent outside of which she was standing. Miss Jeffery, whose home address is Dorchester, Mass., is not seriously hurt and will recover, according to the statement of Major McCoy.

C. S. Wheeler, who has worked indefatigably on the installation of the Jouy hospital, was on the ground at the time of the raid and directed his first efforts toward getting the personnel out of danger. He left early in the morning for Paris for additional supplies, which were delivered at the hospital before 4 o'clock Tuesday afternoon. The wrecked interiors of the two wards hit have been carefully photographed. The Jouy Hospital had until recently sixty German wounded prisoners who received exactly the same treatment accorded other patients and were given the special delicacies provided for the Fourth of July. All were most grateful, except one German lieutenant among the prisoners, who violently objected to being cared for in the same ward as his men.

The June report of the activities of the Civil Affairs Department of the American Red Cross gives a further increase in the amount of work accomplished. Seventeen delegates gave special war zone relief in eleven departments and ninety-two delegates and associates aided refugees in seventy departments throughout France. Under medical direction three refugee homes are housing 1,500 children from the war zone. In Paris 32,000 school children are getting supplementary food for luncheons at the schools. Seventeen civilian hospitals are in good running order, with a total capacity of 1,698 beds, including the new hospital for mutilés opened during the month. Sixty-one dispensaries for children or tuberculous refugees care for 45,028 patients. Two electrical workshops and recreation halls have been completed for the French school for the reeducation of war cripples.

The emergency refugee relief committee aided 45,000 refugiés passing through Paris during the period from May 27 to June 30. The total number of civilians aided during the month was 412,563, of whom 127,043 received aid from the Children's

Bureau; 10,179 tuberculous, 10,168 mutilés, 38,638 from the War Zone Bureau, 226,638 refugees or refugee children, showing an increase of 85,353 civilians aided over previous months. The supplies distributed by all the bureaux included 296,710 garments, 56,647 pairs of shoes, 17,222 articles of furniture, 60,078 articles of bedding and household linen, 85,570 yards of cloth, 668,672 pounds of food, 4,287 articles of hospital equipment and supply. The money grants to outside organizations totaled 921,585 francs of which 435,477 francs went to the tuberculous, 345,353 francs to refugees, 38,000 francs to relief in war zone, 70,505 francs to children, and 32,250 francs to mutilés.

Y. M. C. A. men have performed heroic deeds during the new German push. Henry J. Johnston, East Orange, N. J., who was cut off by the German barrage for six hours, finally broke through with a small squad of Americans and worked all day helping to bring in the wounded and assisting the doctors in the advanced dressing stations. G. A. Crispin, Charleston, Ill., and the Rev. F. A. Cunningham, Providence, R. I., served as stretcher-bearers, and cared for the wounded in dugouts until they were ordered by the commanding officer to move back. All the Y. M. C. A. supplies in the attacked zone were given free to the soldiers, some of whom had lost their rations. W. H. Danforth of St. Louis, Mo., Richard Shreve of Rochester, N. Y., and others stuck to posts in the advanced areas, distributing supplies, helping ambulance men, and making wounded more comfortable. Mack Strong of Selma, Ala., and William J. Symons of Whittier, Cal., were under shell fire for nine hours in the cellar of a Y. M. C. A. canteen. Men were killed and wounded all about them, one being killed in a room overhead. After the barrage lifted they remained at their posts distributing supplies gratis to the wounded. Dr. William Doidge of Passaic, N. J., and William P. Gwin of Gadsden, Ala., rendered aid to the wounded under fire. Dr. Doidge took twelve wounded back to the dressing station.

The twenty-one members of Section 3 of the American Red Cross ambulance service in Italy have all been awarded the Italian War Cross for conspicuous gallantry in serving Italian troops during the recent offensive. These Americans were under a continuous fire day and night, performing work of the greatest importance. The members of Section 3 who received the War Cross are Lieut. E. Paskum, the chief of the section; J. H. Tedford, James Eaton, Harry F. Gibbe, Raymond T. Hanks, Wisted G. Henderson, Wilard H. Hohl, Charles H. Masters, George C. Moyes, Malcolm G. Olson, Grant M. Palmer, Bryant Prescott, Robert Rieser, Winthrop Slade, Jr., Henry N. Spellman, Amory Thorndike, Edward T. Dougherty, George S. Piper. Other ambulance drivers have also been mentioned for special distinction but their names have not yet been made public.

M. Clémenceau, Minister of War, has on the proposal of the Commander-in-Chief, awarded the Cross of the Legion of Honor and the Croix de Guerre to Miss Fraser, a British automobilist attached to a sanitary section, who was severely wounded in the exercise of her mission. She is mentioned as follows: "Charged on the night of July 18 to 19, 1918, with the transport of wounded, she accomplished her mission under a violent bombardment. Having received two serious wounds on the way, her automobile being destroyed by the explosion of a torpedo, she had the superb courage to walk the 200 metres which separated her from a neighboring hospital in order to inform the doctor on service that she was bringing him some wounded. Falling helpless and being transported herself to the hospital for operation, she asked insistently not to be treated until after the wounded for whom she was responsible."

It is felt that tuberculosis among soldiers will be one of the greatest post-war problems in the United States, as it has become already in Great Britain, France and Italy. In this country soldiers suffering from tuberculosis are now being discharged from the army in considerable numbers. Some of the steps which are being taken in connection with the treatment and care of these men are outlined in a report by the American Red Cross dealing with the work of the "Papworth Hall Colony for Tuberculous Soldiers" at Cambridge, England. "An interesting and important experiment," says the report, "in treatment of tuberculous soldiers has been inaugurated by the British authorities at Papworth Hall. Here an estate of 100 acres of park and woodland has been turned into an open air sanatorium, where the patients will undergo treatment and at the same time work at suitable trades. It is generally admitted that no country can afford to neglect immediate and adequate attention to the problem of soldiers discharged from the army owing to tuberculosis. Unless great care is taken, these men will prove centers of infection, not only in the workshop but also in the street, in public conveyances, and in the home. The chief medical adviser of the Papworth Hall Colony estimates that the working capacity of the average consumptive soldier, after he has been discharged as convalescent from the military hospitals is less than 50 per cent. of that of the healthy workingman. The principle of the Papworth Hall experiment is the subsidizing of tuberculous labor. It aims to supply the other 50 per cent. of the man's earning capacity. The ex-soldiers already assigned to the Papworth Hall Colony are at work as carpenters, tailors, and market gardeners."

Sir George Fordham, head of the Papworth Hall work, in a letter to the American Red Cross says that "The myth which has so long held sway that a tuberculous man must give up indoor employment and find an outdoor situation must be dispelled. It is absurd to imagine that the average city clerk will consent to remove himself and his family to the country and turn himself into a laborer. Many of our failures in the past have been due to the idea that every patient must have fresh air even at the cost of a bare larder. We are now beginning to realize that diet is of the utmost importance, and although fresh air runs a good second, all the fresh air in the world will not fill an empty stomach."

146, Avenue des Champs Elysées.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

September 19, 1918.

1. Fatigue and Exhaustion. Remarks on Phenomena and Energy Renewals. J. Madison Taylor.
2. A Further Note on Scarlet Fever Carriers. D. M Lewis.
3. Treatment of "Essential" Facial Neuralgia by Local Alcoholization. J. A. Sicard.
4. Ultra-Violet Light. A Symptomatic Cure for Eczema. John Bryant.

1. Fatigue and Exhaustion. Remarks on Phenomena and Energy Renewals.—J. Madison Taylor points out the importance to the worker of the mental attitude towards labor. This fact deserves wider recognition in the industrial world, the one practical method of obtaining industrial contentment and efficiency being the study and betterment of working conditions by capitalists with a view to maintaining the welfare and cheerfulness of workers. The crux of production is the question of fatigue, which may be described as the evidence of result of strained attention, the presence of waste products interfering with the normal action of the cells and leading to impaired interaction and equilibration. Since fatigue feelings, as a rule, begin long before the structures are materially affected, appeals to the emotions, to loyalty or ambition, will result in renewed effort. Thus, a word of praise or encouragement, music, a brief change from action to rest, or of position, will reinvigorate. The value of all forms of recreation cannot be overestimated; play is next in importance to rest. Mental influences are both excitatory and inhibitory; enthusiasm will carry one beyond ordinary endurance, whereas distressing news or an unkind word will interrupt energy and lead to motor and other functional confusions, weariness, and disease. Madison Taylor points out the value of exercise and the importance of keeping in condition. He shows the folly, however, of unaccustomed violent exercise which makes a severe call on long disused muscles, which use up oxygen and produce CO_2 faster than the heart and lungs can supply the one and remove the other. In middle-aged, out-of-condition or sedentary people the effect of air hunger should not be ignored, particularly after an illness, in any infection, or after severe strain especially when accompanied by a cold or tonsillitis. Another peril is "fatigue anesthesia," when from long disregard of fatigue phenomena the governor is removed from the human machine and it may readily come to grief. Brain workers do not consume so much fuel as muscle workers and, therefore, accumulate less body poisons. Cerebral tissues readjust themselves more readily. But the brain worker is seldom free from exhausting muscle work, such as protracted tension from cramped postures. Especially are the eyes overworked and congested. Gardening, carpentering, the use of tools, or the punching bag bring about the needed relaxation of mental overtension. In short, system and discretion are needed both in work and play, and no higher physical happiness is attainable than that obtained by a commingling of well-earned weariness and judicious energy renewals.

New York Medical Journal.

September 21, 1918.

1. The General Diagnostic Study by the Internist. Lewellys F. Barker.
2. Locomotion as an Aid in Diagnosis. Paul Luttinger.
3. The Technique of Intravenous Medication. Ferdinand Herb.
4. Animal Powers Not Mendelian Characters. Casper L. Redfield.
5. Appendicitis in Children. John O. Bower.
6. Mucous Colitis. Roy Upham.
7. Mobilizing the Spas and Health Resorts of Our Nation. N. Philip Norman.
8. Medical Notes from the Front. Charles Greene Cumston.

1. The General Diagnostic Study by the Internist.—Lewellys F. Barker. (See MEDICAL RECORD, February 9, 1918, p. 259.)

5. Appendicitis in Children.—John O. Bower points out that clean cases of appendicitis (those in which it is not necessary to insert a drain) are unusual. In reviewing the case records at the Samaritan Hospital two years ago, he found that at least 90 per cent. of patients under fifteen had peritonitis, either local or general, and that the mortality was four times greater than in a corresponding number of adult cases. In Deaver's series 85 per cent. had abscess formation and the mortality was 4.6 per cent. These facts demonstrate the importance of early diagnosis of the condition in children. In considering the etiology, predisposing factors play an important rôle: appendicitis is frequently associated with influenza, measles, acute rheumatism, enterocolitis, typhoid, and tonsillitis (which may be due to an excess of lymphoid tissue with thinning of the submucous coat); abdominal injury predisposes to appendiceal inflammation in the young adult, 2.5 per cent. of cases giving such a history; fecal concretions are usually larger and are more frequently found in early life; intestinal parasites, though uncommon, are more frequently associated with appendicitis in juveniles; foreign bodies are more often found in appendices in children than in adults. The direct causative factors are the *Bacillus coli*, staphylococcus, streptococcus, *Bacillus pyocyaneus*, and the tubercle bacillus, in order of frequency as named. Tuberculosis of the appendix, which in adults is secondary to a pulmonary lesion, in young adults usually follows or accompanies a general abdominal tuberculosis. The symptoms are the same as in adults—pain, which is variable in children and is usually abdominal at first and, later, localized in the right lower quadrant; nausea and vomiting, which in the majority of cases follow the pain and are also more variable in children, the severity depending on the causative germ. In streptococcus infection, the most severe vomiting occurs; it is less in staphylococcic, and least in colon and tubercle infections. Localized tenderness before the involvement of the parietal peritoneum is not constant. Since the appendix in children varies in position, there is little abdominal rigidity in some cases; however, when the parietal peritoneum becomes involved the abdomen becomes rigid and distended. Temperature is variable and in most cases of moderate degree; in streptococcus infections there is the highest temperature, a sudden drop indicating perforation or gangrene. Bower calls attention to the fact that in tubercular involvement of the cecum and appendix there may be only an afternoon rise to 99.3°, or an entire absence of temperature for several days. A blood examination is valuable in doubtful cases: a leucocytosis may be obtained before involvement of the peritoneum or appearance of temperature. Urinary frequency is often present. These symptoms, especially with a leucocyte count of 15,000 within the first eighteen hours, point to appendicitis, and if pneumonia can be excluded the diagnosis is certain. The importance of a rectal examination should not be forgotten. If in very young children the possibility of a chest condition has been eliminated, ether or chloroform may be administered to overcome the spasm of the recti. *Differential diagnosis:* Ptomaine poisoning or acute gastrointestinal colic is the usual diagnosis in a large percentage of cases that come to operation; in such cases, the presence of diarrhea, absence of leucocytosis, cessation of vomiting following stomach lavage, and history of some indiscretion in diet, make the diagnosis of toxemia evident. Acute pyelitis is often associated with abdominal pain; the dominant symptom is usually fever and correct diagnosis may be reached by the microscopic examination of a centrifugal specimen of urine. A possible vaginitis should be excluded. Intussusception in children may be ushered in by a sudden cry. A sausage shaped mass that varies in position, the presence of characteristic vomiting of overflow intestinal obstruction, with blood-stained mucous stool, absence of rigidity, leucocytosis and temperature are diagnostic features in this condition. In pneumonia, points to be remembered are the respiration, pulse ratio, and intermittent spasticity of the recti, herpes and high leucocyte count. In acute perforation of the stomach, the pain is most severe; there is marked abdominal rigidity and patients vomit immediately the drug or laxative given by mouth; in early cases temperature is usually subnormal and pulse comparatively slow. In acute pancreatitis, a history of preceding attacks of colic points to a diagnosis of pancreatic inflammation. Abdominal tuberculosis of one type or another is found in 90 per cent. of cases of appendicits in children preceded by attacks of similar nature.

There is an apparently normal appendix, which together with the rest of the contents of the abdominal cavity may appear anemic, a variable amount of free fluid, and frequently the enlarged mesenteric glands in the neighborhood of the cecum or bowel, or the bowel itself, are studded with numerous tubercles. In such cases universal improvement follows appendectomy (the proper treatment in early tuberculosis of the abdomen being an exploratory laparotomy). *Treatment:* Immediate operation is indicated in practically all types of appendiceal inflammation, the exceptions being: (1) Early perforations with widespread peritonitis due to the streptococcus; (2) Cases of general peritonitis of several days' duration. The Ochsner treatment has been found to give excellent results in such cases, but it is a difficult procedure in children. At the Samaritan Hospital the author has found that these cases do better if drainage is instituted. Local or intraspinal anesthesia may be used. The latter gives the following advantages: the pateint's emunctories are not interfered with; relaxation of abdominal muscles permits insertion of a drain with the least possible amount of manipulation of abdominal contents; paralysis of the bowel and sphincter permits evacuation of contents of the lower bowel.

Journal of the American Medical Association.

September 21, 1918.

1. Symposium on Diseases Due to Deficiencies in Nutrition: The "Vitamin" Hypothesis and the Diseases Referable to Faulty Diet. E. V. McCollum.
   The Rôle of Antiscorbutics in Our Dietary. Alfred F. Hess.
   A Study of the Diet of Nonpellagrous and of Pellagrous Households in Textile Mill Communities in South Carolina in 1916. Joseph Goldberger, G. A. Wheeler, and Edgar Sydenstricker.
   Diet of the U. S. Army Soldier in the Training Camp. John R. Murlin.
   The Civilian War Ration. Paul Roth.
2. The Relative Values of the Principles of Extension, Suspension and Mobility Exemplified in Both Civil and War Practice by the Hodgen Wire Cradle Extension Suspension Splint. Frank G. Nifong.
3. Mucodermoid Cyst of the Pericardium. Juan Bacigalupo.
4. Adenoma Sebaceum: A Report of Five Cases in One Family. J. B. Shelmire.
5. Mixed Infection (Meningococcus and Pneumococcus) Meningitis. J. G. Fitzgerald.
6. Chronic Endocarditis Without Acute Onset. Louis M. Warfield.

A Study of the Diet of Nonpellagrous and of Pellagrous Households in Textile Mill Communities in South Carolina in 1916.—Joseph Goldberger, G. A. Wheeler, and Edgar Sydenstricker undertook in the spring of 1916 a study of the relation of various factors to pellagra prevalence in cotton mill village communities in South Carolina. This investigation was begun to supplement experimental studies made under the direction of Goldberger in 1914 and 1915, which had demonstrated the controlling influence of diet in both prevention and causation of this disease. In 1916 pellagra incidence was determined by a systematic bi-weekly house-to-house search for cases, carried on from April 15 to December 31 of that year. The diagnosis of pellagra was restricted to cases presenting a definite, bilaterally symmetrical eruption, which, it is suggested, includes two commonly associated, etiologically distinct, though closely related syndromes. Data relating to household diet were secured by obtaining records of sale from the principal stores for fifteen days immediately before or coincident with the incidence of the attack as suggested by the seasonal curve, supplemented by inquiries of a trained investigator. Comparisons of diets of nonpellagrous with those of pellagrous households showed that: (1) The nonpellagrous enjoyed a larger supply of the animal protein foods; (2) Varying supplies of fresh meat were associated with a corresponding (inverse) variation in the incidence of pellagra; (3) Varying supplies of milk were associated with a corresponding (inverse) variation in the incidence of pellagra; (4) The calorific value of the diets of pellagrous households was somewhat less than that of nonpellagrous households, but this, nevertheless, conformed to recognized standards and could, therefore, not be considered as an *essential* factor in relation to the incidence of pellagra; (5) The total protein supply in the diets of pellagrous households was somewhat less than in nonpellagrous households, but was not below Chittenden's standard and, therefore, a deficiency in total protein would seem not to be an *essential* factor in relation to the incidence of pellagra; (6) The proportion of protein from animal food tended to be somewhat smaller and that from cereals, peas, and beans, somewhat larger in pellagrous than in nonpellagrous households, and therefore the protein in the diet of the nonpellagrous was likely to be of better quality; (7) In pellagrous households the diet included somewhat less carbohydrates, and therefore the production of pellagra is not necessarily dependent on an excessive consumption of carbohydrates; (8) There was decidedly less fat-soluble and also water-soluble vitamin in the diets of pellagrous households; (9) The mineral constituents of the diets of the nonpellagrous households was likely to be superior—less likely to be defective. From these findings the authors suggest that the pellagra producing dietary fault is the result of some one, or more probably, a combination of two or more of the following factors: (1) A physiologically defective protein supply, (2) a low or inadequate supply of fat-soluble vitamin, (3) a low or inadequate supply of water-soluble vitamin, and (4) a defective mineral supply. They refer to the fact that McCollum, Simmonds and Parsons, from their studies in rats, concluded pellagra is primarily associated with the unsatisfactory character of three dietary factors, namely, a shortage of the fat-soluble "A," the faulty character of the inorganic moiety, and the relatively poor quality of the protein mixture. They also suggest that the somewhat lower plane of supply, both of energy and of protein, of the pellagrous households, though apparently not an essential factor, may be contributory by favoring the occurrence of a deficiency in intake of some one or more of the essential dietary factors, particularly with diets having only a narrow margin of safety, and that the pellagra producing dietary fault may be corrected and the disease prevented by including in the diet an adequate supply of the animal protein foods (milk, butter and lean meat).

2. The Relative Values of the Principles of Extension, Suspension and Mobility Exemplified in Both Civil and War Practice by the Hodgen Wire Cradle Extension Suspension Splint.—Frank G. Nifong. (See MEDICAL RECORD, June 29, p. 1145.)

The Lancet.

September 7, 1918.

1. Thoughts on the Employment of Pregnant Women in Munition Factories. Mary A. S. Deacon.
2. Methods of Control of Fragments in Gunshot Wounds of the Jaws. Major H. P. Pickerill.
3. Hæmoglobinuria (Blackwater Fever). Observations on a Transient Form Occurring Amongst the Troops in Macedonia. Major Leonard G. Parsons and Captain J. Graham Forbes.
4. A Note on the Susceptibility of the Antiscorbutic Principle to Alkalinity. A. Harden and S. S. Zilva.
5. The Prognosis in "Trench" Nephritis. Captain S. C. Dyke.
6. "Obscure Epidemic Encephalitis." Some Observations on Blood Counts and Cerebrospinal Fluid. S. K. Vaidya.
7. Influenza and Purulent Bronchitis. Captain A. Maude.
8. An "Influenza" Outbreak. Captain C. W. Wirgman.
9. The Successful Use of Antimony in Bilharziosis Administered in Intravenous Injections of Antimonium Tartaratum (Tartar Emetic). J. B. Christopherson.
10. A Case of Acute Delirious Mania: Recovery. F. Wyatt-Smith.

1. Thoughts on the Employment of Pregnant Women in Munition Factories.—Mary A. S. Deacon. (See MEDICAL RECORD, September 28, p. 559.)

7. Influenza and Purulent Bronchitis.—Captain A. Maude describes the epidemic outbreak of influenza that occurred in England in June, 1918. Uncomplicated cases were characterized by short incubation and sudden onset. Patients complained of giddiness and generalized pain; conjunctivitis was frequent, infection of throat and tonsils rare, and gastric symptoms present only in subjects of previous gastric affection. In two commands of combined strength of 10,000, there were 2,067 cases between June 18 and July 18, 248 being admitted to hospital. A high proportion of these developed purulent bronchitis, as described by Hammond in his cases at Aldershot. A large number also showed a frank lobar pneumonia, usually of the lower lobes only, but in three instances consolidation was apical. These three cases were severe and accompanied

by acute, brief delirium. Physical signs developed slowly and had little relation to the temperature. The commonest type was a pneumonia of limited extent, accompanied and often preceded by coarse bronchial signs. Pneumonic patches were bilateral with tendency to spread. The combination of coarse bronchitis and lobar pneumonia produced grave dyspnea and profound effects on the heart, especially on its right side. Physical signs of bronchitis were frequently combined with patchy signs of consolidation. In many cases the signs of bronchitis supervened upon those of localized pneumonia and the bronchitis was frequently one-sided, showing its infective quality. Small patches of collapsed lung were a frequent sequel to the bronchitis; the collapse was of short duration and completely cleared up. The sputum rarely showed the "prune-juice" staining of ordinary pneumonia, though sometimes tinged with bright blood. It was usually a faint crushed strawberry. Expectoration became tenacious, yellow, and consisted of almost pure pus, often in tough curdled casts, evidently from middle-sized bronchi; there was no offensive odor. Although no systematic bacteriological examination was undertaken, the question of double successive infection by the influenza bacillus and the pneumococcus was established. Pleuritic patches were frequent, especially in the right base, the pleurisy often heralding the lung attack. The "heliotrope" complexion, noted in the Aldershot series, was present in many of the worst cases, but these were not uniformly fatal. Few of the lobar pneumonia cases terminated by crisis, and lysis was often irregular; temperature sometimes reached 105° or 106°, but in only one instance was there a typically pneumonic chart. A fall in temperature was frequently followed by renewed pyrexia and with purulent expectoration the temperature was of swinging type with a range of several degrees. The severer cases were characterized by rapid emaciation. Of the men admitted to hospital three died, all from extensive double pneumonia. Several of those most seriously affected were subject to bronchitis. Treatment by expectorants, combined with free alcoholic stimulation and heart tonics, was found to be of most avail. Pulmonary antiseptics and inhalations proved useless, oxygen was of no value, and atropine seemed to interfere with pulmonary secretion and to do more harm than good.

British Medical Journal.

September 7, 1918.

1 Observations on the Etiology and Treatment of Seborrheic Eruptions. A Preliminary Report. Captains H W. Barber and H. C. Semon.
2. A Collective Investigation of Ten Thousand Recruits with Doubtful Heart Conditions. Second Report. S. Russell Wells.
3. The Reactivity of the Blood in Relation to Cardiac Breathlessness, Surgical Shock, and Allied Conditions of the Nervous and Circulatory Systems. Benjamin Moore.
4. The Treatment of Epilepsy by Collosol Palladium. A. C. King-Turner.
5. The Overloaded Curriculum and the Incubus of the Examination System. Ernest H. Starling.
6. The Education Act and the Medical Profession. H. B. Brackenbury.
7. The Nightcap for Insomnia. W. J. Burns Selkirk.
8 The Size of the Heart. W. Gordon.
9. Aloes as a Local Sedative. F. William Cock.

1. Observations on the Etiology and Treatment of Seborrheic Eruptions. A Preliminary Report.—Captains H. W. Barber and H. C. Semon noted in a large number of their cases of seborrheic eruption an associated nasal and nasopharyngeal catarrh, which with the frequency of relapses led to the conception of an underlying constitutional dyscrasia as a possible cause of the disease. Darier has pointed out the relation between seborrheic eruptions and "kerose" skin and has indicated the etiological factors as being sexual development and erroneous diet, in which excessive carbohydrates and stimulants, faulty mastication, and constipation all played a part. The present authors share Darier's view that the bacteria described as specific by Sabouraud and Unna owe their activity and pathological effects mainly to the soil on which they grow, which in its turn is dependent on the underlying constitutional state of the patient—a view which furnishes an explanation of the frequent relapses suffered. In view of the frequent association of nasal and nasopharyngeal catarrh with the outbreak on the skin, an examination of a number of cases was made by Captain C. Jones-Phillipson, who found that in 59 out of 93 cases posterior rhinoscopy revealed a yellowish mucopurulent secretion, of varying amount. Simultaneously a streptococcus of the *faecalis* group (in addition to numerous staphylocci) was recovered from nasal mucosa and skin eruptions. Czerny has shown that certain children present a congenital susceptibility to catarrh as well as to certain nervous disturbances, and to this tendency he has given the name "exudative diathesis," the extreme form of which is known as the status lymphaticus, when secondary changes in the lymphoid tissues of the body have given rise to adenoid vegetations, parenchymatous tonsillitis and adenitis, especially localized in the cervical glands. The manifestations of this diathesis are provoked by excess of diet, and its subjects are particularly intolerant of carbohydrates and fats. In England Czerny's views have been strongly supported by H. C. Cameron, who has pointed out that children of the exudative diathesis, or status catarrhalis, are subject to an extreme "wateriness" of their tissues which gives them a fictitious appearance of plumpness. Barber and Semon indicate two types of seborrheic individuals, those congenitally predisposed, or who have acquired the tendency in infancy, and those in whom the state has suddenly appeared as the result of active service. Patients in the first group are far more prone to relapse than those of the second type, and prognosis is more favorable in the latter. As a result of their investigations these authors conclude: 1. That there is a constitutional state which may exist from infancy or may appear *de novo* in adults, and which may be termed the status catarrhalis or exudativa (Czerny). Where this condition exists the skin and mucous membranes show an abnormal susceptibility, not only to various bacterial infections, but also to mechanical and chemical irritation. 2. Persons in whom the status catarrhalis is present, either permanently or temporarily, are liable to develop the multitudinous eruptions which have been variously termed seborrheic eczema or dermatitis, true eczema, pustules, boils, and the wrongly termed "impetigo"—really an impetiginized seborrheic eczema. These manifestations, in whole or part, are intimately dependent or associated with the existence of an underlying dyscrasia, to which they have given the name of the status seborrheicus. 3. There is considerable clinical and therapeutic evidence to suggest that all patients with the status seborrheicus are suffering from a relative acidosis. We are of opinion that this condition may have resulted from a diminution of the intake in their food of the fixed bases—the mono- and di-sodium phosphates, and the carbonates, which are normally present in fresh fruits and vegetables, and which are largely responsible for the maintenance of an exact alkaline-acid equilibrium in the blood and tissue fluids. 4. As a practical outcome of these considerations there is abundant clinical evidence of the value of alkalis in the treatment of seborrheic eczema.

Berliner klinische Wochenschrift.

July 22, 1918.

Cystic Colitis and Its Relation to Dysentery.—J. Orth, basing his discussion of this question on the histologic description of the various types of cystic formation met with in the intestinal walls, concludes that one may define several distinct nosological types: (*a*) small retention mucous cysts, arising from transformation of the glands; (*b*) retention cysts, resulting or not from glandular débris comprised in the lymphoid masses; (*c*) larger submucous cysts. The corresponding clinical pictures are: superficial cystic colitis, belonging to the first class of cysts. The others are inflammatory processes belonging rather more especially to dysenteric processes (deep-seated cystic colitis). These various pathological types are illustrated by some microphotographs. The writer offers a study of mucoid grains met with in dysenteric stools. They are formed either in the cystic cavities by concentration of the mucous content or by mucous secretion on the surface of nuclei composed of residual products of digestion, etc.

Operative Stricture of the Nasal Cavities.—Schönstadt proposes as a treatment for various nasal affections, particularly ozena, a submucous bone graft on the nasal floor. The graft is taken from the patient's tibia and measures 2.5 by 3 centimeters. The route of attack passes through the superior maxillary at the level of the gingivo-labial fold. After making his incision, Schönstadt slowly peels off the mucosa of the nasal floor and introduces the bone graft on the right and left of the septum. Suture of the incision. The integrity of the nasal mucosa is necessary in order to obtain fixation of the graft.

Münchener medizinische Wochenschrift.

July 16, 1918.

The Blood Serum Content of Cholesterin in Disease.—W. Stepp says that cholesterin is supposed to pass from the intestine into the circulation, becoming accumulated in the liver, suprarenals, etc., and is afterward eliminated by the biliary tract and intestine. Cholesterinemia of normal subjects remains at quite a fixed point. Stepp has been able to verify Chauffard's, Griguant's and others' researches and finds that it varies from 0.13 to 0.17 per cent. In diabetes, the writer shows that there is an approximate parallelism between the glycemia and the cholesterinemia present. The famous "diabetic lipemia" is, in reality, much more a "lipoidemia." The writer recalls the rarity of the acidoses and diabetic coma since the war has imposed certain food restrictions, particularly that of fat. Hepatic diseases are frequently accompanied by cholesterinemia of an exaggerated type, preferably in retention icterus (cholesterinemia by retention). Although the rule is not constant, Stepp believes that the phenomenon is to be attributed to the digestive disturbances accompanying biliary obstruction. In lithiasis the cholesterin blood content has been confirmed by Stepp's researches. In a case of Weil's disease a prolonged and accentuated hypercholesterinemia was present. In the nephritides and febrile affections, Stepp's researches confirm the data generally admitted at present. This is likewise true of pregnancy.

Deutsche medizinische Wochenschrift.

July 18, 1918.

The Repair of Large Loss of Soft Tissue by a "Muff" Plastic Operation.—Bode reports two cases of extensive tearing off of the integuments of the hand and elbow. When such lesions are left to undergo an aseptic spontaneous evolution, they result in deformity and contractures which are little better for the patient than if the limb had been amputated in the first place. Bode has been able to obtain an almost perfect functional result by covering the denuded parts by flaps with a double pedicle made on the chest or abdominal wall. For example, in order to replace the skin of the hand, two vertical incisions are made in the umbilical region on the side of the injured member. The flap forms a bridge, under which the hand is passed as if in a muff. The outer border of the skin flap is sutured to the dorsal aspect of the hand, while the inner one is slit in flaps to cover the fingers. The arm is held in place by a roller bandage and thoroughly immobilized. Later on, when the graft is cut away at its pedicles, the ununited border is in its turn sutured to the wound on the hand. Bode recommends the use of this procedure for the repair of loss of tissue covering joints, fingers, wrist, etc. (This is a method well known to American surgeons at least; an excellent description, with illustrations, is to be found in Murphy's Clinics, Vol. IV, No. 1, Feb., 1915.)

Operative Detachment of Pleural Adhesions, in Order to Produce an Artificial Pneumothorax.—R. Eden reports a case whose evolution is far from brilliant, but nevertheless he recommends this intervention. The thickness and resistance of these adhesions may necessitate their separation from both the costal and pulmonary pleura. The complications to be feared are perforation of cavities and pleural infection to which their contents may give rise. This procedure may be combined with operations on the thoracic wall, such as thoracoplasty, etc.

Wiener medizinische Wochenschrift.

July 20, 1918.

The Pathogenesis of the Nephritides.—G. Singer refers to several points of this question which are already well known, such as the frequency of a disease of the tonsils in the patient's antecedents, respiratory changes during the preuremic phase and the aseptic nature of brightic pericarditis. The happy effect of blood-letting is not due to the hypotensive action of the removal of blood because experience shows that the blood pressure rapidly returns to its former degree. Singer is more inclined to invoke a reflex action which brings about a better circulation in the kidneys.

A Case of Ileus by Torsion.—T. Bal records a case in which an ileus formed above a point in the bladder which had been perforated by a catheter and the latter had been broken off at the point of perforation. This broken bit of catheter pressed upon the small intestine and caused the ileus.

La Presse Médicale.

June 6, 1918.

Dyspepsias of War.—Mouriquand and Bouchut report 200 cases of these troubles seen in soldiers in the rear. They seem to be on the increase. When they mend the subjects are returned to the ranks, perhaps to come back again. All of these subjects are studied with radioscopy and many have their stomach contents analysed, stools and blood examined, etc. Organic dyspepsias are not included in these cases. In other words this not only eliminates ulcer and cancer but stomach disorders which are secondary to gallstone disease, cirrhosis of the liver, appendicitis, etc. The symptoms are somewhat monotonous. Most of the men complain of heaviness, bloating, eructations, drowsiness, hot flashes. Less common are headache, vertigo, precordial anxiety and lassitude. The appetite is diminished or absent, the tongue saburral and there is habitual constipation. Cases exhibiting the above syndrome are classed as flatulent dyspepsia. Less common than this flatulent type is the painful type. Pain develops at a variable interval after food. In a third type vomiting is a leading symptom. In 150 of the 200 patients examined with the screen the stomach appeared to be normal, in 45 there was atonia, while five showed hypertonicity. Of the 150 subjects with normal stomach 110 showed flatulence; while 23 cases of the painful type occurred in atonic stomachs. In the great majority of cases examined stomach chemistry was shown to be normal. In other words subjects of flatulent dyspepsia are neither atonics nor hyperchlorhydrics. Yet for the most part they reached the authors with the diagnosis of dilated stomach. As a rule these patients showed more or less general participation. Emaciation was common as was pallor—in fact they looked as a class like sick men. They were in the prime of youth but had never been robust; for the most part poor folk from the rural districts. Their stomachs had clearly never bothered them before they became soldiers. The authors are inclined to see in these dyspepsias a reflex from nervous and mental overstrain. It is singular that the town dweller, better adjusted to his mental environment, does not develop these dyspepsias. In fact the improved physical conditions and regular habits build him up. The peasant has lived an out of door life with early hours of rest and cannot gain in these respects from army life. Before the war he seemed without nerves and emotional life but quickly develops them. Sooner or later they pass through one or another crisis —shell shock, wounds or an illness of some sort—and the end result is a dyspepsia—ostensibly. But as we have seen the stomach is usually normal in all respects so that these troubles must be classed as psychogenic. Nevertheless in certain cases—as in those men who went through definite periods of convalescence—there was abuse of food. With recovery of appetite the men overate. In regard to treatment suggestion should enter into it. Special centers for these patients not only enable the physicians to carry out an approved regimen for the general ill health (anemia, etc.) but also provide an opportunity for indirect suggestions of great value.

Book Reviews.

COLLECTED PAPERS OF THE MAYO CLINIC, ROCHESTER, MINNESOTA. Edited by Mrs. M. H. MELLISH. Volume IX, 1917. Octavo of 866 pages, with 331 illustrations. Price, $6.50 net. Philadelphia and London: W. B. Saunders Company, 1918.

CONTRARY to custom, there is no prefatory note in this volume, so we are not told whether this includes all papers published by workers in the Mayo Clinic and on the Mayo Foundation during the year 1917 or not. There are thirty-five contributors, some of whom are attached to the Mayo Clinic alone, some to the Mayo Foundation in the Graduate School of the University of Minnesota alone, and some, the majority, are attached to both. The same general arrangement of material as heretofore has been followed. Thus, we find all articles grouped under nine headings. These, with the number of articles in each group, are as follows: Alimentary Canal, 17 articles; Urogenital Organs, 16; Ductless Glands, 7; Heart, 3; Blood, 9; Skin and Venereal Diseases, 6; Head, Trunk, and Extremities, 13; Technic, 2, and General, 10, making a total of 83.

There is an unusually large number of articles; so many, in fact, that it is hard to single out any for special comment without doing others an injustice. We note several bearing on war problems, as, for example, that on "Trench Foot," by L. B. Wilson, and that entitled "War's Influence on Medicine," by C. H. Mayo. Among the new operative methods of importance should be mentioned especially Balfour's modification of the Polya operation. Then, too, the advantages of the Kondoleon operation for elephantiasis and lymphedema are well brought out by Sistrunk. Among the special topics whose discussion furnishes articles of particular value or interest are the spleen, pulmonary embolism and epidemic poliomyelitis. There are many other articles of equal importance, but lack of space precludes further comment along this line.

ELECTRO-THERAPY IN GYNECOLOGY. By SAMUEL SLOAN, M.D., F.R.F.P.S.G. Price, $4. New York: Paul B. Hoeber, 1918.

THIS volume comprises sections on electrophysics, electromedical apparatus, the general principles of electrotherapy and the constitutional affections of women in which the latter is indicated. Only Part V is devoted to electrotherapy in gynecology, including diseases of the bladder and rectum. The work is therefore more than it purports to be, *i.e.* more than a mere account of the application of electrotherapy to gynecology, and the author could with propriety have termed it "the principles of electrotherapy with especial reference to gynecology." However, the number of pages is but 292, of which fully 100 are devoted to a tabulation of the author's material. The cuts are neither numerous nor costly to produce, and the price seems excessive.

THE MEDICAL CLINICS OF NORTH AMERICA. Vol. I, No. 4. Boston Number. January, 1918. Price, $10 per year. Published bi-monthly by W. B. Saunders Company, Philadelphia and London.

THESE bi-monthly publications have proved to be a valuable addition to current medical literature. Each number possesses a distinct value of its own in that it embodies features characteristic of the country's leading medical centers. The reader thus obtains authoritative opinions on a great variety of diseases and topics of interest, not only to the strict internist but to the general practitioner as well. In fact, the "clinics" form a veritable post-graduate course brought directly to the physician's office. The Boston number fully maintains the high standard of the previous issues, both as regards the character of its contents and the manner in which they are presented.

The first contribution is from the clinic of Dr. H. A. Christian on a group of patients, illustrating complete and partial heart-block with Stokes-Adams syndrome, digitalis block in auricular fibrillation, and chronic myocarditis. Methods of differential diagnosis, including electrocardiographic tracings, with discussions on etiology, prognosis, and treatment, are dealt with in detail. Dr. E. P. Joslin next presents two cases of severe diabetes and takes occasion to make some timely remarks on the present-day therapy of coma. He draws attention to the appreciable decrease in mortality figures incidental to modern methods. The diagnosis and treatment of empyema in children is the subject of a talk by Dr. John L. Morse. Dr. W. P. Graves, on ovarian organotherapy, cites a few cases of dysmenorrhea and sterility in which definite results seemed referable to the administration of ovarian extracts. Dr. Edwin Locke gives a comprehensive résumé of our knowledge of osteitis deformans, presenting a case of the disease complicated by sarcoma of the humerus. Dr. C. J. White contributes an article on the causes and treatment of premature loss of hair. Dr. F. B. Talbot discusses eczema in childhood from all possible angles, bringing out the rôle of anaphylaxis in respect to etiology. Vincent's Angina is the subject of a clinic by Dr. H. A. Barnes. Dr. A. W. George and associates give an exposition of Roentgen diagnosis of diseases of the upper right abdominal quadrant, illustrated by photographs. Next follows an article on the early diagnosis of pulmonary tuberculosis by Dr. J. B. Hawes; improvements in the diagnosis of chronic ulcer of the stomach and duodenum, by Dr. F. D. White; relation of the teeth and jaws to general medicine, by Dr. K. H. Thoma; pathological hemorrhage, by Dr. George R. Minot; amebic dysentery and associated conditions, by Dr. A. W. Sellards; focal transverse lesions of the cord, by Dr. J. B. Ayer; pyelitis of infancy, by Dr. R. M. Smith; cause and treatment of bronchial asthma, by Dr. I. C. Walker, which includes the recent work done on protein sensitization in relation to this disease. The final paper is by Dr. G. W. Holmes, on the *x*-ray examination of the heart and great vessels. Much of the information contained in this number has been derived from original investigations carried on over a long period of time.

A LABORATORY MANUAL AND TEXT-BOOK OF EMBRYOLOGY. By CHARLES WILLIAM PRENTISS, A.M., Ph.D., Late Professor of Microscopic Anatomy, Northwestern University Medical School, Chicago. Revised and extensively rewritten by LESLIE BRAINERD AREY, Ph.D., Associate Professor of Anatomy in the Northwestern University Medical School, Chicago. Second edition. Enlarged. With 388 illustrations, many in color. Price, $4. Philadelphia and London: W. B. Saunders Co., 1917.

THE death of Professor Prentiss rendered necessary the preparation of the second edition of the Embryology by another. It may be said that the revision, or, rather, the rewriting of Prentiss' Embryology could not have fallen into more capable hands than those of Professor Arey. The first edition was arranged on a definite plan, to combine brief descriptions of the vertebrate embryos which are studied in the laboratory with an account of human embryology especially adapted to the medical student. Arey has followed the general plan and scope of the work and has added a new chapter dealing with the morphogenesis of the skeleton and muscles. The author has succeeded in bringing the present edition into line with the most modern tendencies of embryological advance, and the outcome is a reliable laboratory manual and text-book. A feature of the book is the large number of excellent illustrations which serve to greatly elucidate the printed matter.

THE PRINCIPLES OF HYGIENE. A Practical Manual for Students, Physicians, and Health Officers. By D. H. BERGEY, A.M., M.D., Dr.P.H., Assistant Professor of Hygiene and Bacteriology, University of Pennsylvania. Sixth edition. Thoroughly revised. Price, $3.50. Philadelphia and London: W. B. Saunders Co., 1918.

As this is a sixth edition there is really little to say as to Dr. Bergey's "Principles of Hygiene." It may be said, however, that in the compilation and construction of the book no attempt was made to deal with the question of hygiene in a comprehensive way. The title implies its limitations; it treats of the principles of hygiene. The text of the present edition has been considerably enlarged and revised, a procedure rendered necessary by the progress made in the knowledge of hygiene. Both judicious pruning of and addition to the text have been made in order to bring the work up to date. The result has been satisfactory and the sixth edition provides an excellent reference book with regard to the principles of hygiene.

Society Reports.

MEDICAL SOCIETY OF NEW JERSEY.

One Hundred and Fifty-second Annual Meeting, Held at Spring Lake, N. J., June 25 and 26, 1918.

(Special Report to the MEDICAL RECORD.)

THE VICE-PRESIDENT, DR. THOMAS W. HARVEY OF ORANGE, IN THE CHAIR.

Opening Addresses.—The meeting was opened by an invocation by the Reverend Clay Mitchell of Sea Girt and a brief address of welcome by Dr. William K. Campbell of Long Branch on behalf of the Monmouth County Medical Society.

House of Delegates.—After receiving the reports of the officers and transacting routine business, the House of Delegates adopted a recommendation of the Secretary, Dr. Thomas N. Gray, that the County Societies make all the members of their respective societies, who have been or may be engaged in our country's war service, members of the Society for the Relief of Widows and Orphans of Medical Men of New Jersey, by paying their initiation fee and assessments while they are in the service. Resolutions were adopted remitting the dues of all men in the service. The Treasurer's report showed that the Society had purchased two $1,000 Liberty Bonds during the past year, and resolutions were adopted directing the Treasurer to purchase two additional $1,000 Liberty Bonds, and that $1,000 of the Society's money be set aside, subject to the order of the Board of Trustees, any portion of which money was to be used for the relief of any families of the members of the Society who were in the service of the country or in need. Other resolutions were adopted to the effect that the Medical Society of the State of New Jersey send its most hearty greetings to the members of the Society who were engaged in the service of the country, and that the members of the Society recognized their practical patriotism and the great value of the service they were rendering, and wished them the highest possible success in their work and that they might return in health and strength in due time to their work in the home field and their association with the Society's activities.

The Prostate Question.—Dr. TANLEY R. WOODRUFF presented this paper in which he showed that a "Prostate question" did exist. He said that, in the first place, a prospective case should be looked at from the generalized point of view as to whether he should be operated upon at all or not. It was well to remember that an enlarged prostate was the heritage of old age and we must therefore first think over the advisability of doing an extremely dangerous operation on an old man. We must take into consideration his age, his apparent muscular tone, the condition of his blood vessels, his urine, and, not least, his mentality. We must find out if his heart and lungs were going to stand the strain of an operation. If a man had cardio-renal disease, asthma, emphysema, or some complication that would only make the operation a stepping stone to his demise, he should be allowed to live out his expectancy, for he would live only a short time at best. A second point was that an absolute diagnosis was imperative. There were a number of different conditions that would give frequency of urination, hematuria, residual urine, incontinence, and dribbling. The tabetic bladder gave practically the same symptoms as a prostate, and tabetic bladders were often seen without other symptoms of tabes. Diverticulum was also a frequent complication of prostate. All these conditions could be excluded by a preliminary cystoscopic examination of the bladder. A proper cystoscopic examination was essential in diagnosing prostatic obstruction and eliminating complication. For this purpose the straight urethroscope of McCarthy was ideal. The writer had observed a small pedunculated, lobular intrusion, giving a large amount of residual urine with its accompanying symptoms, easily destroyed and the patient cured by burning away with the high frequency current and no further operation was necessary. The instrument might be pulled down into the posterior urethra and the amount of intrusion of the lateral lobes noted. This was most important. Carcinoma of the prostate must be excluded and this was done mostly by the character of the rectal touch. The peculiar stony hardness and the flat, fan-shaped mass felt was almost characteristic. Urethral stricture was frequently missed and the case considered one of prostatic origin. Prostatic hypertrophy and stricture of the membranous urethra were almost never seen together. In prostatic cases attention was usually first directed to frequency of urination and this was nocturnal in character; this differentiated it from stone, which was diurnal in character with nocturnal rest. Pain and tenesmus were later stages. The amount of residual urine was not often as important as its character. A foul, infected residual meant an infected bladder, blood sepsis through absorption of this material, and more or less pyelitis and pyelonephritis. Cabot claimed that this was an advantage to a certain extent, as it acted as a vaccination against post-operative infection. In the absence of pre-operative infection he advised the use of vaccines as a routine procedure to create immunity. A large amount of residual urine should be thoroughly considered, as it was a serious menace to the successful termination of the case. A systolic blood pressure above 155 should be considered too high and particular emphasis should be placed on the pulse pressure as indicative of the myocardial strength. The value of preoperative treatment was already fixed and was the most important part of prostatic surgery. A complete chemical blood examination must be made for urea-nitrogen, uric acid, and creatinin. Cases in which the creatinin was found in amounts of over 5 mg. per 100 c.c. of blood always went bad. The test of the kidney function by phenolsulphonaphthalein should be done in all cases and, in order to be of value, must be repeated from time to time. An excretion of phthalein of less than 25 per cent. in two hours must be looked upon with suspicion. Preoperative treatment consisted in the necessary hygienic and dietary measures to improve the blood and urinary findings as well as the general health of the patient and in the removal of the residual urine, the accompanying systitis, and the lessened kidney function. As a rule, a patient might be considered operable when he had no rise in temperature, when his blood and urine pictures had approached to nearly normal, and when his appetite and general condition were such that he wanted to go home. In discussing the merits of the one and two step methods of prostatectomy it was well to bear in mind that at the present time no urological surgeon did a *bona fide* one step prostatectomy. He always preceded it with a certain amount of catheterization and preoperative treatment. The chief advantage of the so-called one step operation was a wide, clean-cut opening into the bladder, allowing the whole hand to get within its cavity and a consequent proper enucleation of the gland and a good inspection of the wound after its removal. It was to be advised in the younger patients, those having little infection, small residual, good physiques, and good kidney elimination. The two stage operation was not an advised procedure at all. It was a necessity in older men with poor muscular tone, with large residuals, infected bladder, and poor renal output. It became absolutely imperative in those cases admitted with severe bleeding, acute retention, and high temperature, and often with traumatism from attempts at catheterization. The pendulum at the present time seemed to have swung entirely over to the side of the two stage operation. The essayist believed this was a mistake. Certain classes belonged to the one side and certain cases to the other. Personally, the writer's mortality rate with the one step operation had been far less than with the two step method because of the better class of risks. As to which was the better method of enucleation of the prostate, the suprapubic or perineal route, the writer believed the question easy to answer. It was, in his opinion, entirely a personal question, depending upon which method the operator was more familiar with. In behalf of the suprapubic, it might be said that post operative fistulae were less often present, and if present, were less annoying, and that incontinence was rarely seen following it. In behalf of the perineal operation, it was advocated that post operative drainage was in the most natural direction, that the operative

field was always under the eye of the surgeon, and consequently hemostasis was perfect, that post operative shock and sepsis were reduced to a minimum and that the vesical sphincter was untouched. Either operation was no job for the casual surgeon. To do one or the other operation well was sure to bring success. The large, smooth, regular prostatic enlargements the essayist had always taken out suprapubically. The small fibrous nodular, evidently adherent, prostates with periprostatic infiltration, he had removed from below. The writer discussed the vesical sphincter post operatively and stated that it was easily proved that complete destruction of the internal sphincter did not necessarily mean loss of urinary control. Successful prostatectomies might be done by skilled men with any stage operation, either through the perineum or above the pubic bone, if the proper preliminary examinations and preoperative treatments were carried out.

Dr. WILLIAM J. CHANDLER of South Orange said he believed that prostatectomy was one of the best operations we had, the only objection to it being the age of the patient and his consequent inability to withstand any operation. He had never done the suprapubic operation, but always the perineal, according to the method advocated by Dr. Parker Syms. Carcinomas were usually very difficult to remove because the symptoms in the beginning were vague and were often unrecognized or passed by as the usual condition of an elderly man.

Dr. B. V. D. HEDGES of Plainfield said that he had performed fifteen prostatectomies, ten by the perineal route and five by the suprapubic, and fortunately all recovered, all but one had regained control of the bladder, and all had been comfortable. There were three cases that proved to be cancerous and all of these recurred within a year. In patients who came to the physician complaining of frequency of urination and in whom one would suspect prostatic enlargement a great deal was said of removing the prostate, but nothing was said about remedying the condition without operation. Personally he had had a little experience with the high frequency current, having employed it in five or six cases and none of these had come to operation. Other patients had been relieved to the extent that they were quite comfortable after five or six treatments.

Dr. A. H. LIPPINCOTT of Camden said that since he had been paying more attention to preoperative care in cases of prostatectomy the mortality had been greatly reduced. He was fond of the suprapubic type of operation and believed in building the patient up for a big operation; sometimes it took a week and sometimes ten days, while at other times a longer period was required. This was a question of the individual patient.

Dr. W. F. FAISON of Jersey City called attention to the seriousness of suddenly emptying an enormously distended bladder. He had had several instances in which insanity followed the sudden emptying of a distended bladder. In one instance the man remained insane for four months and then recovered. In his opinion the suprapubic operation was the safer one for the surgeon who had not done many of these operations.

Dr. WOODRUFF, in replying to Dr. Hedges' question as to what could be done for cases that were not operated on, said that he believed that if a man had a prostate sufficiently large to cause symptoms he had a prostate sufficiently large to require operation, because if a prostate once became enlarged it would never go down and the tendency was for it to continue to enlarge. He had had no experience with the high frequency current. Reference had been made to accidents that might follow the sudden emptying of the bladder. These were due to the effect on the sympathetic nervous system. He had observed two cases in which death followed catheterization of the overdistended bladder within two hours. Most of the cases of mania following the catheterization of an overdistended bladder were due to uremia.

The Duty of the Family Physician to the Patient Suffering from Headache and Eye Strain.—Dr LINN EMERSON of Orange read this paper. He stated that the points he desired to make clear to the profession were: (1) That there were many headaches which were due indirectly to disorders of the refractive or accommodative apparatus of the eye and that in these instances the brain symptom was often the most prominent and sometimes the sole prominent symptom of the eye troubles, so that while there might be no pain or sense of fatigue in the eye, the strain with which it was used might be interpreted solely by occipital or frontal headache. (2) That the long continuance of eye troubles might be the unsuspected source of insomnia, vertigo, nausea, dyspepsia, biliousness, general failure in health, and even epileptoid convulsions. (3) That in many cases the eye trouble became suddenly mischievous, owing to some failure in the general health, or to increased sensitiveness of the brain from moral or mental causes. While not subscribing to all that George M. Gould said on this subject, he still wished to be counted with him. He did not wish to imply that all men practising general medicine ignored the question of eyestrain, but there were thousands of men who continued to give their patients drugs for the relief of symptoms, when all the patient needed was a *properly* fitted pair of glasses. Of the people about us who needed glasses, at a liberal estimate it might be said that not more than 10 per cent. were properly fitted. While all of those present were agreed that no one should be permitted to fit glasses but an oculist, still they had not succeeded in reconciling the public to this view. If eye strain was suspected and the patient said he had glasses, one should not be satisfied; one should ascertain who fitted them. If the patient was young and no drops were used, he was in all probability improperly fitted. All oculists were not skillful refractionists, and the glasses might be incorrect even when fitted by an oculist of reputation and ability. Most persons were uncomfortable when they first put on proper glasses. In the hyperopic and astigmatic eye, the hypertrophied ciliary muscle failed to relax, the distant vision was then blurred, and if the axes of the astigmatism were not symmetrical some distortion of images was usually present. Even nausea and dizziness might occur. The occasional wearer of glasses was seldom comfortable with them. The constant wearer soon overcame all discomfort.

Dr. A. W. BINGHAM of East Orange said they all agreed with Dr. Emerson that a great many of their patients were suffering from conditions due to or aggravated by eye strain. The difficulty was in determining to what degree the eye strain entered into it, if at all. Every one knew of cases in which a person would go to one oculist after another and get no permanent relief. The speaker believed the patient's physical condition had a great deal to do with this difficulty. If he was tired, or nervous, or had indigestion, he would take a certain degree of correction and when he was rested this would not suit him.

Dr. D. C. ENGLISH of New Brunswick asked why it was that some persons when properly fitted with glasses did not see so well with them as without them.

Dr. WALTER B. JOHNSON of Paterson emphasized the fact that many physicians did not seem to know the difference between the optician and the oculist. It was surprising how many physicians sent patients to the optician. There was not an optician or an optometrist who either knew enough or gave enough time to the work of fitting glasses properly and they seldom knew enough even to fit faces. It made little difference whether the patient had big or little glasses, provided the true center of the lens corresponded with the true center of the eye. If one persisted in using a mydriatic he was pretty sure to have refraction errors, and if there was a refractive error it was possible that the patient would not be able to wear the glasses. It was often better to fit with glasses that did not fully correct until the patient got his eyes into condition to stand full correction. The glasses that he would wear at first might not be those that he could ultimately wear.

Dr. THOMAS S. DEDRICK of Washington, N. J., stated that several of the speakers had said that the medical men did not want the optician and the jeweler doing refraction work. It did not seem to him that the medical profession had ever made a determined effort to prevent the optician and jeweler from doing this work. Now, more than at any other time, we should make a distinction between the oculist and the optician and

optometrist. The Government needed medical men and needed oculists and they did not ask the optometrists to help them out. It would seem that if the Government did not want optometrists to help them out that the legislatures should not license them. But if they were not able to make the legislatures correct this matter, at least the medical men should patronize the oculist in sending out his work.

Dr. B. V. D. HEDGES of Plainfield referred to the reflexes from eye strain. He said he had had three cases in which epilepsy was due to eye strain.

Dr. EMERSON, in closing, said in reply to Dr. English's question as to why some patients did not see as well with the glasses as without them, that these were persons having hyperopic astigmatism who were wearing overcorrected glasses. It sometimes happened that glasses that gave good vision did not fully relieve the patient's trouble and in order to relieve the trouble one had to give glasses that gave a slight blur. Sometimes these patients came back and said that their glasses were causing trouble and then the glasses were made weaker, with the result that the symptoms from which they were suffering were not relieved. Dr. Johnson spoke of drops and gave the idea that when drops were used the patient would not take glasses that fitted. The advantage of using mydriatics and cycloplegics in getting full correction was pretty well established. We used a cycloplegic so that we knew exactly what the degree of refractive error was and then we had that to go by when the patient came for a final fitting. The fitting of glasses could not be done by rule of thumb. One must take into consideration age, sex, occupation, disposition, whether the patient wanted to wear glasses or not, and the oculist who took all these things into consideration was the one who was successful. Many times the patient refused to take anywhere near the proper correction, and if one knew the man and the family, and knew that he would do as you said, you could give him glasses that fully corrected, even though they blurred a little at first, and he would wear the glasses until he became accustomed to them and this would save trouble and expense. If you did not know your patient and followed this course you would come to grief. The patient would keep coming back and finally get tired and go elsewhere. All oculists were not good refractionists and many men did not like the work. Many doctors did not care to be bothered with refraction cases, prefering pathological work. A man's ability as a refractionist was often in inverse proportion to his age and eminence in the profession.

(To be continued.)

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting Held April 18, 1918.

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

THIS meeting was held with the cooperation of the Section on Genito-Urinary Surgery.

Surgery of the Lower Ureter and Bladder.—Dr. JOSEPH F. MCCARTHY spoke on this subject and illustrated his remarks with a lantern slide exhibition. He stated that when requested to participate in the program of the evening, it occurred to him that the work they were then doing on the cadaver in relation to the surgery of the lower ureter and bladder might prove of interest. His feeling up to the present was that the technical aspect of the delivery of the bladder extraperitoneally, and the freeing the latter organ from its peritoneal attachment, had not been brought out with sufficient clarity. In the discussion of the subject he desired it understood at the outset that much of his comment on these subjects would be purely of a speculative character, and was advanced chiefly to furnish food for thought on this altogether difficult subject, and was put forth with the hope of clarifying the matter, and to lay down, if possible, a fairly precise and definitely organized technical procedure. With reference to the exposure of the lower ureter but a few points would be called to mind. The first statement he made was that in their department at the Post-Graduate Hospital, the lumboiliac incision for the exposure of the lower ureter extraperitoneally had been abandoned, and that the vertical incision was now the only one employed, the incision being the customary one of an inch or an inch and a half to either side of the median line and extending from just above the symphysis to the umbilicus over the belly of the rectus muscle and through the sheath of the same, the muscle belly itself being deflected mesially thus coming to the transversalis fascia. In view of the difficulty of incising the transversalis fascia on the moving abdomen, it was worthy of attention that at the lowermost aspect of this incision the transversalis faulted and if the operator would carry his finger towards the lateral wall at this point he would be able to get under this fascia without cutting and thus readily separate it from the peritoneum preliminary to cutting the former the entire length of the wound. An important point to bear in mind was that the transversalis should be cut the entire length of the wound, as thus incised it permitted of the more ready separation of the peritoneum from its bed. The vertical incision was employed because of the fact that the peritoneum stripped up in more orderly fashion, and for the reason that when the peritoneum was sufficiently separated to expose the ureter on its under surface it practically reached the middle line of the body and in large measure assumed the direction of this vertical incision, it therefore seems to expose the lower ureter with much greater facility and at the same time conserves the muscle wall. As to the question of separation of the ureter for more ready delivery of ureteral calculus, considerable diversity of opinion seems to exist. It had been the speaker's experience that the ureter would stand considerable separation from the peritoneum without untoward result. On the other hand, it should be delivered from its environment only to such extent as was essential for the proper conduct of the operation. In connection with the removal of stone the ureter tractor very much resembling an adenoid curette was a very useful instrument. It supported the ureter with the stone contained between the two prongs of the tractor, thus fixing the stone in position, facilitating its removal, and enhancing the convenience of repair. He believed it was always desirable to approximate the sides of the incision with catgut. He could quite understand the logic of failure to approximate the wound edges. Admitting that the urine did escape, there was less liability to cicatrization when proper coaptation was had. Another point of interest he called attention to was the question of drainage. Of course everyone taught that one should keep away from the large vessels with such a drain. Rubber tubing or rigid drainage of any sore was absolutely contraindicated. The large cigarette drain of iodoform gauze was perhaps the most useful of all. It seemed to him that the question of removal of the drainage was important, that it was an error to remove this too early because occasionally hemorrhage ensued even as late as the fifth or sixth day, so that when the drain was removed it should be done very gradually, and should not be completely removed much before the fifth day. He likewise stated that the vertical incision was of advantage in the matter of repair, that all that was necessary was the suture of the sheath of the rectus leaving a small opening below for the emergence of the drain. As to the question of bladder exposure and delivery through the wound, whether it be extraperitoneal or trans-peritoneal, inasmuch as this consideration was more a technical one and dealt less with the subject of indications as to procedure, he would not discuss the question as to whether these cases did better under radical operation or not. Here most communications were extremely vague as to technical procedure. This was rather extraordinary in view of the fact that the procedure was a difficult one technically and the anatomical text books likewise failed properly to bring out these points. Now there were two places to locate the ureter in this exposure. One was in the early delivery of the bladder below and laterally, if one felt for the outer aspect of the promontory of the sacrum. At this point one would almost invariably find the ureter. The other was in the vesico-pelvic fold. When the bladder was completely delivered, the latter was the important place to search, if the bladder was only to be freed laterally the former was the place to search for the ureter. When one had these

structures so delivered, one might really treat the bladder, surgically, as radically as one might wish and with a fair prospect at least of temporary success. Now as to the trans-peritoneal exposure, it seemed to the speaker that the ordinary trans-peritoneal exposure, as outlined in 1885 by Ridigier, and later on by Mayo and Harrington, were insufficient. What should really be done was that upon opening the peritoneum, the latter was stripped from the bladder entirely, after which time it should be closed in an orderly fashion and then the bladder treated extraperitoneally. In other words, it began as an intraperitoneal but actually becomes an extraperitoneal resection. The doctor brought out some minor technical points about the use of the grooved director in the reimplantation of the ureter, and he also called attention to the fact that many years ago, extraperitoneal implantation of the ureters into the rectum was practised; he felt that in the future, probably the near future, a correct technique would be outlined. One of the first real efforts to expose the subject of bladder resection properly from the technical standpoint was the communication of Squier. In this excellent paper he brought out and developed a technique of a really practical nature. It seemed to the speaker, however, that something still remained to be elucidated in the technique of bladder delivery, more particularly with relation to the peritoneal attachment therewith. It was largely with this question in mind that the speaker undertook a series of painstaking studies on the cadaver, and the following points of information had been elicited as the result of this investigation. It was still a question in the speaker's mind as to which was the preferable method of exploration, the extraperitoneal or the intra-peritoneal. The ordinary median incision was carried from the symphysis to the umbilicus extraperitoneally. Here it was usually possible to separate the peritoneum from the transversalis fascia in the middle line. Having done this the latter was incised the whole length of the wound. This would give greater exposure and in some measure promote ease of manipulation and offer a wider operative field. The bladder should be put well on the stretch with clamps and the separation to be successful should be begun below and laterally. This point the speaker wished to emphasize particularly, as separation from above downward was impracticable in the vast majority of cases. Separation from below and laterally, if one got in the right line of cleavage, was relatively easy. Here good transillumination was desirable as it would then outline the vesicoperitoneal attachment. In many instances it was possible to carry the fingers from either side until they met, underneath the urachal and hypogastric attachment. In that event, it was a very simple matter, under vision and with good transillumination and with sharp dissection, to cut the binding structures which were the urachal and the hypogastric attachments, without danger of entering the peritoneum. By any other technique it was practically impossible to separate the bladder without opening the peritoneum, not once perhaps, but maybe in half a dozen places. Likewise it was possible at times inadvertently to open the bladder, which was a real menace, as the opening in the peritoneum means nothing if it were recognized. The technique as previously outlined would obviate this danger and was an orderly procedure based entirely upon anatomical lines. Now when the separation below these attachments was accomplished, the bladder might be freed sufficiently to invert it, that was, to turn the lower side uppermost, whence with gauze the peritoneum might be gradually stripped from below upwards. By this technique and this alone was the bladder best freed. When this was accomplished and the bladder freely movable and delivered out of the wound, one should note on either side of the inferolateral aspect of the bladder the vesicopelvic fold in which one always found the ureter and the vas. Then Dr. McCarthy reviewed the literature with reference to rectal and vesical implantation of the ureter. He said that rectal implantation of the ureter had been attempted in animal experimentation as early as 1851, and Küster, in 1891, did a bladder implantation. He also referred to Coffee's method of employing a sero-muscular flap and buttonholing the mucosa. He said he liked to consider the bladder as being divided into two parts, the trigone and the rest of the bladder. The trigone was least amenable, and the rest of the bladder readily amenable to radical surgery. In the repair of the bladder after resection absorbable suture material only should be used. He never used non-absorbable suture material where it was likely to come into contact with the urine. One little technical point of importance was the use of the groove director, in transplanting the ureter, as by the use of this instrument there was no danger of obliterating the lumen of the ureter. Dr. McCarthy said he thought the pictures clarified the technique, which was a thing the text-books and monographs had signally failed to accomplish.

Perineal Prostatectomy.—Dr. PARKER SYMS made this presentation, which consisted of a motion picture demonstration of his method of performing prostatectomy by the perineal route. He stated that while there was not much originality about the operation the technique had been worked up by him as far back as 1890 and the description of the operation was published in 1900. He was still doing the same operation. He would not go into the details of the history of the operation as all were familiar with the controversy in reference to the relative advantages of the suprapubic and the perineal routes. Albarran used a median perineal incision and did a suprapubic cystotomy for the purpose of putting one or two fingers into the bladder to facilitate the procedure. He felt that it was impossible to reach the prostate through the perineum without the combined operation. The speaker, realizing the disadvantages of the suprapubic operation, as well as those of the combined method, felt that it was an advantage to be able to get down to the bladder without opening it. By means of perineal section one could do this by pushing the bladder and the prostate well toward the peritoneum. He felt also that there was a great disadvantage in upper bladder drainage. In speaking of the technique, Dr. Syms said he had found the retractor devised by Dr. Hugh Young very convenient, but it was possible to deliver the prostate through the perineum without that retractor. In reference to the advantages of prostatectomy, it might be well to recall the fact that, in spite of the advantages in technique, the mortality from suprapubic prostatectomy was a great deal higher than from perineal prostatectomy. A properly performed perineal operation would not be followed by leakage. With the perineal operation the patient should have control of the bladder in a short time after the operation, usually in about eight hours. Again in the perineal operation the drainage was in the line of gravity and was ideal from the point of surgical technique, while the suprapubic operation was far from ideal. After the suprapubic prostatectomy there was a large space left around the neck of the bladder and below and this pocket became filled with purulent urine, and drainage by the suprapubic route had to be up hill. After perineal prostatectomy the bladder sphincter contracted around the tube and the wound was funnel-shaped and led to the surface so that there was no pocket with a collection of fluid, and usually healing was very satisfactory. The speaker said he could recall only two cases in which local infection occurred after the perineal operation. One resulted fatally, and in the other there was a little sloughing of the fascia. When death occurred after this operation it was usually due to renal causes. The operation as a rule required only five, ten, or fifteen minutes for its satisfactory performance. In one case, a man who was considered a very bad surgical risk, the operation from the time of starting until the tube was inserted took just one minute by the clock. In making the enucleation it was important to get just the right line of cleavage and one should do the enucleation with the finger until the isthmus was reached. The gland should be cut at the isthmus to prevent tearing.

Anatomical Results After Prostatectomy.—Dr. A. HYMAN presented this phase of the subject, basing his conclusions on the radiographic finding in a series of observations. He said that the object of the study was to inquire into the mechanism of urination following suprapubic prostatectomy and to note the changes in the topography of the bladder resulting from this operation. A resumé of the literature deal-

ing with the mechanism of the sphincters of the normal bladder showed that considerable discrepancy of opinion still existed concerning the rôles played by the internal vesical sphincter, and the external sphincter, or compressor urethrae muscles. In 1905, a new method of studying the form of the bladder was devised by Völcker. He employed collargol injections combined with radiography, and as a result of his work concluded that the normal bladder, when distended, was invariably broader above than below and was never round. Following this method they also had demonstrated in their collargol radiographs that the internal vesical sphincter was the sphincter that prevented the escape of fluid from the fully distended bladder, and they never observed a funnel-shaped formation. Later investigators had substantiated these findings. The bladder in prostatic hypertrophy showed marked changes in contour in unoperated cases. They varied from small contracted bladder to the large irregular flaccid type. Changes characteristic of prostatic enlargement were to be found at the base of the bladder. Instead of a broad part narrowing at the outlet, the opposite picture was seen. The interior part of the bladder was broad and flat; at times an upward bulging, due to the gland projecting into the bladder, was found. This flattening of the inferior portion of the bladder might be said to be characteristic of prostatic enlargement. The bladder was situated on a higher plane than in the normal, the level depending upon the size of the gland. Its base was found to be opposite the upper border of the symphysis, and more often one or two centimeters higher. The question of sphincter control seemed to the speaker to be decisively settled by the radiographs, which showed conclusively that even in the most extreme distention of the bladder the internal vesical sphincter was the seat of closure. Thirty-eight patients upon whom suprapubic prostatectomy had been performed were selected for this study and in all some 75 radiographs were taken. The most interesting and important changes were to be found in the outlet of the bladder. In a small proportion of the cases only a very slight funnel-shaped formation in the region of the internal sphincter was observed; in a very few cases no changes in the outlet were to be found. It was therefore evident that in this small group of cases the internal sphincter had not been sufficiently injured by the operation to interfere with its proper function. In the great majority of the cases, 28 of the 38 cases, the radiographs showed two distinct cavities, a larger superior one corresponding to the bladder proper and a smaller inferior one extending from the lower margin of the bladder, and continuous with it, to the region of the compressor urethrae. The latter corresponded to the defect left by the removal of the enlarged gland. The contour of this cavity varied from round or oval to a funnel-shaped formation. The latter was more frequent, the broad base being superior. There could be but one interpretation of these findings—the internal vesical sphincter had either been destroyed by the operation or its function so impaired that it could not have any effect in retaining the fluid in the bladder; this had been accomplished by the compressor urethrae muscles. There could be no question that the compressor urethrae muscle acted as an efficient sphincter, for all the cases in this series had excellent urinary control. The writer pointed out the evidence in the radiographs leading one to believe that the sphincter in these cases had either partly regenerated after the operation or was incompletely destroyed by the operation. That the cavity left by the enucleation of the gland was not entirely obliterated and that the internal sphincter was not completely regenerated was shown by the very definite radiographs after an interval of three years. In conclusion it might be stated that: 1. The internal vesical sphincter was the true sphincter of the normal bladder, and of the bladder in prostatic enlargement. 2. The external vesical sphincter, compressor urethrae, was the functionating sphincter after suprapubic prostatectomy in the large majority of cases.

New Operative Procedure in Impassable Urethral Stricture Without Perineal Section.—Dr. FREDERICK J. PARMENTER of Buffalo made this presentation, in which he reviewed the etiology and discussed the length of time elapsing from the inflammation of trauma to the onset of symptoms, the location, types, classification, and symptomatology of stricture. In speaking of the diagnosis, he said that the actual diagnosis could be made only by the endoscope during the period of soft infiltration, as no resistance whatever was offered the passage of the instrument. If hard infiltration were present the bougie a boulé was relied on almost exclusively, for by its use the size, length, and location of the stricture could be accurately determined. Additional information might be secured by stretching the urethrae upon a sound and palpating the degree of thickening from fibrous deposits. The history and symptoms, therefore, were suggestive but not diagnostic. The writer considered the prognosis from the point of view of whether the stricture could be cured or, if it could not be cured, whether the individual could be relieved and the dangers of urinary obstruction avoided. He then discussed the treatment which he stated had a twofold purpose: First, to relieve the urinary obstruction, if such existed; and second, to remove as far as possible all inflammatory deposits in and around the urethra, thus preventing a recurrence of the trouble. In the early stages, especially those of soft and hard infiltration, judicious local applications through the endoscope, together with gentle and gradual dilatation by sounds, Kahlman dilator, etc., were very successful. There were, however, exceptions to this rule. The effects of the dilatations, to quote Oberlander, were a retrograde metamorphosis with reconversion of fibrillary tissue into the ordinary round celled deposit with reabsorption. He also stated that the principles were those underlying Biers hyperemia. Unfortunately many cases had advanced beyond this stage when first seen, and a variable amount of fibrous tissue had been deposited. Treatment in this class of cases would vary from dilatation to internal and finally external urethrotomy, depending upon the degree of contraction and obstruction present. Divulsion and deep cutting with the urethrotome had justly been condemned as unscientific and unsurgical. Gentleness in all methods of treatment, no matter of what description, were the foundation for success. The marked efficacy of either intermittent or continuous dilatation, and the possibility of nearly always being able to carry this out with little difficulty made it the method of choice. Operative methods would be necessary in relatively few cases and were limited to those strictures, large or small, which resisted dilatation because of a preponderance of fibrous tissue or caused urinary obstruction which must always be promptly relieved. Objection has been raised to internal urethrotomy for stricture at or behind the bulb, because of the danger of hemorrhage and sepsis. The writer did not believe these objections were valid provided the dilatation before cutting was never carried above 20 to 22 Fr., and an indwelling catherer relied upon to maintain the dilatation for several days. If no instruments could be passed external urethrotomy must be undertaken, unless the operation devised by the writer was performed. Before deciding that a stricture was impassable Schley had suggested that an endoscope be passed to the site of the stricture and a few drops of adrenalin cocaine solution be instilled through a special blunt pointed needle or 17-18 Brown-Sharp gage. The adrenalin caused the mucous membrane to shrink sufficiently to open a passage through which a ureteral catheter or a filiform often could be passed. If this succeeded either might be left *in situ* acting as an indwelling catheter, or an internal urethrotomy performed. If every attempt failed external urethrotomy must be performed. After reviewing many of the suggestions, modifications, and technique that had been suggested to overcome the difficulty encountered in trying to find the urethra without a guide, and pointing out the dangers of external urethrotomy the author stated that about two years ago the possibility of operating upon impassable stricture through the urethra occurred to him during an endoscopic inspection of a stricture upon which perineal section had been twice performed previously. The excellent view of the operative field caused the experiment to be undertaken. The only knife available was the Otis urethrotome and the blade broke off after the second or third cut. Fortunately internal urethrotomy could then be performed.

Urethral knives were then sought but none answered the purpose. Finally, a three-bladed solid knife, hollow ground, was devised which had answered every requirement. Either gas or cocaine anesthesia might be used, preferably the former. The operation had been performed 19 times, the following technique having been used in 14 cases. A McCarthy endoscope (any straight endoscope would answer the purpose) was passed down to the site of the stricture, the lumen found and pressed firmly against the endoscope, thus affording a perfect exposure of the operative field. The point of the special three-bladed knife was entered into the lumen and the stricture divided for not more than one-half inch. In strictures of this length or less one cut would be sufficient if, however, the stricture was longer the endoscope was gradually advanced, dilating the cut portion of the urethra, or the dilation could be accompanied by the use of the Otis urethrometer. The endoscope was then brought up against the next uncut portion and the same maneuver repeated, and so until the stricture was divided. It was not difficult to keep the field free from blood by using cotton applicators, the hemorrhage usually being trifling. The mucous membrane could usually be made out, thus avoiding the danger of a false passage. It was also important to bear in mind the natural curves of the urethra at the point of operation, so that the endoscope and knife were held in proper alignment before any cutting was done. After the stricture had been divided, a No. 18 soft rubber or straight web catheter was passed through the endoscope and the catheter fastened in place. The bladder was irrigated two or three times in twenty-four hours with 1-6000 potassium permanganate solution, the urine kept acid and the catheter left in from three to five days, after which it was removed and intermittent dilation continued. A brief review of the series of 19 cases operated on by this method showed that 15 had a purely gonorrheal history, one a gonorrheal and traumatic, two purely traumatic, and one gonorrheal and tuberculous. Of the 15 gonorrheal cases the stricture was single and located at the bulbomembranous junction in 10, and in the spongy alone in one. In the remaining four cases two strictures were present, at the bulbomembranous and in the spongy urethra, usually about the middle third. Of the remaining cases, three of the strictures were located in the bulbomembranous and one in the membranous urethra. The average duration in the gonorrheal cases was nine years; in the traumatic cases six and one-half years after injury. The gonorrheal and tuberculous case had lasted twenty years. In ten of the gonorrheal cases the infection was severe. After reviewing the symptoms and complications in these cases, the writer said that two deaths occurred in the series. The first was in a patient 68 years of age who did well until the fifth day after the operation when the retaining catheter slipped out and the interne replaced it with difficulty. The catheter was plugged with blood and no drainage occurred. This was not discovered for nearly eighteen hours, at which time the patient had developed symptoms of septicemia and died within twenty-four hours. The second patient died because of a perforation of the posterior wall of the bladder, which was probably made by the cystoscope and not discovered until autopsy, though five days after the operation the symptoms which developed suggested a bladder perforation. The advantages claimed for this operation were: (1) It was not a difficult procedure if a little time were spent in mastering the technique, and the proper instruments were used. (2) The period of convalescence was brief, so that prolonged stays in the hospital and absence from work were unnecessary. (3) No suprapubic or perineal opening was required with the subsequent danger of fistula. (4) The drainage afforded by the indwelling catheter was as good as by perineal section. (5) The continuous dilation by the catheter for several days accomplished wonders and rendered aftertreatment less painful and more easily carried out.

Dr. McCarthy said that Dr. Parmenter's point was well taken and they, the genito-urinary surgeons had been accustomed to getting a good deal of information from Buffalo, but he was inclined to think that the technique which Dr. Parmenter had presented had a rather limited application and that it was only suitable to a small group of cases, those, in fact, in which the stricture would admit a No. 18 French sound. He did not quite see how one could be certain of confining his operation absolutely to the urethral canal when using this sharp instrument. If a filiform extension were adapted to the end of the three-bladed knife he thought it would serve fully as well and there would not be so much danger of doing damage to the urethra.

Dr. Martin W. Ware referred briefly to a method he had used, which received no mention in recent textbooks but which had been employed for a number of years in France, which embodied all the ideas presented by Dr. Parmenter except the use of his particular knife which was directed under the guidance of the eye through the endoscopic tube. This much simpler procedure was the method of internal urethrotomy devised by Albarran. The method was illustrated in a drawing by Dr. Ware. After a stricture had been determined to be sinuous or tortuous a filiform was introduced into the bladder. The Maisonneuve cutting instrument was screwed to the filiform. The division of the stricture accomplished, the Maissoneuve was unscrewed and a conductor 18 inches in length substituted. Over this combined filiform and conductor as a guide, a woven catheter was passed to remain as indwelling and the guide removed. It was thus apparent that after the stricture was cut, at no time was the raw surface ever exposed to the urine. This was the crux of the whole operation. The procedure, as demonstrated by Dr. Parmenter, embodied also the idea of dividing the stricture by sight. But one could not look down a tortuous passage and would have to be guided by the sense of touch none the less. Hence with the aid of optical instruments one was still groping, if not in the dark at any rate in the light. It therefore seemed to him that only in the strictures of small extent pictured this evening this particular operation had a limited application.

Dr. Parmenter, closing the discussion, said that he had covered the English literature in the Index Medicus for the last five years, but had not covered the French or the German literature, which would explain how he had missed the Albarran technique. He felt quite certain when this operation was presented as original it would be discovered that someone else had previously tried a similar method, but so far such a technique could not be found in the recent literature; nor was it known to a number of urologists with whom he has conversed. He was very glad to have his attention called to Albarran's method, which was in some ways similar. The only claim to originality which he desired to make was the operative technique, because the idea of cutting strictures through the endoscope was not new. This was, however, the only definite description of any operative procedure. Replying to Dr. McCarthy's remark that he thought an 18 catheter too small adequately to drain an infected bladder, it was always possible after the cutting to dilate the stricture to any size desired and place a catheter as large as a 20 or even 24, and thus secure good drainage. He only advocated this operation for impassable stricture instead of perineal section. Thompson Walker had mentioned the fact which these observations confirmed, namely, that the orifice of the stricture usually pointed towards the upper wall of the urethra, which made it difficult to pass the catheter or filiform without exposing the orifice through the endoscope. Buerger had recently mentioned the same point, and felt that a filiform should be introduced by direct vision, rather than time spent in a blind search. Replying to another point of Dr. McCarthy's, namely, that the point of the knife should be dull, Dr. Parmenter said that if the endoscope was passed and held firmly against the stricture—which was done by making traction upon the penis and pressure upon the endoscope—thus making the cutting in absolute alignment, he had never made a false passage, as the mucous membrance was always present to act as a guide. In concluding, he said he wished to repeat that he had found the method described in his paper to work very satisfactorily; that he had never, up to the present, had any trouble with its execution, and, after a considerable experience with perineal section, he was convinced that this method was far superior to it.

Stated Meeting, Held May 2, 1918.

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

THIS program was arranged in cooperation with the Laboratory of the Board of Health, Dr. William H. Park, Director.

Specific Prevention of Poliomyelitis.—Dr. H. L. ABRAMSON presented this paper, in which he brought out the salient facts in work extending over two years, the object of which was the development of a method for protection against poliomyelitis. He stated that their first effort in this work consisted of an attempt to adapt the virus of poliomyelitis to the rabbit. After a rather extensive experience with the rabbit it was decided that this animal was not suited to the work. The material used in the rabbit work was derived from the brains and cords of human poliomyelitis, of monkey poliomyelitis of the 1916 epidemic, and of monkey poliomyelitis produced by a highly potent Rockefeller strain. Of a total of 145 rabbits inoculated and subinoculated by various methods, used singly or in combination, only the following exhibited paralytic symptoms that might have been construed as experimental poliomyelitis; four in the first generation; four in the second generation, and once in the third generation. Fifteen rabbits were subinoculated with the fresh brain and cord of the rabbit of the third generation without production of paralytic phenomena. Efforts in this direction were then discontinued and attention turned to the use of monkeys of the rhesus variety, the high susceptibility of this animal to experimental poliomyelitis having been amply demonstrated. The virus used in this work was obtained from the Rockefeller Institute and was of such potency that 0.05 per cent. of the supernatant fluid of a centrifuged five per cent. emulsion inoculated into the brain of a monkey produced a lethal poliomyelitis infection. This virus was very reliable. Instead of using live virus in increasing small doses over a prolonged period of time, or a single large dose subcutaneously, it was determined that the injection material ought to be modified or attenuated in some manner so as to remove any possible harm from the method itself. Also, to render it suitable to use in time of epidemic, it was decided that the time consumed in administration ought to be as short as possible, consistent with the production of a degree of immunity sufficient to protect against a reasonable exposure to the disease. Their first effort to attenuate the highly potent monkey virus by exposure of a 10 per cent. emulsion to 0.3 per cent. formalin for three hours was not satisfactory. It was then decided to try out the effect of heat as an agent for the attenuation of the virus. The virus, in 10 per cent. emulsion, was exposed to the effects of heat in two ways: In one the virus was subjected to 55° C. for one-half hour for each of 10 injections, used on successive days. This represented the use of killed virus. In the other the virus was gradually attenuated by being subjected to heat as follows: The first day's injection 55° C. for one-half hour; the second day's the same; the third day to 45° C. for one-half hour, the fourth day to 37° C. for one-half hour; on the fifth and last day it was injected unheated. The material was injected subcutaneously in doses of five c.c. Twenty days after the completion of the series of injections the animals were bled by cardiac puncture in order to determine the presence or absence of neutralizing substances for poliomyelitis virus. This was done by exposing five per cent. virus emulsion to the action of the serum in the proportion of 1.1 for two hours at 37° C. and 22 hours in the ice-box. These mixtures were then inoculated intracerebrally into normal monkeys. On the twenty-first day after the completion of the series of preventive inoculation, the treated animals were subjected to an intracerebral test of from three to six lethal doses of the same emulsion used in the neutralization tests. Normal control animals were inoculated with the same emulsion and the same dosage. Only three animals were treated by the killed virus method. There were no untoward effects. Two of these animals failed to resist the intracerebral test inoculations, one with six lethal doses, the other with three. These animals died of typical experimental poliomyelitis with an incubation of six days. The third animal developed paralysis after an inoculation of fourteen days, which progressed until all the limbs were involved; this animal finally recovered. Of the sera of these animals, all exhibited evidences of neutralizing power, but not in equal degree. Two normal control animals succumbed with an incubation of five and six days respectively. Eleven animals were subjected to injections with virus attenuated by graded heat. Even though the final injection was not modified by heat none of these animals showed any untoward effects from the treatment itself. Of eight of these animals five resisted successfully a multiple lethal intracerebral injection of this highly potent virus. Five of the tested animals received six lethal doses. Of these three were protected. Three animals were tested with three lethal doses and of these two were protected. Dr. Abramson described the method of testing animals for neutralizing substances, In summarizing he said that the killed virus methods produced some immunity but not a high degree. The sera of animals so injected contained neutralizing substances, and one out of three survived the multiple lethal intracerebral test inoculation, but with complete paralysis. The five-injection method, involving the use of virus subjected to graded heat with a final injection of unheated material, produced protection of a considerable degree against an unusually severe method of testing. The sera of all these animals contained neutralizing substances in varying degree. The outstanding facts of this work were that this latter method had produced no ill effect as a result of the treatment itself; that the injection of graded attenuated material had prepared the animal to take care of the final injection of live virus; that it had produced sufficient immunity to protect animals against a multiple intracerebral dose of a highly potent virus which was a hundredfold severer exposure than that to which persons were subjected in the natural mode of infection; that it produced neutralizing substances in the blood in such concentration as should be amply able to combat the comparatively mild infection which might lodge on the mucous membrane of persons exposed to poliomyelitis. Furthermore, the series of injections were completed in five days, which rendered it highly practicable in time of epidemic. The injections could be prepared from glycerolated virus, which might be kept on hand over a long period of time without deterioration and required only moderate laboratory facilities for its preparation.

A Rapid Method for the Determination of the Type of Pneumococcus in Pneumonia Sputum.—Dr. CHARLES KRUMWIEDE presented this communication, in which he stated that the sand method, devised by Mitchell and Muns, as well as observations of their own, made in an attempt to determine the earliest time at which precipitable pneumococcus antigen was demonstrable in the washings from the peritoneal cavity of mice inoculated with pneumonia sputum indicated that pneumonia sputum contained considerable soluble pneumococcus substance. This fact together with the knowledge that sputa of pulmonary origin contained albumin suggested the following rapid method of determining the type of pneumococcus. The sputum was poured into a test tube which was placed in boiling water for several minutes, when, if the sputum were of satisfactory quality, it would coagulate more or less firmly. The clot was broken up and, if no fluid separated from the clot, a small amount of saline solution was added. The test tube was again placed in boiling water so that the soluble pneumococcus substance in the clot would be extracted by the hot fluid. The extract was then cleared in the centrifuge and this fluid added to the type sera. The lighter extract was floated over the sera so that the precipitate appeared as a white ring at the point of contact, should a reaction occur with one of the type sera. The reaction was usually evident after five minutes' incubation in the water bath, at a temperature of 45° to 50° C. With positive sputa the readings were usually made within fifteen to twenty minutes after the receipt of the specimen. The success of the method depended upon the quality of the serum submitted. About 3 c.c. of sputum was desirable for the test. The speaker stated that of 183 sputa received in their regular routine 129 had been satisfactory for this method of testing. Of the good specimens, 99 contained a mixed type and about 95 per cent. gave a promptly positive reaction. Of the

poor specimens, 16 contained fixed types, but mouse inoculation was necessary to determine this. Of 50 sputa containing a Type I pneumococcus, 40 were satisfactory for this method and 39 gave a positive result. As Type I serum was available for therapeutic purposes, they were able, in these instances, to send the serum back with the messenger delivering the sputum, which resulted in the earlier administration of the serum.

Complement Fixation in Tuberculosis; Technique.—Dr. M. A. Wilson presented this communication. She stated that all the reagents were used in one-tenth the classical Wassermann volume. The fixation period was one hour, at 37° C. The patient's serum was inactivated for thirty minutes at 55° C. Two-hundredths and one-hundredth of the undiluted serum were used in the test and four-hundredths for the control of the anticomplementary reaction. Two antigens had been used, one made from twelve stock cultures of human tubercle bacilli, the other from strain 305 (used for tuberculin production). These antigens were suspensions in 9 per cent. saline of dried bacilli from which all constituents soluble in alcohol and ether had been removed. The antigens were grown in glycerine broth. The polyvalent antigen cultures were grown for three weeks, and the monovalent for three months. The broth cultures were killed by heating in the Arnold sterilizer for one hour. The cultures were then filtered through filter paper, the filtrate discarded, and the residue placed in absolute alcohol, in the proportion of one volume of residue to ten volumes of alcohol. This mixture was shaken thoroughly by hand, and placed in the icebox for three weeks. It was then filtered through paper, the filtrate discarded, and the residue washed in absolute alcohol. After this it was centrifuged and washed in ether, centrifuged again, and the ether discarded. The centrifuge tube containing the residue was plugged and placed in the dark, at room temperature, over night. By this simple procedure the residue was dried in twenty-four hours. The dried powder was emulsified in a large mortar with 0.9 per cent. saline in the proportion of one gram of powder to 200 c.c. of saline. This gave a concentrated emulsion convenient for storing as a stock antigen. The emulsion was heated for one hour at 80° C. The antigen was now ready for use, and was standardized to be used in such a dilution that one-tenth c.c. would contain two standard fixation units and one-quarter or less of the anticomplementary dose. The unit was determined by titrating varying amounts of the antigen with 0.01 c.c. of a known positive tuberculosis serum and two hemolytic units of a complement known to be potent for tuberculosis fixation. The standard dilution of these two antigens was 1:50. This made a final dilution of 1:10,000 dried bacilli. These antigens were not anticomplementary. They had given uniform and constant fixation reactions. The tests reported showed that they were specific and stable. They were made ten months ago and were perfectly efficient today. For the complement, guinea pig's serum twenty-four to forty-eight hours old, pooled from six to ten guinea pigs, was used. Before pooling, the serum from each pig was tested for its hemolytic strength, for antisheep amboceptor, for anticomplementary reaction with a heterologous serum and for fixability with the combination of tuberculosis antigen and tuberculosis serum. This last test was emphasized as essential, if uniform results were to be obtained with the different lots of complement. It had been proven beyond a doubt that although a guinea pig's serum might react perfectly in all other respects, it might fail to be fixed by tuberculosis antigen and serum. Of the pigs they had tested 64 per cent. failed in fixability. The pooled serum was titrated with cells sensitized with three standard units of amboceptor. The reaction was read at the end of fifteen minutes. Two hemolytic units were used in the tests. The indicator for the fixation reaction consisted in 0.1 c.c. of a five per cent. suspension of sheep cells sensitized with three standard units of antisheep amboceptor. The controls for the diagnostic fixation reaction comprised an antigen for anticomplementary reaction, for specificity and for potency; a serum for anticomplementary reaction for specificity and for natural antisheep amboceptor; a complement for stability (system control), and finally sensitized cells for testing the stability (reading the control). Dr. Wilson presented the results of tests of serums from 344 cases of known tuberculosis, which showed that among the cases of active tuberculosis 67 per cent. gave a strongly positive reaction, 25 per cent. a weakly positive reaction, and 8 per cent. a negative reaction. Of the cases of bone and joint disease, 12 per cent. gave a strongly positive reaction, 10 per cent. a weakly positive reaction, and 78 per cent. a negative reaction.

Of the cases of tubercular glands, 35 per cent. gave a strongly positive reaction, 20 per cent. a weakly positive reaction, and 42 per cent. a negative reaction. Of the poliomyelitis fluids, 100 per cent. gave a negative reaction, and of subjects having no symptoms of tuberculosis, 100 per cent. gave a negative reaction. The conclusions reached were that all guinea pig serums were not efficient for tuberculosis complement fixation and that the serum of each guinea pig should be tested for fixability with tuberculosis antigen plus tuberculosis serum before pooling the complement for diagnostic tests.

The Complement Fixation Reaction for Tuberculosis; Clinical Results.—Dr. H. Von Wedel presented this contribution, in which he related his observations made in the course of 1,078 complement fixation tests on 29 specimens of blood serum taken from cases with no clinical history of tuberculosis and from patients with active, inactive, and primary pulmonary tuberculosis. This study was made in conjunction with Dr. Wilson in the Board of Health Serological Laboratory. The cases were all from the Westchester County Hospital, the White Plains Hospital, and the New Rochelle Hospital. The method of setting up these reactions was exactly the same as Miss Wilson had described, with two important modifications: The regular amount and double the regular amount of patient's serum originally advocated by Wassermann was used, and the reactions were set up one day after the specimen was removed from the patient and every week for four or five weeks with an interval of seven days between each test. Apparently the icebox fixation gave no better results than the one hour water bath fixation. The two hour water bath fixation, the writer believed, would give uniformly positive results. However, they could not state positively which was the best method of fixation. A large number of comparisons would be made in the near future to determine this question. The writer's experience in making a large number of Wassermann tests and also with the complement fixation test in tuberculosis showed that an appreciable number of cases gave definite positive results with double the amount of serum and negative or doubtful reactions with the single amount of sera. The cases tested were classified as belonging to the seven following types: (1) Primary cases, or those having few physical symptoms and no tubercle bacilli in the sputum, or only after examining many specimens by the antiformin method. (2) Active cases, or those expectorating tubercle bacilli, and with incomplete or no walling off of the tuberculous area. (3) Active cases in the last stage. (4) Partially inactive cases, that is cases expectorating tubercle bacilli but having very marked fibrous formation with the consequent complete walling off of the disease from the body proper. (5) Inactive cases. (6) Cases reported as possibly suspicious, but expectorating no tubercle bacilli and having no symptoms of tuberculosis. (7) Non-tuberculous cases. Of Type (1) all gave positive results. Of 49 Type (2) cases, 46 were positive. Of 11 Type (3) cases, three were positive, three doubtful, and five negative, giving 27 per cent. positive, and 27 per cent. doubtful. Of 19 Type (4) cases, six were positive, five were doubtful, and eight were negative, giving 31 per cent. positive, and 26 per cent. doubtful results. Of 12 Type (5) cases, three were positive, nine were negative, giving 25 per cent. positive results. Of four Type (6) cases, all were negative, giving 100 per cent. negative results. Of 92 sterile Type (7) sera, all were negative. In comparing the temperature, pulse, and respiration records of the patients with the complement fixation reactions, it was found that a large percentage of cases having high temperature and respiration records gave a strong positive reaction and, *vice versa*, a large percentage of cases having low temperature and respiration records gave negative reactions. N. J. Corper concluded that in the presence of a positive

Wassermann reaction, the presence of a positive complement fixation test for tuberculosis was of no practical value. He had also stated that the most reliable investigators conceded that a suspension of living tubercle bacilli was the only one of the many antigens used that was of specific value, but that the objections to the bacillary emulsion were the small leeway between the antigenetic and the anticomplementary dose, the turbidity produced in the tubes, and the fairly high percentage of non-specific reactions. To all these statements the writer took exception. First because in his series of cases there were 26 specimens from patients that gave positive Wassermann reactions but with no physical symptoms of tuberculosis; none of these gave any cross-fixation with the Wilson tuberculosis antigen. Secondly, in no instance did he get a positive reaction, using double the regular amount of sterile patient's serum, in his entire series of non-tuberculous cases. Thirdly, he had never found the Wilson antigen to be anticomplementary in four times the dose used in the test, if the antigen was heated at 55° C. for one-half hour just before using. Fourthly, his results in the active tuberculous cases gave 98 per cent. positive reactions. Fifthly, the very slight turbidity produced by the antigen in no way interfered with the reading of the results. Dr. Von Wedel concluded as follows: (1) The tubercle bacillus antigen which was used by them was not anticomplementary in four times the amount necessary to give positive fixation results with sera from the majority of active tuberculosis cases. (2) Pooled complement from at least six guinea pigs should be used in making the tests, or the complement from single pigs should be tested for its complement fixation value with known positive sera. (3) Double the original Wassermann amount of patient's serum should be used. (4) No report should be made until the sera was tested, after having been kept under sterile conditions in the icebox for from four to six days, but preferably six days. (5) The writer's results seemed to indicate that if the aforesaid modifications of the original complement fixation tests were used 100 per cent. of non-tuberculous cases would give absolutely negative results; nearly 100 per cent. of the primary and active cases would give positive results, with the exception of the dying cases, and about 25 per cent. of the partially inactive and negative cases would give only weak positive results. Before any definite conclusions could be drawn a much larger number of tests would have to be made. He hoped to report on the results of about three thousand tests in the fall.

The Meningococcus Carrier Problem from the Laboratory Standpoint.—Dr. ANNA W. WILLIAMS presented this subject. She stated that in the Bureau of Laboratories they had been carrying on investigations in regard to the detection of meningococcus carriers chiefly from two standpoints: (1) That of developing a method of making accurate and rapid diagnoses that could be of practical use in examining large series of cases such as occurred when meningitis appeared in camps. (2) That of determining the types of meningococci found in carriers and their relation to case strains. This work was undertaken because of the request for aid in the hunt for carriers in certain camps, aviation fields, and ship stations in the vicinity of New York City. They began by testing out the different culture media recommended. This was done, not by seeding the plates of media with stock cultures of meningococci, but by using freshly isolated cultures, and these in one to fifty dilution, in order to make the conditions more nearly approach those met with in the primary culture from the case. The difference in the results from testing in this way over those from testing with stock cultures was marked. Among the media tested were the so-called hormone medium recommended by the Lloyds in England and Dr. Huntorn in this country, which had been found to give, on the whole, the best results, but only when a small amount of blood was added to it, a drop to a plate. Different lots of this media varied in their ability to give good growth, and they therefore recommended that every lot of it be tested by planting plates of it containing blood and plates without blood with a 1-50 dilution of two recently isolated strains, and that only those lots be used for this work that gave at least a moderate growth in the plates containing no blood. This medium always gave an abundant growth when blood was added. The procedure consisted in taking the cultures in the West tube, spreading on one plate, incubating for 20 hours, and then making the macroscopic slide agglutination titer of the serum, and recording the result. A comparison of this method with other methods showed that it possessed the advantage of shortening the time to twenty-four hours and the procedure and apparatus were much simpler. In reference to the second point, that of determining the type of meningococcus and its relation to the case strains, Dr. Williams said this part of the work was the more important part for helping to decide how necessary it was to try to weed out and isolate meningococcus carriers, and it had only just been begun. They had two groups of strains which they were studying in connection with the case strain in each group which they thought might furnish interesting data. One of these groups came from an aviation field, the case developing in one of three carloads of soldiers coming from the South. The patient had given slight symptoms for a day before arriving and the soldiers from all the cars mingled freely at several stops on the way. The immediate contacts of this case, so far as could be determined, were 30, and among these there were 8 carriers, or 23 per cent. In the rest of the squadron, numbering 187, there were 21 carriers, or 11 per cent. The entire number examined gave 13 per cent. carriers. The second group came from a receiving ship station. The whole number examined was 293, among whom 21.5 per cent. were carriers. The difference in the percentage of carriers in these two groups was significant. The question as to the presence and significance of types among meningococci was still undetermined. Gordon and his coworkers claimed that there were four distinct types of pathogenic meningococci demonstrated by the absorption of agglutinins. Griffith and others thought that there were only two rather indefinite types. The last Rockefeller division was three groups. Gordon stated that those strains that did not fall into his four types were probably non-pathogenic and that as a large percentage of non-contact carriers did not fall into these groups, many non-contact carriers were probably non-pathogenic and therefore did not need to be isolated. Griffiths and others, on the other hand, believed that every strain of gram negative cocci with cultural and fermentative characteristics similar to those accepted as typical of meningococci was potentially, at least, pathogenic, and that it should be treated as though fully pathogenic. If Gordon's contention proved to be correct it would simplify matters a good deal from the standpoint of an efficient army, but it would increase the complexity of the laboratory test. In the study of their own groups by the method of absorption, Miss Cooper, who was doing his work, found that in their first group the case strain and nearly half the contact strains fell definitely into Gordon's Type I group, one-fourth belonged to Type III, the group most nearly related to Type I, and the rest either belonged to Type IV (not yet tested with Type IV serum) or were heterogeneous. These results seemed to bear out Gordon's claims. The study of the other group had already presented a complication which showed how much study was still needed to clear up this problem. The case strain was a practical non-agglutinable strain. Serum produced from this strain, though it did not agglutinate its own strain, agglutinated Gordon's Type II strain in very high dilution. This strain might prove to be a member of a sub-group of Type II. This was an indication that Griffith might be more nearly right than Gordon and that the procedure of determining the types by absorption might be unnecessary.

Immunization of the Infant Against Diphtheria.—Dr. WILLIAM H. PARK and Dr. ABRAHAM ZINGHER made this contribution, which was presented by Dr. Park. Dr. Park stated that the results obtained during the past three years had shown not only the possibility but the feasibility of immunizing the child population against diphtheria. With the second six months of life the child entered upon its period of danger and required protection. The immunity conferred by the mother disappeared generally during the second six months of life, but in some children not until the end of the second year. One therefore could not depend on a negative Schick test indicating a permanent immunity

until after this time. The injection of the standard toxin-antitoxin dose into children who were passively immune, because of antitoxin transferred from the mother or by its injection, did not give as much of an immunizing stimulus as when injected into those having no antitoxin. A fourth injection of a less neutralized mixture would probably successfully overcome this deficiency. At the present time they were recommending somewhat different procedures in institutions and in the general population. The procedure in institutions was as follows: Inmates six months or more in age should be Schick tested. If positive they should be immunized by injecting subcutaneously three doses of toxin-antitoxin mixture. The injections were given at intervals of about one week. The amount for those under one year was one-half c.c. of the standard Health Department mixture. For those who were older one c.c. was given. Those giving a negative Schick test were retested every three months up to the third year because of the gradual loss of passive immunity in many. Those giving a positive reaction at any test were immunized. This work, carried out by Dr. Blum, had given an immune group of infants, as shown by the Schick test and the absence of diphtheria. The procedure adopted with infants and young children in their homes consisted in giving every individual three injections, or a preliminary Schick test could be done and only those not immune given treatment. Those who were immune under three years of age, and especially those under two years of age, should be Schick tested every six months because of the possibility of the immunity being temporary only, due to the antitoxin conveyed through the mother. After the administration of the immunizing doses of toxin-antitoxin immunity developed in from three weeks to three months and lasted more than two and one-half years. Only time would tell whether the immunity would be permanent or not and they would continue to test children who had been immunized and to report on the results from year to year. If observation showed that a number of children lost their immunity, the Schick test would show which should receive another series of injections. In primary schools the children should be Schick tested on their admission and those giving a positive Schick test should be injected. Mothers should be urged to have their infants tested for immunity at the end of the first year and the positive cases immunized. The Health Department inspectors and probably the nurses could administer the immunizing doses. Dr. Park exhibited charts showing the results of Schick tests and active immunization in the 1,169 children in the Hebrew Orphan Asylum and of 760 children in the Convent of St. Dominic. The many thousands of injections made without producing any deleterious reaction, demonstrated the harmlessness of the procedure. Among the 1,169 children in the Hebrew Orphan Asylum, 14.4 per cent. were non-immune, and among the 760 children in the Convent of St. Dominic exactly the same percentage were found to be non-immune. Experiments had been conducted to ascertain the immunity conferred by one, two, and three injections of the toxin-antitoxin and the result when the three injections were given at the same time in scattered regions of the body. They had found that by giving the three injections 98 per cent. of non-immunes became immune; by giving two doses of the toxin-antitoxin, about 90 per cent. became immune, and by giving one dose only about 75 per cent. developed immunity. Most of their work had been done with the three injections. The time required for the development of immunity ranged from two weeks to twenty-one months.

Dr. ABRAHAM JACOBI, in response to an invitation to discuss the papers of the evening, said that after he had heard all that these people had to say he had nothing to add. He had given some attention to laboratory work a long time ago before these people were alive, between 1860 and 1880, but since that time it always appeared to him that he knew nothing about that line of work. There was only one thing he wished to say and that was that he had been much delighted with what he had heard to-night and that it had struck him that these men and women had particular and good reason to speak here as they belonged to the Health Department. In his opinion the Health Department, because of the work it was doing, was quite worth while, and he wanted the audience to recognize that it had a duty to see that the Health Department was not changed in its most important aspects. He hoped they had been reading the newspapers and knew what had been said by men in a position to know the value of the Health Department. These things were worth while saying not only privately but publicly and wherever they were. Whatever any of them could do to hold up the hands of the Health Department they certainly should do.

Dr. ISRAEL S. FEINBERG made a few remarks in reference to the value of the work the Health Department was doing. He emphasized the fact that not only the city but the entire country owed much to Dr. Park. Other countries had always paid tribute to his scientific proficiency. As he had listened to the papers his mind had harked back to the time when he began to practise medicine in this city and the conditions that prevailed at that time, and as he had listened to Dr. Jacobi, the Nestor of Medicine, he again pictured to himself the children dying of diphtheria and with acute meningitis of the most virulent type, and recalled the frightful suffering they experienced, and he thought of the prevalence of typhoid fever in those days and of the helplessness of the practitioner in the presence of these diseases. The picture had changed owing to the splendid work of the Health Department; and yet today they were confronted with the possibility of a return to those conditions through an overthrow of the organization of the Health Department. Dr. Feinberg made a motion for a rising vote of thanks and appreciation to Dr. Park.

Books Received.

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THE AMERICAN HOSPITAL OF THE TWENTIETH CENTURY. By EDWARD F. STEVENS, Architect. 274 pages. Illustrated. Price, $5.00. Published by Architectural Record Publishing Company, New York.

HYGIENE FOR NURSES. By NOLIE MUMEY, M.D. 160 pages. Illustrated. Price, $1.25. Published by C. V. Mosby Co., St. Louis.

A TEXTBOOK OF PHYSIOLOGY FOR NURSES. By WILLIAM GAY CHRISTIAN, M.D. 168 pages. Illustrated. Price, $1.75. Published by C. V. Mosby Co., St. Louis.

SURGICAL AND WAR NURSING. By A. H. BARKLEY, M.D., M.C., F.A.C.S. 208 pages. Illustrated. Price, $1.75. Published by C. V. Mosby Co., St. Louis.

NURSING IN DISEASES OF CHILDREN. By CARL G. LEOWOLFE, M.D. 314 pages. Illustrated. Price, $2.50. Published by C. V. Mosby Co., St. Louis.

MILITARY HYGIENE AND SANITATION. By FRANK R. KEEFER, A.M., M.D. Second edition; reset. 340 pages. Illustrated. Price, $1.75. Published by W. B. Saunders Co., Philadelphia and London.

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GYNECOLOGY. By WILLIAM P. GRAVES, A.B., M.D., F.A.C.S. 885 pages. Illustrated. Price, $7.75. Published by W. B. Saunders Co., Philadelphia and London.

AIDS TO THE ANALYSIS OF FOOD AND DRUGS. By C. G. MOOR, M.A., and WILLIAM PARTRIDGE, F.I.C. Fourth Edition. 268 pages. Price, $1.50. Published by William Wood & Company, New York.

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THE INTERNATIONAL MEDICAL ANNUAL A Year Book of Treatment and Practitioner's Index. Thirty-sixth year. 666 pages. Illustrated. Price, $4.00. Published by William Wood & Company, New York.

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Original Articles.

SOME OBSERVATIONS AND RESULTS IN THE TREATMENT OF FOUR HUNDRED CASES WITH RADIUM.*

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THE purpose of this paper is not to discuss in detail the comparative value or results of radium therapy in selected groups of cases. These have been, or will be, reported fully at such time as the treatment of a sufficient number, after proper interval, permits of forming more definite conclusions as to the results accomplished. Rather would I consider in a general way some observations and results gained from the careful study and treatment of more than 400 cases representing a considerable variety of pathological conditions.

Without entering into a detailed discussion of the subject at this time, I wish to repeat that radioactive substances, of which radium is the principal one used for therapeutic purposes, differ very greatly in their physical characteristics, mode of application, and the effect produced upon the body tissues, from the *x*-ray, violet-ray, and other so-called artificially produced rays. An assumption of their similarity emanates, almost without exception, from men with more or less familiarity with these agents and little or no knowledge or experience with radium.

The rays emitted by radium are of three distinct kinds, known as the Alpha, Beta and Gamma rays. From the Roentgen-ray tube are emitted only rays which are similar to, but by no means identical with, the Gamma rays of radium. *X*-ray therapy is dependent entirely upon a certain selective action of these rays. With radium, we may utilize either the markedly selective, or the destructive, effect of either the Beta or the Gamma rays. The delay in healing and serious consequences following the destructive effect of the *x*-ray are too well known to require comment. With radium, in the treatment of many superficial conditions, the Beta rays are employed for both their selective and destructive effect, which heals promptly and with good cosmetic results. Of my cases, the large number that have responded promptly to radium therapy, after receiving little or no improvement from prolonged *x*-ray treatment, is alone sufficient to demonstrate the decided difference in the therapeutic effect of these agents.

The dose and technique of application of radium necessarily depend upon the location and characteristics of the pathological condition under consideration, as well as the general condition of the patient. A thorough physical examination of all cases, together with such laboratory analysis as may be indicated, has prevented many errors of omission and commission, and should precede the application of radium, or any other therapeutic agent.

I have discussed in detail in previous papers the histological changes produced by radium, and for the sake of brevity will call attention to a few salient facts only. New and imperfectly formed tissues and cells are more susceptible to radium than are normal tissues. Janeway and Ewing have shown that one-fourth the dose required to destroy normal epithelial cells will permanently destroy carcinoma cells. Endothelial cells are especially susceptible to radium, as evidenced clinically by the remarkable results accomplished in the treatment of angiomata and endotheliomata. In keloid and certain other conditions, radium seems to exert a decided specific effect. In malignant conditions, in addition to a destruction and absorption of the neoplastic elements, there results a proliferation of the connective tissue, and obliteration of the vessel by a swelling of the intima, thereby diminishing the nutrition of the growth. There is probably a certain degree of immunity produced by the absorption of the living tumor cells in the body.

Superficial Epithelioma.—The results obtained from the treatment of nearly 100 cases of superficial epithelioma have been most gratifying. While epithelioma of the face, lips, and eyelids constitute the majority of these cases, they have been quite generally distributed over the surface of the body.

Of three cases, all quite extensive, involving the vulva, one was markedly improved, one is well, and one woman, 84 years of age, died from extension involving the bladder and adjacent tissues. Three cases involving the penis, and one the male urethra, are apparently well.

Sixteen cases of epithelioma involving the lip have been treated, 3 recurrent after surgical removal. More than 60 per cent. of these cases had previously had *x*-ray, violet-ray, paste, or other treatment, without results. In 4 cases, the glands were enlarged, and in 12 were apparently not involved. All of these cases, excepting two, are apparently well, and local treatment over the glands or within the glands has proven effective in de-

*Read before the fifty-eighth regular semiannual meeting of the Southern California Medical Society, at San Diego, May, 1918.

stroying the glandular involvement. The time elapsed since treatment varies from a few months to two years. The cosmetic effect in these cases is truly remarkable. In the majority, it would now be impossible to determine, by any disfigurement present, the original location of the involvement.

The result of the treatment of epithelioma involving the eyelids is equally pleasing, and, of course, more favorable because of the absence of glandular metastasis. Even though extensive involvement is present, cure is effected in practically all cases, with little or no disfigurement, other than the loss of eyelashes on the lid involved. The cornea is apparently very resistant to the rays, and no injury to the eye has resulted from treatment of these cases.

Epitheliomata involving the skin of the face and body yield most satisfactorily, and in only a few cases where extensive and deep involvement is present, usually in older persons, are satisfactory results not obtained. Of nearly 50 of these cases treated, all are apparently well, excepting 4, which were improved. I have seen a number of cases in which marked disfigurement and accentuation of the growth have resulted from the use of pastes; especially is this true if located near the eyes, nose, or lips. In 2 cases, the eye was severely injured from the use of the *x*-ray. I have not seen a recurrence in any case that was once apparently cured following the application of radium. It is generally accepted among men who have had an opportunity to observe the proper application of radium in these cases that it affords the most effective treatent of superficial epitheliomata.

Skin Diseases.—Several skin conditions in which I have received most excellent results with radium therapy are as follows: I have treated 5 cases of lupus, all of which had received previous treatment with various other agents, including the *x*-ray, violet-ray, carbon dioxide snow, drugs, etc.; one case had previously resulted in considerable destruction of the nose; and in one the eyelid was involved. These cases responded promptly and permanently, with an improvement in the preexisting disfigurement.

Pigmented moles may be favorably influenced, although considerable treatment is necessary. Two of those treated covered a considerable area and one had apparently undergone malignant degeneration.

In no condition are more pleasing results obtained than in the treatment of vascular nævi, angiomata, and port wine stains. These conditions are a congenital new growth and hypertrophy of the vascular tissues of the corium and subcutaneous tissues. Because of the susceptibility of endothelial cells to the Beta rays of radium, radium acts almost as a specific. Port wine stains require great patience and most careful technique in their treatment. Three cases, two of which extended through the eyebrows, have been caused to entirely disappear without disfigurement or loss of the eyebrows, and one has been so markedly improved as to render the remaining discoloration negligible, although greater improvement would have been effected by further treatment. Five cases of angiomata, one involving the nasal septum and upper lip, one involving the skin over the nose, one on the neck, one producing marked discoloration and swelling of the mucous membrane of the upper lip, and one producing a tumor about 4 cm. in diameter at the end of the tongue, have all been markedly improved or caused to entirely disappear. The application of radium in vascular nævi is without pain or subsequent inconvenience and is unquestionably more effective than any other method of treatment in these cases.

Verrucæ of various types respond most favorably to radium, although in the majority of cases less expensive methods will prove effective. In those verrucæ, or warts, involving the eyelids, palm of the hand, sole of the foot, or where disfigurement or loss of function might result, radium, which produces little or no scar, is most effective. Radium, apparently, exerts a specific effect upon keloid tissue. Marked improvement has resulted in a number of cases treated. I discovered accidentally, in treating lesions where scar had resulted from previous surgical procedure, that the scar was caused to become less marked, softer, and more pliable; and I have since employed radium with splendid results in the treatment of several scars which caused marked disfigurement or interference of function.

In two cases of acne rosacea involving the nose, the hyperemia and hypertrophy were markedly decreased and the acnelike lesions destroyed, resulting in the nose resuming practically its normal appearance. Several cases of seborrheic eczema, that had resisted other forms of treatment, have been most favorably influenced.

I have treated several cases of superfluous hair on the face. Great care, however, is essential in order to give the dose necessary to destroy the hair follicles, and at the same time cause no scar or discoloration of the skin.

One case of blastomycosis, previously reported, which involved the entire dorsal surface of the hand and wrist, and which had resisted other treatment, was promptly cured with radium.

Urethral caruncles, because of the vascularity of the growths, are quite susceptible to radium, and of 3 cases treated, 2 are apparently well and one markedly improved.

Goiter.—The hypervascular condition of exophthalmic or thyro-toxic goiter renders it susceptible to radium. One case, with a neck measurement increased from a normal 13 inches to 15½ inches, was reduced to 14¼ inches, with complete relief of toxic symptoms. Two cases, in young women with comparatively small enlargements, one involving the isthmus, the other the right lateral lobe, but with some pressure and marked toxic symptoms, were caused to disappear entirely and the toxic symptoms were completely relieved. Colloid or cystic goiter is not, in my opinion, appropriate for radium therapy.

Tuberculous Adenitis.—Tuberculous glands are favorably influenced in a high percentage of cases and the radium may be advantageously employed where marked scarring or possible injury to important nerves or vessels would result from surgical removal. There is less tendency to recurrence and extension of the infection to adjacent glands. One case, in which the parotid gland was involved, after unsuccessful surgical treatment, is now well, nearly 2 years after treatment with radium.

Several cases of tuberculous sinus have responded favorably to radium. One case, in which a sinus 2½ inches in length, resisting other treatment, persisted for several months after resection of the knee joint, was completely healed 2 weeks after the application of radium, and is now well, 2 years after treatment.

I have also used radium in one fecal fistula following appendectomy, with prompt and permanent cure, and with splendid results stimulating healing of chronic and slowly healing wounds.

Five cases of vernal conjunctivitis, 2 very advanced, have been treated, with apparent cures in 3 cases. The other two cases, markedly improved, are still under observation, and may be benefited by additional treatment.

One rather advanced case of chronic ulceration of the septum, which had resisted other treatment, was promptly and permanently cured after several applications of radium.

Leukuplakia, rather uncommon, but extremely resistant to the usual treatment, is favorably influenced by radium, and because of the frequency with which it undergoes malignant degeneration, should receive prompt and effective treatment. I have seen but two cases unassociated with malignant changes, both of which were apparently cured after persistent treatment.

Sarcoma.—I have treated 38 cases of sarcoma, representing nearly all types and variety of location. A detailed report of these cases will be made at another time. The majority of these cases, because of their location, or the character of involvement, were inoperable, or had recurred following surgical procedure. Of these cases, 5 are still under treatment; 10 have been markedly improved; 6 are dead; 17 are apparently well.

Endotheliomata, as a class, are especially susceptible to radium. One case, involving the septum, in a girl nine years of age, is apparently well 8 months after treatment; another, involving the inferior maxilla and overlying mucus membrane, is well nearly 2 years after treatment; a third, involving the mouth, is apparently well more than one year after treatment; and a fourth, in the deltoid region, recurrent after 3 previous surgical procedures, has apparently responded promptly to treatment; in this case, the radium tubes, through punctured incisions, were placed within the tumor substance for the desired interval, resulting in a total disappearance of the tumor in one week's time.

Lymphosarcoma rapidly becomes general after attempted operative removal and is rarely amenable to surgery. When localized, this condition responds favorably to radium in a high percentage of cases. I have treated 3 cases, when after attempted surgical procedures, the condition had become general and all groups of superficial lymphatics were palpable; 2 cases were markedly improved, one of which also received Coley's fluid; the third received local application of radium, and Coley's fluid, and is apparently free from all involvement more than 6 months after treatment.

Glioma Retinæ.—Three cases of recurrent glioma retinæ, previously reported, have been treated; 2 are well, one and two years after treatment; the third, although the orbital recurrence was caused to disappear, has extensive glandular involvement. Recurrent malignant growths involving the orbit are much more successfully treated with radium than by extirpation, yielding a higher percentage of cures with much better cosmetic effect. I have used radium in 2 cases after enucleation of the eye for intraocular malignancy without a recurrence, and I believe that radium should be used as a routine prophylactic treatment in these cases.

Carcinoma.—More than 50 cases of carcinoma, not including superficial epitheliomata, nor uterine cancer, have been treated. A consideration of these cases will form the basis for a later report, as time will not permit of a detailed discussion here. Practically all of these were advanced and inoperable, or recurrent cases. I am confident, from the results obtained, that much more favorable results would be accomplished in earlier cases with less extensive involvement. A large percentage had received, without benefit, *x*-ray, cautery, caustics, serums and various other treatments. The palliative effect in a large number of these cases was truly remarkable.

The 54 cases treated involved a number of different organs and parts, and represented a considerable variation in the type and character of involvement. Of these, 10 are still under observation and treatment, 15 have been markedly improved, 10 are dead, and 19 are apparently well. The time elapsed since treatment in those apparently well, or free from all evidence of involvement, is from 6 months to 2 years.

Recurrent carcinoma of the breast, if not too advanced, can be markedly benefited in a large percentage of cases. Three of nine cases treated are apparently well. In one other, the breast involvement entirely disappeared, although the patient died later from metastasis in the stomach.

Carcinoma of the bladder or prostate in men yields excellent palliative results and a number of cases treated are apparently well. Carcinoma of the bladder in women has responded very favorably, even though extensively involved. The condition usually involves the base of the bladder and in addition to the radium placed directly within the bladder, large doses of radium may be applied within the vagina, raying through the anterior vaginal wall, with little, or no, discomfort to the patient.

Rectal carcinoma is very difficult to treat, requiring considerable patience and time. In conditions involving the lower segment, results are apparently more satisfactory than from surgery or other treatment.

Carcinoma involving the mouth and buccal mucus membranes have, with careful technique, responded very satisfactorily.

My experience with five cases of carcinoma of the tongue has been most gratifying. All were early cases, excepting one, which is still under treatment and has received marked improvement. Diagnosis was confirmed by section in 4 cases. In one case, in which section was not taken, the tongue condition cleared up entirely, but six months later the patient evidenced a metastasis in the stomach. The other three cases are apparently well after intervals of from five to twenty months.

Glandular carcinoma, both primary and metastatic, has responded most satisfactorily. A num-

ber of cases, which rapidly increased under intensive *x*-ray treatment, have responded promptly to radium and remain apparently well.

Carcinoma Uteri.—While by no means accomplishing all that we might desire in the treatment of uterine cancer, radium has proven far superior to any other therapeutic measure in the treatment of inoperable and recurrent cases. More than 50 of these cases, that I have treated, formed the basis for a recent paper. Hemorrhage and the odorous discharge are promptly arrested, pain is relieved, and life is prolonged in more than 80 per cent. of the cases treated. The results obtained in 31 consecutive cases, treated previous to the past 8 months, are shown in the following table:—

Carcinoma Uteri.

Type of Case.	No. Treated.	Dead.	Improved.	Clinically Well.		Months Elapsed Since Treatment.						
				No.	%	8	9	10	11	13	17	22
Operable.....	1	0	0	1	100	..	..	..	..	..	..	1
Inoperable....	10	2	3	5	50	1	2	..	1	1	1	..
Recurrent....	20	9	5	6	30	2	1	1	..	1	..	1
Total.....	31	11	8	12	38 7	3	3	1	1	2	1	2

Uterine Bleeding.—Uterine bleeding, due to metropathies, disturbed ovarian function, chronic endometritis, and uterine myomata, are most favorably affected by radium. Not only is the hemorrhage promptly arrested, but tumors, when present, are caused to diminish rapidly in size, and in many instances completely disappear. The application of radium within the uterine canal is comparatively simple, although strict asepsis must be maintained and considerable judgment is necessary in determining dosage. Results are due not alone to the structural changes produced in the ovary, for radium seems to exert, in these cases, a decided specific effect in addition to producing obliteration of the blood vessels and structural changes in the endometrium. I have treated one case in which profuse uterine bleeding occurred after double oophorectomy and promptly arrested the hemorrhage, and relieved 2 cases of metrorrhagia and menorrhagia in young women, conserving the normal menstruation. Results in these three cases were certainly not due to changes produced by radium in the ovaries. Six other cases of uterine hemorrhage, unassociated with palpable tumors, have been treated with perfect results, and 10 cases of myomata uteri, with the uterus varying in size from that of a two to that of a six months' pregnancy, have been treated with marked reduction or total disappearance, of the tumor and relief of symptoms in all cases. Certainly, radium therapy is preferable to a dangerous and mutilating operation, and is free from all post-operative complications or sequelæ. Menopausal symptoms are absent or mild in the majority of cases treated. The cry raised by many surgeons, that malignant changes may be overlooked, is of little importance, inasmuch as a careful review of the literature does not reveal a single case reported in which malignant changes have followed the use of radium in the treatment of uterine myomata.

Leukemia.—I have treated 3 cases of splenomyelogenous leukemia, all of which were very advanced cases. One woman, in whom the spleen occupied more than half of the abdominal cavity, now shows a practically normal blood count, is free from symptoms, and the spleen is reduced to about 3 inches below the costal margin. Another case, in a young man, was promptly relieved and remained apparently well for nearly six months, when, due perhaps to adverse living conditions and overwork, there developed a recurrence, ultimately ending in his death. In the third case, there resulted a prompt improvement in the blood picture, marked reduction in the size of the spleen, with relief of symptoms. This patient stopped treatment early, and under heavy work and worry there resulted a sudden recurrence, which has since yielded to further treatment. In addition to radium therapy over a long period of time, rest, freedom from worry, and proper general care are essential.

I have used radium as a prophylactic following the surgical treatment of malignancy in a large and varied group of cases, but, while the results are apparently very encouraging, considerable time must elapse before we can determine how much benefit actually resulted from the use of radium in these cases. Recurrences are apparently less frequent, and, theoretically, prophylactic radiation with radium is a conservative measure.

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JUVENILE PERIPHERAL GANGRENE IN INFECTIOUS DISEASES.

I.—DIPHTHERIA.

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Peripheral gangrene occurring in the course of diphtheria is usually the result of arterial embolism, but has occasionally been observed in the form of Raynaud's symmetrical gangrene, or as the result of septic infection with anerobic germs. The occurrence of a true diphtheritic arteritis, resulting in peripheral gangrene, aside from that following upon arterial embolism derived from the heart, is still a matter of controversy. Bailey produced in rabbits by the intravenous injection of large doses of diphtheria toxin a vascular degeneration involving the entire aorta, the carotids to the base of the skull, the subclavians, and iliacs, and for a varying distance distally, the brachials, femorals, and large abdominal vessels. (*Jour. Exp. Med.*, 25, 1917, p. 109.) In the majority of the cases of diphtheritic peripheral gangrene the arteries of the extremities become obliterated as a result of heart clot.

This serious complication is fortunately rare, but a search of the literature has yielded twenty-five positive cases. A tabulation of these cases and a brief consideration of the subject appear to be desirable, for the reason that remote complications of this treacherous disease, diphtheria, are observed now with greater frequency than in the past, in consequence of the prolonged survival of otherwise doomed patients, by the use of anti-diphtheritic serum. The lowered blood pressure, sluggish circulation, myocarditic and endocarditic changes, all combine to form heart clots, which, when detached and mobilized, may become the starting

point of emboli, lodging in the arteries of the brain, the lungs, the abdominal viscera, or in the peripheral arteries of the limbs. In a curious case reported by Flesch, in 1898, the patient's death on the sixth day of the disease was due to multiple pulmonary emboli, probably derived from thrombosis of the jugular vein through ulceration of the pharynx. At the autopsy of a boy of six years who had died from diphtheria, d'Espine and Mallet found dilatation and hypertrophy of the heart, with numerous small parietal thrombi in the ventricles and auricles. A thrombus the size of a pigeon's egg occupied the mitral ostium and the upper portion of the left ventricle; the detached pedicle of the thrombus was lodged in the auricle. Multiple emboli were found in the pulmonary arteries.

Complications on the part of the heart, in malignant diphtheria, are usually sufficiently accounted for by the existing lesions of the heart muscle, in the form of diphtheritic myocarditis. As a result of the anatomical changes of the cardiac walls the heart muscle loses its elasticity and becomes distended by the pressure of the circulating blood, the functional insufficiency of the myocardium manifesting itself in the form of dilatation of the heart chambers. The intracardiac circulation is the first to be affected by the stagnating and infected blood, especially in the auricles, where bloody coagula are most apt to form. Aside from the altered composition of the blood through the diphtheritic poison, coagulation of the blood is more rapid in children than in adults (Howells). Changes of the endocardium, more particularly in the form of diphtheritic endocarditis of the cardiac apex, may also play an important part in the production of arterial thrombosis and embolism.

The question if thrombosis can be caused in a blood vessel, in the absence of other causative factors, through infectious processes in the vicinity of the vascular wall, was recently investigated by Nagoya in animal experimentation. He endeavored to ascertain if the pathogenic bacteria are directly responsible for the thrombosis, and to determine the part played by the retardation of the blood stream and the lesion of the vascular wall respectively. A loopful of fresh bacterial culture (staphylococci, streptococci, pneumococci) was deposited directly on the walls of the carefully exposed blood vessels, and after definite intervals a vascular segment of about 0.5 cm. in length was excised and examined. Thrombosis, it was found, could be produced through infection alone, without other causative factors. As a rule, the resulting thrombi are composed of blood platelets, the blood plate thrombus serving as a foundation or nucleus for further thrombi. No direct influence is exerted by the bacteria in thromboses of this type. The most important element in the production of the thrombosis is the lesion of the vascular wall, the retardation of the blood current acting as a secondary and auxiliary factor. (*Virchow's Archiv*, 216, 1914.)

The occurrence of diphtheria bacilli in the circulating blood is confirmed by the investigations of Rodelius (1913), who was enabled to demonstrate this very rare form of bacteriemia in three of 187 cases (with 196 blood withdrawals and tests). The bacilli may circulate in the blood for days prior to death; this diphtheritic bacteriemia may be temporary, and is not necessarily fatal. References in the literature to the condition of the peripheral vascular system in diphtheria comprise mention of primary diffuse endoarteritic changes of the intima, interruption in the continuity of the internal elastica, edema of the vascular wall, and lesions of the small arterioles.

Cardiovascular lesions, due to serotherapy, have been suspected as possibly responsible for post diphtheritic deaths from heart failure or embolism, but the anatomical proof of this assertion has not been furnished. Nevertheless, it must be kept in mind that the heart and the blood vessels play a decisive part in the struggle for supremacy between the body and the diphtheritic toxin. The strictest and most persistent control of the general circulation is accordingly imperative. The danger of circulatory failure threatens life and limb a long time after the subsidence of the diphtheritic attack itself.

The cause of acute cardiovascular failure, in malignant or hypertoxic cases of diphtheria, has been referred by numerous investigators to intoxication and exhaustion of the secretory cellular elements of the suprarenal glands, imperfect function of the chromaffin portion, loss of the detoxicating effect of the organ; briefly, suprarenal insufficiency and a resulting lack of suprarenin (adrenalin) in the blood. If the patient survives this stage, these suprarenal changes after a few days cease to progress, and may even undergo a certain amount of retrogression. Clinically, endocrinic suprarenal medication is found to be most efficient in the first days after the onset of the disease. The administration of the glandular extract promptly improves the circulation and raises the blood pressure. The dangerous lowering of the blood pressure in diphtheria has been explained either as a sequel of toxic myocarditis or as the expression of vasomotor paralysis.

Taddei, in a contribution published in an Italian periodical (*Rivista di Clin. Pediat.*, II, 1904, p. 907), studied the arterial pressure in diphtheria and pointed out that its changes are directly proportionate to the gravity of the intoxication. The behavior of the arterial pressure is especially significant from the prognostic viewpoint, in regard to complications on the part of the myocardium, for it indicates the degree of functional involvement of the heart. Ten years later two other Italian investigators, Mattirolo and Gamma (1914), found in animal experimentation on rabbits that intravenous injection of extract of the posterior lobe of the hypophysis caused primarily a brief rise of blood pressure, with slowing and strengthening of the heart action; this was followed by a period of lowered blood pressure, and finally by a repeated and prolonged rise of blood pressure, with improved action of the heart.

The strong blood pressure-raising effect of pituitrin in diphtheritic hypotonia of the vascular system, as pointed out by Creutzfeld and Koch (1913), suggests a part played by the cerebral hypophysis in this lowering of the blood pressure. They were enabled to show that this organ, more particularly its intermediate portion, is seriously affected in diphtheria, aside from the grave and better-known lesions of the suprarenal parenchyma. In view of the dependence of the blood pressure upon the secretion of these two endocrinic glands, in form

of pituitrin and adrenalin, it is readily understood that the loss of normal function of these organs may so essentially diminish the tension needed for the survival of the patient as to render death inevitable. In the experience of Willebrand, in twenty severe cases of diphtheria, the hypotonia of the vascular system was so favorably affected by the injection of pituitrin as to result in a considerable rise of blood pressure. Pituitrin is advocated as a remedy in diphtheritic lowering of the blood pressure, by Klotz, on the basis of experiments which showed the production of a single long-continued rise of blood pressure, precisely in toxic hypotonias. He claims that a uniform high blood pressure may be maintained by means of judicious administration of pituitrin, while there is no reason to fear an injurious effect of the prolonged hypophyseal medication.

As the most rational method of treatment for diphtheritic circulatory disturbances, Creutzfeld and Koch recommend a combined treatment with pituitrin and adrenalin. This modern therapy represents a specific mode of treatment in diphtheritic paralysis of the heart and vascular system. According to these observers, in patients who die in the early stage of diphtheria from failure of the circulatory apparatus, the vascular system presents pathological phenomena before changes of the heart are clinically demonstrable, and in other cases the cardiac changes are not sufficient to account for the grave atony of the vascular system. Death in the worst toxic cases of diphtheria is preceded by a well-marked fall of blood pressure. Hypophysis extract in the form of pituitrin was employed by Willebrand in twenty cases of heart failure, with diminished blood pressure, in diphtheria, with excellent results in eighteen cases. In only two patients the remedy failed to produce the desired effect; this is noteworthy in view of the missing response to pituitrin in certain cases where it is used as an adjuvant to childbirth (Stein). Willebrand accordingly recommends the employment of hypophysis extract as a prophylactic agent, in diphtheria, in addition to large doses of serum and the ordinary heart stimulants.

The following list of deaths and mutilations of children, due to gangrene of the extremities after diphtheria, carries an urgent appeal for help in the form of renewed assiduous attempts to influence the blood pressure and to improve the peripheral circulation. This list of reported cases of peripheral diphtheritic gangrene is given in inverse chronological order.

Case I.—*Gunson, E. B.* Gangrene of the Leg, following Diphtheria. (*British Jrl. of Children's Diseases*, XIII, 1916, p. 237.)

The patient, a boy of six years, was admitted to the Grove Fever Hospital with severe faucial diphtheria on the fourth day of the disease; he was given 20,000 units of antitoxin on admission and again on the following day. The pulse became very irregular on the seventeenth day; there was marked pallor of the face, but the extremities remained warm. At 6 P.M. the patient cried out with pain in the right leg, referred to the popliteal space. The following day, the limb was discolored, warm but of lower temperature than the left; there was some cyanosis of the skin immediately below the knee; at 4 P.M. a ring of edema appeared about 1½ in. below the knee at the site of discoloration and became more definite in the course of the next few days. The circulation in the superficial veins was maintained. On the twenty-second day, dry gangrene of the right small toe developed; during the day the outer aspect of the foot became black, and the skin over the right knee was deeply discolored. On the thirtieth day, the whole of the right leg below the level of the knee-joint was in a state of dry gangrene. No extension of the gangrenous area occurred during the next fortnight, while the patient's general condition slowly improved, and a well-marked line of demarcation developed. On the fortieth day sloughing of the skin commenced at the upper limit of demarcation; a slight separation of the skin followed, and septic ulceration occurred. On the seventy-first day he was transferred to the Evelina Hospital and three days later an operation was performed in form of amputation of the limb about the middle of the thigh. One year later, the amputation stump was firm and the patient suffered from no pain or discomfort in the limb. On examination the popliteal artery was found to be completely occluded by a thrombus extending for a distance of 2 in. above the bifurcation of the artery. The embolus is referred by the observer to thrombus formation within the left ventricle, the result of the considerable degree of cardiac dilatation and enfeeblement which followed upon the onset of a marked arrhythmia.

Case II.—*Veau et Weber.* Gangrène du pied dans la diphthérie. (*Annales de Méd. et Chir. Infant.* XVIII, No. 10, 1914—p. 335). This is the same case as Bailly's personal report in Thèse de Paris 1913.

The patient, a girl aged 5½ years, suffering from extremely severe diphtheria treated with serum injections was attacked during the night of the nineteenth day of the disease by violent abdominal pains; at this time, the two feet and legs became suddenly cold and cyanotic up to the knee. In the course of the next day, the arrest of circulation in both lower extremities plainly manifested itself in form of pallor, coldness, loss of sensation and flaccidity. No femoral pulsation was perceptible on either side. The extremities remained in the same condition during the next day, although the femoral pulsation gradually returned, first on the left side, the left foot becoming warm and of a better color. This improvement continued, but the state of the right extremity remained unaltered and the general condition was very unsatisfactory. Later on, the dorsum of the right foot became edematous, and the surroundings of the big toe (the nail of which was brown and discolored) were reddened. From the twenty-fifth day, the plantar surface of the toes appeared dry, hard, and darkened; the entire sole and back of the foot presented a cyanotic color, and reddish purple patches were noted on the lower portion of the leg. In the course of the next day or so, apparently superficial gangrene began to extend from the anterior portion of the sole to the heel, and the toes became entirely necrotic. The general condition slowly improved, and the local condition of the right leg was slightly relieved by means of hot air treatment. Although large vesicles had made their appearance on the foot and lower leg, these subsided again, together with the edema, and the leg gradually resumed its normal aspect, the gangrene remaining restricted to the toes and the superficial tissues of the anterior half of the sole of the foot. Surgical intervention was postponed, in this typical case of dry gangrene with a distinct line of demarcation, because the general and local condition were excellent, and because the new skin could be seen progressively invading the gangrenous area. When there was no further progress, amputation was decided upon and performed four months after the onset of the diphtheria. The foot was removed, practically without hemorrhage, at the level of Chopart's articulation. The patient made a good recovery, has a serviceable stump allowing useful flexion and extension movements, and walks without limping with an artificial jointed foot.

Case III.—*Aviragnet, Blechmann, Huber.* (Un cas de gangrène embolique d'un membre consécutif à une angine diphthéritique maligne. (*Archiv. de Méd. des Enfants*, Vol. XV, 1912, p. 263.)

The following case is undoubtedly one of embolic peripheral gangrene, complicating diphtheria, although the anatomical demonstration is lacking. The patient, a boy of 13 years, a fortnight after the onset of a bad

attack of diphtheria, treated by serum injections, suddenly complained of severe colicky pains in the lower abdomen, accompanied by tingling sensations in the legs, especially the right. Inspection proved negative, but on gentle rubbing of the thighs with alcohol, purplish spots made their appearance on the upper two thirds, the entire limb lower down becoming cold, bloodless, and insensible to pain. Pulsation was entirely lost in the external iliac, the femoral, the popliteal, and the dorsalis pedis arteries. On the next day, the left leg felt warmer, and the arterial pulsations had returned, but the right leg below the knee was cold, covered with dark spots, and absolutely anesthetic. Arterial pulsation was lost below the femoral. Under progressive asphyxiation and cyanosis of the face as well as the extremities, the patient died on the next following day. In the opinion of the observers, the embolism probably originated in the left ventricle and definitely lodged in a large arterial trunk of the right lower extremity, after having temporarily elicited the signs of arrested circulation at the level of the abdominal aorta.

Case IV.—*Ransome, A. S., Corner, E. M.* Gangrene of limb during convalescence from Diphtheria. (The Lancet, 1, 1911, p. 94.)

On the seventeenth day of a severe attack of diphtheria, treated with antitoxin, in a boy aged six years, very acute cramplike pains suddenly appeared in the right leg, and during the next few days, the right foot and leg became discolored in patches, the discoloration of the leg, later on subsiding to below the juncture of the middle and lower third of the leg and foot. The patches over the foot and lower part of the leg gradually coalesced so that the foot was one even purple color. The leg was painful and was kept flexed. A blister appeared on the ankle, and the toes became black, dry, and shrivelled. One month after the onset of gangrenous symptoms, a well-marked line of demarcation had formed at the junction of the lower and middle third of the leg, and a fortnight later (on the forty-sixth day of the embolism, and the sixty-first day of the illness) the leg was amputated just below the knee. The child made an uneventful recovery. According to the findings at the time of operation, as well as clinical observation, the embolus was situated above the bifurcation of the popliteal artery, possibly in the femoral artery at the bifurcation of the superficial femoral.

Case V.—*Heubner, C.* Herzthromben und sekundâre Embolien. Lehrbuch der Kinderheilkunde, Vol. 1, 1911, p. 497.

An attack of diphtheria, in a boy aged eight years, was followed by distinctly palpable obliteration of the brachial artery in its highest portion in the axilla. Although the entire forearm at first appeared to be necrotic and doomed, recovery ensued with the loss of a few digital phalanges and stiffened finger-joints.

(Heubner briefly mentions three other cases of embolism of peripheral arteries, with gangrene of the affected extremity, about the end of the third week, in children suffering from diphtheria complicated by measles.)

Case VI.—*Kramer, H.* Gangrene of leg following diphtheria. (*British Med. Jrl.* II, 1911, p. 505.)

The patient, a girl of eleven years, during convalescence from diphtheria (treated with antitoxin injections), was attacked by progressive and extensive gangrene, beginning with small sores on both feet and one leg. When the condition had advanced to "gangrene complete to the level of the tubercle of the tibia, with a patch of skin over the patella gangrenous," operation was advised, and the limb was amputated well above the knee. The child made a good recovery, somewhat delayed by an attack of measles on the ninth day after operation.

Case VII.—*Rolleston, J. O.* Gangrene of leg following diphtheria. (*British Jrl. of Children's Diseases*, Vol. VII, 1910, p. 529.)

In a case of diphtheria concerning a boy of 13 years (who received no antitoxin) the right leg from the knee downwards became cold, pale and anaesthetic on the day of admission to the Grove Hospital for diphtheria, on the seventeenth day of the disease. The circulation was reestablished in about four hours. On the twenty-first day, both legs became cold, discolored, and numb, pulsation was feeble in the posterior tibial and dorsalis pedis arteries; on the next day, the discoloration of the legs had disappeared. On the thirtieth day, sudden pain was felt in the left leg, followed by discoloration; there was marked tenderness in the popliteal space, where the pulsation of the popliteal artery could not be felt. The femoral pulse was present in Scarpa's triangle. Gangrene rapidly developed in the left foot and leg, the gangrenous area on the eighty-second day of the disease involving the whole of the left foot, and extending posteriorly to 7 inches below the popliteal space. Six days later, on the eighty-eighth day of the disease, amputation was performed at the knee-joint, and an organizing clot was found in the popliteal artery. The patient made an uneventful recovery. Earlier intervention was considered inadvisable on account of his general weakness and the condition of the heart.

Case VIII.—*Bendix, B.* Diphtheritische Extremitäten-gangrän. (Lehrbuch der Kinderheilkunde, VI edition, 1910, p. 528.)

Observation, in 1905, on a boy aged ten years, in whom a severe attack of diphtheria was followed by extensive gangrene of the index and middle finger of the right hand. Surgical treatment led to uneventful recovery.

Case IX.—*Escherich, Th.* Hirnembolie im Verlaufe der postdiphtheritischen Herzschwäche; Embolische Prozesse bei postdiphtheritischer Herzschwäche. (*Wiener Med. Wochenschrift*, 57, 1907, p. 474.)

The patient, a boy two years of age, was admitted five days after the onset of diphtheria angina in a state of somnolence, with right sided hemiplegia and facial paresis. Convulsions supervened on the next following day; one day later the paralysis remained unchanged; both legs were cold to the touch and showed livid discolored patches, the rest of the skin being of a cadaverous pallor. The child became unconscious, but the livid discoloration of the legs could be seen extending up to the lower abdominal region. The legs were cold and pulsation had disappeared in the dorsalis pedis as well as the popliteal artery. Below Poupart's ligament, it was barely perceptible on the left and just demonstrable on the right side. No difference could be noted in the radial arteries. Death occurred that night with progressive cyanosis and frequency of pulse. The autopsy showed in addition to ventricular thrombosis, embolism of the left middle cerebral artery, and embolism of the left iliac artery exactly at the bifurcation, with a fresh propagated red thrombus; embolus of the right femoral artery below Poupart's ligament, also with a propagated fresh red thrombus; incipient gangrene of the lower extremities.

Case X.—*Garlipp's* Case. Embolie der Arteria Brachialis dextera nach Diphtherie mit Ausgang in Heilung. (Charite—Annalen Vol. XXX, 1906, p. 145.)

Patient, boy aged 2¾ years; attack of diphtheria, treated with antitoxin. In the third week, after convalescence was established, the child suddenly complained of severe pain in the right hand, which looked like a "dead" hand; the right arm was cold, white, stiff and paralyzed. On the next day, the hand became blue and discolored, the finger-tips were of a dark blue color, and the hand was contracted into a fist. Gradually the hand and forearm became swollen and edematous, the bluish discoloration involving nearly the entire hand and a portion of the forearm. Five days later the patient was admitted to the Charite' Hospital. The right hand was edematous and discolored, with localized black patches, the ungual phalanges of the index and fourth finger were completely mummified. The edema and cutaneous discoloration extended to the forearm reaching on the ulnar side nearly midway, two fingers width above the wrist on the radial side. The dorsum of the hand presented a gangrenous cutaneous area the size of a penny over the second and third metacarpal bones. An induration could be felt in the brachial artery about 3cm. below the border of the pectoralis major; a weak pulsation was palpable above this thickening whereas pulsation was not perceptible above this point in the brachial, ulnar, and radial arteries. Under expectant treatment, the condition very gradually improved, and at the time of discharge, about twelve

weeks later, pulsation was again palpable in the entire course of the brachial artery, except the indurated segment, and also in the radial, still later also in the ulnar. The skin of the terminal phalanges of the fingers except the thumb was necrotic, but the skin of the little finger subsequently became regenerated. The terminal phalanx of the index finger was shed as a whole, and also on the dorsal aspect of the middle phalanx the soft parts became necrotic, so as to expose part of the bone. The tip of the terminal phalanx of the middle finger and the terminal phalanx of the fourth became necrotic and dropped off. The explanation of the relatively favorable outcome, after the at first very alarming symptoms of arterial embolism, must be referred to the prompt establishment of an adequate collateral blood-supply. Ultimately the necrosis was restricted to the terminal phalanges of the index, middle and fourth fingers, as well as a portion of the skin of the back of the hand and forearm.

Case XI.—*Marfan's* Case. Thrombose cardiaque et embolie de l'aorte abdominale après une angine diphthéritique maligne. (Leçons Cliniques sur la Diphthèrie, Paris, 1905, p. 50.)

Cardiac thrombosis and embolism of the abdominal aorta following malignant diphtheria, treated with anti-diphtheritic serum. Patient, boy aged six years, was suddenly attacked on thirteenth day of disease, by severe abdominal pain, slightly above the level of the umbilicus. The extremities were cold, the radial pulse was weak but could still be counted. Next morning pulsation was imperceptible, the heart-beat was very weak, the extremities remained cold, and the patient died. The autopsy showed the aortic lumen directly below the origin of the coliac axis to be obliterated by a soft non-adherent clot which was prolonged into the two common iliacs, stopping on the right side at the bifurcation of the common iliacs, while in the left side it penetrated into the external iliac and the hypogastric artery. Peripheral gangrene here was evidently only a question of time.

Case XII.—*Auché.* Embolic des deux artères iliaques primitives au cours de la diphthérie. (*Revue Mens. des Maladies des Enfants*, Vol. 22, 1904, p. 326.)

Eighteen days after the onset of diphtheria angina, treated with serum injections, the patient, a boy of 4½ years, was attacked by pains in the legs, suggesting embolic obliteration of the main arteries of both lower limbs. On the right side, the circulation was restored on the next day, and the limb resumed its normal appearance, whereas on the left side, signs were noted indicating the absence of an arterial blood-supply to the foot and leg. The time was too short for the evolution of gangrene, as the patient died two days after the onset of the embolic complications from diphtheritic involvement of the heart and kidneys. The autopsy showed the presence of arterial embolism, apex thrombosis of both ventricles. Two thrombi were found, one 5 cm. in length occupying both the termination of the left external iliac artery and the origin of the left femoral artery; the other 2½ cm. long, obliterating the upper portion of the femoral artery.

Case XIII.—*Breton's* Case. Paralysie méta-diphthéritique due à des embolics multiples. (Bulletins de la Soc. de Péd. de Paris, IV, 1902, p. 244.)

Patient, girl aged three years; moderately severe attack of diphtheritic angina, verified by bacteriological findings ten days later. After apparent recovery, infectious phenomena supervened, first in the digestive apparatus, then in the heart. Endocarditis was followed by multiple embolism causing left sided hemiplegia and incipient gangrene of the right foot, with necrotic patches in various areas of the right lower extremity. Improvement after injections of antidiphtheritic serum, which in its turn gave rise to a series of toxic manifestations. The child made a good recovery also from the post diphtheritic paralysis resulting from the left hemiplegia.

Case XIV.—*Goebel.* Spontane Gangrän bei einem Kinde auf Grunde einer Gefässerkeankung. (*Deutsches Arch. f. Klin. Med.*, Vol. 63, 1899, p. 184.)

In this case an embolic origin of the thrombus could be excluded in view of the absence of primary thrombosis or infection in other organs. The thrombus was autochthonous and originated in the vascular system. The patient, a boy seventeen months of age, with a history of repeated attacks of tracheal catarrh, with fever and cough, entered the hospital a fortnight after a moderately severe attack of tonsillar angina accompanied by a rash over the entire body, which disappeared after three days. For three weeks past, the child had favored his left leg when attempting to walk, and the limb now took on a "glazed" appearance; it was very cold, slightly swollen, and very soon became entirely discolored, from the toes to the lower half of the leg. Pulsation could be felt in the popliteal space and in the groin. The gangrene rapidly progressed until about two weeks later the entire circumference of the leg was involved and a distinct line of demarcation had formed; within a few days, the necrotic tissue became detached down to the bone. Surgical interference was refused by the parents, and the patient died after another week, under symptoms of sepsis. One day before death, an edematous swelling of the neck suddenly developed, and the tonsils were seen to be reddened and covered with a shiny layer. The autopsy showed necrotic distintegration of both tonsils, and catarrhal pneumonia. The heart was dilated, the myocardium firm and normal, no deposits on the valvular apparatus; no thrombi in the cardiac cavities. A thrombus was found beginning in the abdominal aorta and continued on the left side as far as the bifurcation of the popliteal artery, projecting into the tibialis antica and postica; on the right side, it extended but slightly beyond the origin of the profundafemoris. All afferent vessels in the thrombotic area were blocked.

Case XV.—*Munn, W. P.* Embolus following diphtheria; gangrene of left leg; amputation; recovery. (*Pittsburgh Med. Review*, VIII, 1894, p. 73.)

Patient, boy age nine years; nasopharyngeal diphtheria of five weeks' standing; attack marked by precordial pain, collapse, and unconsciousness, followed three hours later by coldness and progressive discoloration of the left leg up to the middle third. Although the foot was quite dry and beginning to mummify, amputation was postponed until the line of demarcation had formed, one week later, a little above the middle of the leg. Pulsation was not perceptible in either the left femoral or the popliteal arteries; but was reestablished in the left femoral after the amputation, suggesting a high lodgment of the embolus. Recovery uneventful.

Case XVI.—*Ward, S. M.* Clinical Memorandum. (*Pittsburgh Med. Review*, Vol. VIII, 1894, p. 239.)

Patient, girl age twelve years, on sixth day of diphtheria was suddenly attacked by an intense pain in the left leg, which was cold, and livid in color. The stoppage of the circulation was evidently in the popliteal artery before the anterior tibial is given off. The patient died before the slightest evidence of a line of demarcation was apparent.

Case XVII.—*Rooney, R. F.* Embolism of the popliteal artery following diphtheria. (*Occidental Med. Times*, VII, 1893, p. 188.)

Patient, girl age seven years; severe faucial and nasal diphtheria; during convalescence, was suddenly attacked by intolerable pain in the bowels in the region of the umbilicus, with coldness and numbness of both legs. The left leg from the knee down remained cold, bloodless, and shrunken, and was held tightly flexed on the thigh. Intense pain was complained of in the toes of the affected side. The diagnosis of embolus of the left popliteal artery was made and after waiting three weeks for a line of demarcation to form, the thigh was amputated at the junction of the middle and lower third. Rapid and uneventful recovery followed. The embolus after the amputation was dissected out, in form of a firm whitish plug of fibrin, an inch and a quarter long, from the popliteal at its bifurcation into the anterior and posterior tibials.

Case XVIII.—*Henoch's* Case. Discussion of Leyden's paper on Infectiöse Thrombose. (*Berliner klin. Wochenschrift*, Vol. 27, 1890, p. 481.)

Patient, boy aged eight years, with very severe diphtheria, was attacked by thrombosis of both iliac arteries, the result of cardiac embolism.

Case XIX.—*Rosenthal's* Case. (*Ibid*).

Patient, girl aged two years, with grave diphtheria, promptly terminating in death. Both legs presented a

bluish discoloration and the autopsy showed thrombosis of the common iliac artery.

CASE XX.—*Escolar's* Case. Angina diphtherica, terminada por gangrena; muerte a las 22 horas de su ingreso en el hospital. Autopsia. (*El Siglo Medico*. Madrid, 1886, XIII, p. 488.)

Diphtheritic angina terminating in gangrene; death 22 hours after admission to the hospital. (Inaccessible.) It does not result from the title if the gangrene was *peripheral*.

CASE XXI.—*Poupon's* Case. Embolie de l'artère fémorale dans la convalescence de la diphthérie. (*Le Progrès Médical*, VII, 1883, p. 10.)

Patient, girl seven and a half months old; discharged from hospital, two weeks after tracheotomy for croup; readmitted ten days later with symptoms of pulmonary embolism. Next day, there was pain over the right popliteal space, and in the morning, purplish gangrenous patches were seen over the whole foot. The leg was cold and anaesthetic, the pulsations in the popliteal and even in the femoral artery were imperceptible. The diagnosis was embolism of the popliteal artery. Death on the thirteenth day after readmission. The autopsy showed a brownish clot three centimeters long occupying the whole lumen of the femoral artery, starting from the ring of the great adductor and proceeding to the centre of the popliteal artery.

CASE XXII.—*Bouchut's* Case. Gangrène de la jambe dans la diphthérie par thrombose de l' artère fémorale. (*Paris Méd.* VII, 1882, p. 145.)

Gangrene of the leg in diphtheria, due to thrombosis of the femoral artery.

CASE XXIII.—*Vedder, J.* Gangrene of the leg caused by embolism following diphtheria. (Trans. of Med. Soc. State of New York, 1879, p. 259.)

Patient, boy age eight years; severe attack of nasopharyngeal diphtheria; ten days later, during convalescence, numbness and pain were complained of in the right leg, which was cold, of waxy appearance, and anaesthetic and "dead" from the knee downward. On the next day, the leg was of light mahogany color which gradually grew darker until it was nearly black. The bottom of the foot became quite dark, dry, hard and shrivelled up in a few days. Death on eleventh day after onset of embolism. No autopsy.

CASE XXIV.—*Menzel's* Case. Gangrena della gamba in seguita a difterite delle fauci; amputazione del crure nel terzo superiore. (Resoc. San. degli Ospedali di Trieste, IV, 1878, p. 397.)

Gangrene of leg following upon faucial diphtheria, amputation at upper third of leg. (Inaccessible.)

CASE XXV.—*Moroni's* Case. Gangrena d'un estremità in seguito a difterite. (*Giornale Veneto di Sc. Med.*, Venezia, XXII, 1875, p. 510.)

Gangrene of an extremity as a sequel of diphtheria. (Inaccessible.)

17 WEST FORTY-THIRD STREET.

THE THERAPEUTICS OF PHENYLCINCHONINIC ACID.

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THIS remedy, first described by Doebner and Gieseke and tested clinically by Nicolaier in 1908, has been before the medical profession as a controlled product since 1910. Its extensive use and the excellent results obtained from its employment led to its incorporation as phenylcinchoninic acid in the ninth edition of the United States Pharmacopœia, which became official September 1, 1916. It would seem to be opportune that a *résumé* of the results of laboratory investigation and clinical observation should be presented at this time in order that an accurate statement may be made as to the value of the remedy.

*Read by title at the American Therapeutic Society at its Nineteenth Annual Meeting at Richmond, Va., on June 8, 1918.

Acidum phenylcinchoninicum, phenylcinchoninic acid, is an organic acid,—2—phenyl—quinoline-4—carboxylic acid, $C_{16}H_{11}O_2N$ or $C_6H_5.C_9H_5N.COOH = 249.10$.

Source.—By warming pyroracemic acid, benzaldehyde, and aniline in an alcoholic solution, followed by filtration and purification.

Characters.—Small colorless needles or a white or yellowish-white microcrystalline powder, odorless or having a slight odor resembling benzoic acid, and a bitter taste. It is permanent in the air.

Solubility.—Insoluble in cold water; slightly soluble in cold alcohol, hot water, or ether; soluble in alkalies and, upon heating, in acids; readily soluble in hot alcohol.

Dose.—0.5 gm. = 500 milligrams (8 grains).

Action of phenylcinchoninic acid.—This manifests itself largely upon the kidneys, chiefly stimulating their circulatory cells, generally increasing the flow of urine but not the amount of elimination of the purin bodies, sulphur, or phosphoric acid. It markedly augments the elimination of uric acid in man, in most instances even when upon a purin-free diet. This action is stronger and more promptly manifested than after the use of salicylic acid. Inasmuch as there is no increase in the number of leucocytes, which occurs after the exhibition of the latter remedy, this increase of uric acid elimination cannot be due to their destruction, and, further, this increase is noted not only when the individual is subsisting upon a mixed but equally as well when he is ingesting a purin-free diet. One observer, investigating its effect upon the endogenous uric acid excretion of healthy individuals, found that after a week of purin-free diet 30 grains of phenylcinchoninic acid administered for one day increased the uric acid excretion by more than 3 grains. During the period following the administration of the drug the amount of uric acid excretion was distinctly lessened. This observation has been confirmed by others, and as well for a mixed diet. It would appear that the principal result of the administration of phenylcinchoninic acid is to eliminate the uric acid of the blood by way of the kidneys, leaving the blood content subnormal. It has even been suggested that this remedy stimulates—possibly selectively—the secretion of uric acid, so constantly has this result been observed. By making use of the colorimetric (phosphotungstic acid test) for quantitatively determining the uric acid present in the blood, it has been found that as the uric acid diminishes in the blood under the influence of the drug there is simultaneously a marked increase in the uric acid contained in the urine, with an augmentation of the total amount of urine. This last statement, however, has been denied by others. The ammonia and total nitrogen in the urine may at times show a slight increase, but not at all in proportion to the marked increase of uric acid. The cloudiness of the urine which is observed during the first few hours after the administration of the remedy is due to the precipitated urates.

The action of phenylcinchoninic acid upon the kidneys would appear to be limited to that of transferring uric acid by means of these organs from

the blood to the urine, and this action, both as to the increased elimination of uric acid and the usual augmented amount of urine excreted, terminates in about nine hours.

The principal experimental work upon phenylcinchoninic acid has been done by the following: 1908, Nicolaier and Dohon; 1911, Weintraub, Starkenstein, Frank and Bauch, Deutsch; 1912, Dohrn, Plehn, Bach and Strauss, Impens, Wiechowski, Skórczewski and Sohn, Fasiani; 1913, Retzloff, Haskins, Folin and Lyman, McLester, Kehrer, Rolph, Hahn; 1914, Daniels, Fine and Chace, Steinitz; 1915, Smith and Hawk.

Therapeutics of phenylcinchoninic acid. — It should always be administered in large quantities of water. In order to prevent the formation of uric acid calculi during its rapid elimination, it is well that sodium bicarbonate be administered—one-half ounce on the first day, and from one to two drachms on the succeeding days of treatment.

Gout.—In acute attacks it relieves pain and other symptoms more promptly than colchicum, but without disagreeable after-effects, such as cardiac weakness and diarrhea. In some instances it has given prompt results even when colchicum or massage combined with hydrotherapy had failed. In the chronic forms it is often of value, especially in cases in which arthritic, myalgic, and neuralgic pains are present.

Since it has no action upon deposited urates, it is not likely to diminish the size of gouty tophi, although some clinical observers have reported this diminution as well as lessened hardness. It is often advantageous to intermit the administration of the remedy in order that the exhaustion of its action may not be encountered. Fifteen grains may be taken twice daily for three days, then one-half this quantity at the same interval for two days. After three days' interval, the series may be recommenced, for it has been shown that the initial concentration of the uric acid in the blood is again reached within from three to four days.

If it can inhibit uric acid formation by limiting purin metabolism, as has been claimed, it might be employed as a prophylactic in gout, and for this purpose fifteen grains daily, continued over considerable periods of time should suffice. Although the relations between gout, purin bodies, and uric acid have never been thoroughly understood, the accepted hypotheses are at least workable.

The uric acid problem must be attacked either by increasing the solubility of the urates in the organism, which is the method hitherto mostly in vogue; or by intensifying the fermentative uric acid decomposition, which has been studied by Brugsch and Scheltenhelm but without practical results; or, lastly, by stimulating uric acid excretion, which is the result of the administration of phenylcinchoninic acid.

Acute Articular Rheumatism.—In this disease the results of its administration, forty-five grains within six hours, are sometimes favorable in relieving pain, but it is not so satisfactory as the salicylates, although it does not cause diaphoresis, at least not a marked one, anorexia, or gastric disturbances. In addition to the relief of pain, in some instances the temperature rapidly declines and reaches the normal in from three to four days.

Chronic articular rheumatism.—In the various forms of this condition, its action is variable and at best one must expect to obtain less benefit than in the acute forms. Inasmuch as these conditions are of such varied origins, one remedy cannot be expected to accomplish uniform results.

Sciatica.—It sometimes relieves pain, but is more likely to fail. This should be expected because the causes of sciatica are so dissimilar. It has been claimed by some observers that phenylcinchoninic acid possesses analgesic properties, and it has been employed for this reason.

Clinical reports have been published by many authors, notably by Arnung, Bach and Strauss, Bendix, Bolling, Brugsch, Crofton, Deutsch, Frank, Friedeberg, Green, Goldschmidt, Grasser, Georgiensky, Heller, Hirschberg, Jakl, Kahlo, Klemperer, Lichtwitz, Minkowski, Neukirch, Oeller, Richter, Rasin, Rickertz, Salus, Sawyer, Tschernikow and Mayat, von Mueller, Weintraub, Woodward, and Zuelzer, chiefly as to the results of its administration in gout, both acute and chronic, gouty pharyngitis, acute and chronic rheumatic polyarthritis, as well as in arthritis of various types, such as arthritis deformans. Isolated reports have appeared upon its use in gonorrheal arthritis, sciatica, and other neuritic and neuralgic conditions, migraine, hemicrania, lumbago, certain forms of eczema, erythema nodosum, pruritus, iritis, episcleritis, iridocyclitis, otosclerosis, and more recently, following the vogue, in pyorrhea alveolaris.

The only untoward symptom reported following the use of this remedy, beyond a slight reduction in blood pressure, is, in one instance, a scarlatiniform eruption. The important contraindications to its employment are fatty heart, chronic alcoholism, and especially the existence of vesical or renal concretions.

We may safely conclude that phenylcinchoninic acid will doubly or even triply increase the elimination of uric acid in the urine, not because it increases its production in the body, for it does not, but because by its action, possibly selectively upon the kidney cells, it increases the permeability of the kidney for uric acid. When such an action is desired, and the instances are numerous, the remedy produces remarkable and uniformly constant results. Gout and gouty manifestations are invariably benefited; so-called rheumatism is frequently relieved—although this is merely empirical—and many other conditions of perturbed metabolism are improved. Beyond doubt, it is a valuable addition to our armamentarium.

679 MADISON AVENUE.

Autoserotherapy of Cerebrospinal Meningitis.—Capogrossi during 1917 treated 38 cases of meningitis of which at least 27 were due to the meningococcus. Of this contingent 25 were treated with intraspinous injections of meningococcus serum and the other two with autoserotherapy. Of the former 12 recovered and 13 succumbed. The cases treated by injecting the patient's own cerebrospinal fluid were desperate. While one case was not arrested, the second made a surprising recovery. Twenty c.c. of intraspinal fluid was extracted and 10 c.c. of the patient's blood serum injected.—*Il Policlinico.*

A UNIQUE CASE OF RHEUMATISM AND ITS MANAGEMENT.*

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To meet with an entirely unique condition in these days of voluminous medical reports is an experience that comes to but few practitioners in the course of a lifetime; and to search vainly through a library of medical writings and finally to find one solitary description of a similar case in an old volume published away back in 1855, merely adds to the unique interest of this extraordinary case. It is almost with a feeling of joy that one reaches back through the years and clasps hands in spirit with an observer so shrewd, so canny in his observations, that almost we might have been discussing and describing the case which I shall now present.

It was on the 7th of January 1918, that I was called in consultation by Dr. Francis De Revere of Stapleton, Staten Island, to see a young woman of 23. On the evening of the 5th of January, Dr. De Revere had attended this young woman in her confinement. There was nothing unusual about the parturition except that the labor pains were unusually severe. The placenta was persistently retained, and after all the usual means had failed to cause the uterus to expel, the after-birth had to be forcibly removed. Every antiseptic precaution was observed in connection with the mechanical removal of the placenta. Examination of the placenta showed that it had been perfectly and completely extracted. After the expulsion of the child and up to the time of the final removal of the placenta, the flow of blood was unusually abundant. It was not sufficiently profuse, however, to produce extreme exsanguination, but was considerably more so than occurs with a normal labor. On the day following the delivery the patient was practically normal, although rather more blanched than is usually the case the day after confinement.

About midnight of January 6th, or a little more than twenty-four hours after parturition, the patient awoke from sleep. She was very restless and irritable, but had no chill. The temperature rose to 103.5° F. and the pulse to 120. About this time she complained of severe pain low down in the left hypogastric and deep pelvic regions, which rapidly increased in intensity. When seen the next day, the patient was suffering very severely. The slight pressure and light percussion of physical examination of the left hypogastrium and pelvic regions caused exquisite pain, which extended nearly up to the line of division between the hypogastric and umbilical regions. The point of greatest pain was just about the middle of Poupart's ligament and to the left of the enlarged uterine body. These symptoms increased for about three days, during which time the tumefaction in this region could be distinctly seen and felt. It was dull upon percussion. Vaginal examination revealed also a tumefaction of the vulva and vagina, and a large neoplasm of a rather dense character in the left pelvic region. This crowded the uterine end of the vagina and the uterus to the right. There was also a most distressing hemorrhoidal condition and an intense amount of congestion in the entire pelvis and rectal regions. On the third day the pathological process in the left hypogastric and pelvic region reached its height. The pain became less intense. Careful examination failed to elicit any evidence of liquefaction or the formation of pus in connection with the tumefaction.

Dr. De Revere naturally suspected infection and that we had a septic condition to combat. The lochial discharge, however, was perfectly normal as to both appearance and odor. The temperature between these three days ranged between 102.5° and 103.5°. These symptoms without chill and coupled with the fact that the patient did not have a septic appearance convinced me that we had an entirely different pathology to contend with.

On the evening of January 9, four days after the baby was born, and while still at the very height of the tumefactive development, the patient was removed to St. Vincent's Hospital, a distance of two miles from where she lived. She suffered excruciating pain during the trip. At the time of her admission to the hospital, the temperature was 102.2° F., pulse 104, respiration 26. By 12 o'clock noon the following day, the temperature had risen to 103° F., pulse to 110, respiration 26. The pulse and respirations, however, remained practically unchanged. Vaginal examination disclosed a semisolid mass on the left side which had forced the upper portion of the vaginal wall and the uterus to the right. The vulva, vagina, and rectum were somewhat less swollen.

On January 11 pain and swelling appeared in the right hypogastric and pelvic regions. It was more intense than on the left side, and the protrusion of the abdominal wall was greater on the right side than on the left. The temperature rose to 103° F., the pulse to 105; respirations, 28. The abdomen was tender up to the umbilical region. The right hypogastrium was very sensitive to the touch; the pain greatly increased upon even the lightest percussion. All over the protrusion the percussion note was dull, almost flat. The enlarged uterine body could be distinctly felt as a firm pear-shaped mass. Instead of the uterus lying directly in the median line, it was deflected to the right, especially the fundus. This was due to the pathological neoplasm which formed first in the left side, pushing the uterine body to the right and upward. When the same condition formed in the right pelvic region, there was less room for the growth, hence it rose out of the pelvic cavity and protruded to a greater extent in the right hypogastric region.

At this point, in connection with these pelvic developments, it may be interesting to note that the patient had had more or less rheumatism all her life. For six weeks prior to her confinement she had suffered severely with what had been diagnosticated as rheumatism of the right hip-joint. This condition was so acute that at times she was almost unable to get about. These facts, in connection with the clinical picture as just outlined, led me to make a diagnosis of rheumatism, instead of tacitly agreeing with Dr. De Revere, who argued in favor of its septic origin. This conclusion was amphasized in my mind by the fact that the masses were of a persistently doughy nature and showed no tendency to liquefy.

Up to this point the patient had received the ordinary treatment accorded a case of sepsis. Inasmuch as there had never been any offensive lochia, it had not been thought necesary to use antiseptic douches. The patient had received one or two hypodermics of morphine; hot stupes over the abdomen and quinine in full doses were administered for the first three or four days of the illness, with but slight improvement.

After entering the hospital she became extremely restless; therefore an ice-bag was placed upon the head and another over the right hypogastric region. The head of the bed was raised about two feet. This treatment was continued for about eleven days. The tumefaction in the left pelvic fossa gradually subsided during this period, and that on the right began to subside.

On the seventh day after admission to the hospital, the temperature dropped to normal, and remained nearly at this point until about the 11th day when it suddenly shot up to 104 deg. F. There was no increase in the pathological process in connection with this rise in temperature, neither was there any chill nor any increase in pain. Upon inquiry, it was discovered that the bowels had not moved for two days. Free calomel purgation resulted in the lowering of the temperature within the next twelve hours to 99.4 deg. F. Within the next two or three days the temperature again rose to 103 deg, but once more fell after purgation, proving conclusively that this temperature increase was due to absorption from the intestinal canal rather than from any septic condition within the pelvis.

Because of the rise in temperature and the slow resolution, and under the belief that the condition was of rheumatic origin, we decided to administer full anti-

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rheumatic treatment, using first what has in my experience proved to be the very best antirheumatic measures. This consists in a freshly prepared solution of salicylate of sodium with iodides and wintergreen—a modification of Professor Alonzo Clarke's once famous "salicylate mixture."

R. Sodium salicylate .....dr. iii.
Sodium bicarbonate .....dr. ii.
Potassium iodide .....dr. ii.
Elixir gaultheria .....oz. i.
Glycerin .....dr. ii.
Water q.s. ad. .....oz. iv.
M.Sig. dr. ii every 2 hours, pushed until free diureais occura.

My theory of the action of the salicylates is that they arrest putrefactive fermentation in the alimentary canal. This prevents absorption of toxic matter, which is, in a measure, responsible for some of the rheumatic conditions. The profuse stimulation of the secretory functions undoubtedly carries the causative toxins out of the body, first because of the waste material flushed out through the sudoriferous glands; second, by the inhibited development of fresh battalions of germs in the alimentary canal; and third, because of the dilating influence these remedies exert upon the entire vascular system, thus drawing the blood away from the pathological zones and relieving pressure upon the nerve endings in the congested zones.

The clinical reason for my conviction is the fact that there is not adequate relief from the rheumatic symptoms until the full physiological action of the remedy is produced, but almost instantaneously following this action the case takes a pronounced turn for the better.

The unfortunate feature in connection with this most efficient therapy lies in the fact that it tends to produce an intense congestion of the stomach, which in turn causes distressing nausea and even vomiting. So pronounced is this effect that the remedy must be temporarily suspended. To obviate all loss of antirheumatic action, we utilize the iodides, oil of gautheria, and acidum acetyl-salicylicum purificatum, all of which have a similar action, and thus prevent the individual from relapsing into the same rheumatic condition while the salicylic acid mixture is temporarily suspended.

During this time the patient received a well-regulated mixed diet consisting of the folowing regimen:

For Breakfast.—Two eggs, eight ounces of milk, two ounces of wheat bread and butter.

For the Mid-day Meal.—From one-quarter to one-half pound of beefsteak, eight ounces of milk, three ounces of wheat bread and butter.

For the Night Meal.—From one-quarter to one-half pound of beefsteak, eight ounces of milk, two ounces of bread and butter.

At Bed Time.—Eight ounces of milk.

Beefsteak is taken as the working standard among the meats, as it is the most easily digested of all the food stuffs. Under the heading of meat is included lamb, mutton, occasionally veal; all kinds of fish, including the shell forms, such as oysters, clams, lobsters, crabs; poultry and game of all kinds.

The meats to be broiled, boiled or baked.

The fish to be boiled or baked.

The oysters and clams to be eaten raw or stewed. The lobsters plain boiled.

A little crisp bacon may be taken from time to time, also ham and corned beef, *without cabbage.*

Eggs may be taken boiled, poached or scrambled.

The milk is best taken warm or with a little lime-water added.

Wheat bread is taken as the standard because it is the most easily and perfectly digested. It should be at least twenty-fours old or toasted; rye, graham, zwieback, or the health food breads may at times be substituted.

Weak coffee, without milk or sugar, or with a dash of milk, may be taken freely as a beverage. Coffee taken clear aids digestion, but with milk and sugar often disturbs digestion.

Additions to Enlarge the Above Diet.—In the line of vegetables: string beans, green peas, lima beans, spinach, lettuce, asparagus, and cauliflower. These are chosen because they are the least likely to excite intestinal fermentation of an abnormal character. They should be well cooked, and only one vegetable at a meal. When a vegetable is taken with the meal there must be a reduction in the quantity of meat or milk as given in the above table. To the above may be added boiled rice, macaroni, and occasionally boiled beets, carrots, turnips, and squash.

Food Stuffs to be Avoided.—All fruits, either cooked or raw; all cereals and breakfast foods, nuts, sweets, and pastry of all kinds, potatoes in all forms, onions, tomatoes, turnips, parsnips, carrots, celery, radishes, cabbage, egg- and oyster-plant, corn, etc.; pork in all forms, except as before stated. Rich gravies, and all forms of soup are excluded. The latter, first, because they tend to destroy the keen appetite which makes possible the eating of plain and substantial food; second, because they destroy the appetite and stimulate a strong desire for the entremets and highly seasoned foods; and, third, because the mixed, cream and rich stock soups tend to excite undue and putrefactive fermentation in the intestine. Rich gravies, because they disturb digestion.

Potatoes, that are so commonly used, are excluded for three reasons: first, because they have a high percentage of starch and a low percentage of protein; second, because they are so apt to be taken three times daily, and are so often eaten fried; third and chiefly, because of the ease with which the starch contained in the potato is digested and assimilated within the system. In consequence of this rapid utilization of the potato starch, which yields to the animal economy only heat, the oxygenating capacity of the system is exceeded, and there is not a sufficient amount of oxygen left within the body to oxidize and assimilate perfectly the protein constituents of the food that must be accomplished if a perfect state of health is to be maintained. In the repair of the disease conditions it is still more necessary that the proteins shall be perfectly oxidized and assimilated, hence the absolute necessity to exclude the potatoes and food products enumerated.

Fruits are excluded, first, because they are usually picked before they are fully ripe; second, because they are in a state of partial putrefaction, and are often covered with bacterial life when eaten, and often taken in excessive quantities. Having reached the alimentary canal in this state, they excite undue and putrefactive fermentation of protein constituents contained within the intestinal canal and thus prevent the perfect digestion and assimilation of the proteid elements of the food.

When these rules are followed a good variety in the dietary can be secured, and a high grade of nutrition established and maintained.

Especial emphasis is given to the fact that red meats are never excluded from the dietary in the management of my rheumatic cases. On the contrary, my patients are encouraged to use them. Among the meats representing the animal class of food, the red meats are the most easily digested and assimilated, provided sufficient oxygen is supplied. If too much starchy food is used it often exhausts the oxygen supply before the protein can be perfectly oxidized. Wheat bread, on the other hand, holds the first place among the vegetable class so far as digestibility and assimilation are concerned.

In my opinion, a correct diet is as essential as suitable medication. As a rule, an absolutely restricted diet is not required, but an ideal mixed diet, as just outlined, is always necessary.

Improvement was manifested within forty-eight hours, and progressed steadily until the pelvic neoplasm had entirely disappeared. With the absorption of the neoplasm in the right hypogastric region a marked varicocele of the right pampiniform plexus was distinctly felt, consisting of a bunch of veins which felt like a bunch of fishing worms; this in turn also disappeared.

With the complete subsidence of the pathological process in the pelvic region, well-defined rheumatic symptoms developed in the left ankle, but these also finally disappeared under the continued antirheumatic treatment.

During the five weeks the patient was under treatment, she lost almost 75 pounds, and she became very anemic and debilitated. With the subsidence of her rheumatic attack—for that was exactly what it was—she convalesced and gained steadily, and at the end of four months had recovered the greater part of her lost weight. She is now in a fair degree of health, although still taking a stiff iron tonic and occasionally a little antirheumatic treatment.

The universal interest of this unique case lies in its rarity and in the fact that no similar condition has been recognized, except as found described by Dr. P. Cazeaux, a noted French accoucheur, in his "Midwifery." So far as I have been able to ascertain, there is not another case of this kind in medical annals. It is therefore with considerable gratification that I present the details to this society.

46 West 83d Street.

MODERN THERAPEUTICS IN THE NEW YORK STATE HOSPITALS FOR THE INSANE.*

By SPENCER L. DAWES, M.D.,

NEW YORK.

In my review of the newer methods employed in the treatment of the insane in the Hospitals of the State of New York I make no claim for originality, but on the contrary wish it understood at the outset that this paper is merely a collation of facts, a regrouping of statistical matter, and a different presentation of what has already been gathered, much of which has been offered to the profession by others from time to time.

It is indeed a far cry from the legislative enactment of 1788 which provided that justices of the peace might chain those "furiously mad" or "so far disordered in their senses" as to be dangerous if permitted to go abroad, to the present rule of the New York State Hospital Commission which forbids the use of the strait jacket and other methods of restraint; from the day of narcotics, sedatives, and hypnotics to that of the continuous bath, exercise, hygiene, and suitable employment; from the day of the poorhouse and the jail with the county system of maintenance to State care and maintenance under a central authority; from one State institution with a capacity of but two hundred patients in 1831 to thirteen civil and two criminal hospitals which in 1917 had a population of nearly thirty-eight thousand; from an annual expenditure of not more than $25,000 to the use of nearly $10,000,000 for care and maintenance alone.

In order to appreciate what the newer methods are it will be well to epitomize briefly what the former practice was.

Originally any insane person who was so unfortunate as to be committed was placed under arrest and pending his commitment detained in a jail or locked up in company with criminals and prostitutes, and there held with no medical supervision and later sent to the poorhouse or county asylum, if such there happened to be, where practically the only treatment he received was harshness, restraint, and the administration of narcotic drugs.

The first comprehensive step looking toward scientific care was in 1890 when an act of the Legislature provided for State care, but it was not until 1893 that all the insane were removed to State institutions, there being then 2,200 patients in the various poorhouses in the State.

To-day the law forbids the detention of the insane in jails and prisons (unless they be criminals as well) and provides that the health officer shall be responsible for the welfare of the individual pending commitment, making him responsible not only for the patients' detention but for his safety and comfort as well, and allows him to give the patient the care of a physician and a nurse. And it further provides that women patients shall not be transferred by men attendants unless such attendant be a near relative.

In a number of the larger cities of the State, notably Albany, New York, Brooklyn, and Syracuse, there are large psychopathic hospitals or wards devoted exclusively to the use of the mentally sick where they may be under observation for a time pending commitment or discharge, these hospitals or wards being in charge of trained alienists and nurses who devote themselves solely to mental cases.

Whereas under the old system the idea was custodial and the treatment was general and repressive, consisting mainly in harshness and restraint, to-day it is directly the opposite, being individual, special, hygienic, occupational, uplifting, and mentally and morally stimulating, and conducted strictly on the hospital plan.

When a person is committed to one of our State hospitals he is taken to the institution in the care of one or more specially trained nurses and frequently a physician as well, he is there carefully examined and a detailed family, personal, and medical history is taken, and he is then placed in what is known as the reception ward where he is bathed, given suitable clothes, and kept under careful observation for some little time in order that his type of psychosis, his individual idiosyncracies, and his temperament may be determined. After a period of observation he is brought before the medical superintendent and the hospital staff where he is examined, his case is presented to the staff by the physician in charge of him and after discussion by the staff, the medical superintendent determines to what ward he shall be sent and, in general, the treatment he shall receive.

Violent or excited cases which formerly were kept in restraint by means of the so-called straitjacket and the use of narcotics and similar drugs (now fortunately absolutely abandoned), yield promptly to hydrotherapy in the form of hot and cold packs, continuous warm baths, showers, spray, and douches. To this is added massage and in many cases the use of electricity.

Instead of prison surroundings we have books, pictures, flowers, music, amusement, and employment; there are drills, dancing, calisthenics, games,

*Read by title at a meeting of the American Therapeutic Society in Richmond, Va., June 7 and 8, 1918.

and theatricals, each and all under the careful supervision of physicians, trained attendants, and nurses. Most of the hospitals have large farms connected with them on which the patients may work, raising not only food but flowers as well. The kind and type of occupation best suited to the individual and his needs is selected for him after observation, such as basket making, the weaving of rugs, making of shoes and brushes, etc. There are brass workers, masons, engineers, carpenters, painters, and plumbers. Some knit, some make artificial flowers, others work in the laundry or the kitchen; they may be found pressing clothes, digging ditches, cutting hedges, setting type, printing books, roasting coffee, or doing clerical work.

One of our large hospitals roasts the coffee for all of the State hospitals and maintains a large printing establishment which does much of the printing for them all. While none of this is compulsory and all is voluntary, about fifty per cent. of the hospital population engage in some useful occupation. How much can and may be done is evidenced by the fact that in 1914 it was reported that the value of the combined manufactured and farm products that year amounted to $715,714.85. But however desirable this occupational treatment may be from an economic standpoint, that is negligible as compared to its therapeutic value, for not only is the physical well being of the patient greatly improved but his mental viewpoint is markedly changed for the better, in fact so prodigious is the improvement as sometimes to seem to be miraculous.

Patients are provided with games, such as cards, checkers, chess, dominoes, etc.; baseball is played, and contests of skill are held, while the reading of suitable books, magazines, and illustrated papers is encouraged. Religious services are regularly held at all the State hospitals, there being separate services for various sects and denominations. Each hospital has several regular visiting days on which the friends and relatives are urged and encouraged to come and see the patients, over 100,000 visits being made each year at Manhattan State Hospital alone. These visits of friends serve a twofold purpose, for they are found to have a distinctly beneficial effect upon the patients' mental condition and at the same time evidence to the relatives the superiority of hospital care over that which they could give in the home.

The dietary of the hospitals is a matter of special care and study and no effort is spared to obtain the best food the market affords, to prepare it in its most palatable and nutritious forms, and to serve it in well lighted, clean, airy dining rooms with clean linen and attractive table settings.

Most of the hospitals have cottages to which the more nearly recovered patients are assigned where they are watched over by trained attendants and physicians and where they approximate as nearly as possible to domestic and home surroundings. Probably, however, no one thing has done more to help us in our treatment of the insane than individualization—and here I can do no better than quote from a paper of the late Dr. Mabon: "Although mental disorders are diseases in which many of the principles are the same as in other diseases, we are dealing in them with more complicated symptoms and *more subtle causes*. More time is required, therefore, to study the individual patient than is often the case in other diseases. Another point is important in this connection. It used to be thought that it was possible to treat mental disorders in a wholesale fashion, but just as little as this is possible with any other disease, so it is here. To be sure, it was under this conception that the transformation of the asylum into the hospital began, and that much of the present spirit of more humane management of the patients was created, but the development went, and has still farther to go, in the direction of the individual treatment with special indications based upon the facts of each case.

"The very nature of some of the diseases with which the hospitals deal is responsible for the fact that many patients, when they come to the hospitals are chronic and a re-establishment to health is impossible, but even these offer many medical problems. Take for example the cases of paresis, one out of every four men admitted to the Manhattan State Hospital is suffering from this disease. Although the treatment of paresis is at present carefully studied with a view to a possible radical cure, these studies have not gone far enough to allow us to assume that such attempts will be successful; therefore, up to the present time the disease has been looked upon as incurable and as leading to death in a few years. It is obvious that these cases of paresis are physically as sick as any other cases with severe bodily diseases; therefore, they need constant, careful medical attention and the most skillful nursing, and it is just as absurd to think that they can be treated in a wholesale fashion as it is absurd to think that patients with, let us say, cancer, can thus be dealt with. Mere custodial care is out of the question here; and even if the physician is playing a losing game in his grappling with the disease, the present day spirit of humanity, an important asset of our civilization, will not be abandoned on that account, but everything that is necessary from a medical point of view must be done, and is done."

Senile dementia, too, is a chronic type which can be made comparatively comfortable and happy by sympathetic care and reasonable indulgence by the intelligent nurse; other types with some chronic mental change but not markedly ill physically, present such a change in their attitude toward life with their false ideas and hallucinations that they must be carefully studied by the physician as individuals to preserve in so far as possible whatever of mentality that is left. Other types present possibility for much improvement and some for cure and each one of these is carefully studied and considered by itself and its individual needs supplied wherever possible. The tuberculous patients are isolated and given the care and attention as to air, food, and rest which is considered appropriate in this disease, specialists in their lines look after the eyes, ears, noses, throats, and teeth of the patients, and skilled surgeons correct deformities and operate as needed.

As it is obvious that in order for the physician to visualize a case properly, and to treat it adequately when he has determined its needs, he must be not only experienced and apt but specially trained, so for this purpose the State has estab-

lished and maintains the Psychiatric Institute, a school to which the various hospital physicians are urged to go for the purpose of studying the underlying causes of mental disorders. At this institute also there is research work done relating to mental disease, the results of which are available to the profession at large as well as the State hospital men.

Valuable as is the training of the physician, fully as valuable is the training of the nurse and each of the State hospitals has connected with it a training school for nurses where all endeavors are made to give special instruction in the care of the mentally sick as well as in general nursing and from it are graduated a distinct type of nurse, one not only competent to care for those physically ill but especially proficient in the care of the mental incompetent.

As the patient improves, more and more liberty is granted him, and when the time seems ripe he is paroled to the custody of friends for a period of six months; his case is still carried on the hospital records and he reports at the hospital at stated intervals so that he may be advised as to treatment.

At the end of six months he may, in the discretion of the superintendent, come back to the hospital, or his parole may be extended another six months, or he may be discharged. When he has no friends the patient is looked after, helped, and advised by the State Charities Aid Association, or by the Department of After Care of the State Hospitals. Other patients remain at the hospital indefinitely but are allowed to come out and go to nearby places with great freedom. Where recovery has taken place sufficiently to warrant it the State goes so far as to seek out the friends and relatives of the patient, even though they be in other States or in distant countries, and when the State is satisfied that the patient will be wisely cared for sends him properly attended and clothed to his proper environment, and when the same is needed gives him a small sum of money for his immediate needs.

Besides all this the State maintains clinics at the various institutions where patients may come for voluntary treatment and advice and sends out physicians who give free lectures throughout the State on mental hygiene. There is also a Medical Inspector who, under direct authority of the State Hospital Commission, visits all the State and private institutions, sees and examines all patients, hears their complaints, and reports his finding to the Commission. He also investigates for the Commission all accidents, irregularities and the complaints of friends whenever such occur.

In the preparation of this paper I am much indebted to papers written by Dr. James V. May, formerly chairman of the New York State Hospital Commission, now Superintendent of the Worcester (Mass.) State Asylum, the late Dr. William Mabon, formerly Medical Superintendent of the Manhattan State Hospital, Dr. Maurice C. Ashley, Medical Superintendent of the Middletown Homeopathic State Hospital, and Dr. Walter G. Ryon, Medical Superintendent of the Hudson River State Hospital.

Room 703, Hall of Records.

MORTALITY STATISTICS OF DIABETES AMONG WAGE EARNERS.

WITH OBSERVATIONS ON THE COMPARATIVE INCIDENCE OF THE DISEASE IN THE GENERAL POPULATION.

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THE data on diabetes in this experience of insured wage earners* are, so far as we can determine, original in the literature of American vital statistics. In spite of the intense interest of physicians in the subject in recent years, little has been done to date to determine the extent to which the condition is responsible for mortality. The figures herewith submitted are not only accurate measures of the incidence of the disease in general, but, what is perhaps more important, give a picture of the condition in relation to economic status, sex, color, and age. To the clinician and the laboratory student of the disease, the relations presented may well serve as a clue in directing further diabetes research. Another element of interest inherent in these figures is that, referring as they do, to the industrial population, they may throw light on the probable effect of social and economic conditions upon mortality from diabetes. This is still a mooted question in the medical literature. There is a tendency in some quarters to regard the disease as more prevalent among the prosperous elements of the population. On the other hand, certain exciting causes inherent in the harsher conditions of life and work have been identified in the case histories of diabetes mellitus. It will be important, therefore, to see later how the figures here presented compare in detail with those in the general population whose economic status is altogether more favorable. It should be remembered that this number of deaths (7,762) is by far the largest aggregation of cases of this disease which have as yet received extended statistical treatment.

The following table presents the death rates per 100,000 persons exposed, among nearly fifty million "years of life," with respect to color, sex, and age period:

Table I.—Mortality from Diabetes, Classified by Color, Sex, and Age Period: Death Rates per 100,000 Persons Exposed, 1911 to 1916. Experience of Metropolitan Life Insurance Company, Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages, 1 and over.	14 4	10 8	18.5	9 5	11 4
1 to 4	1 8	1.9	1 9		1.9
5 to 9	1.7	1 6	1.8	2	0.6
10 to 14	3 4	3 1	4 1	0 3	2.5
15 to 19	4 0	4.3	4 0	2 6	1 5
20 to 24	4 0	5.0	3 7	3 2	0 8
25 to 34	5 4	6 5	4 9	4 7	4.3
35 to 44	9 3	10 6	8 8	9.6	7.7
45 to 54	30 4	25 4	34 3	20 8	33.5
55 to 64	80 1	56.6	102 1	48 6	53.7
65 to 74	127.2	95.5	161 4	55 1	57.5
75 and over	154.9	102 1	158 2	109 8	108.9

The death rate increases with age. Between ages ten and fourteen a rate of 3.4 deaths per 100,000

*From a work in preparation: "Mortality Statistics of Insured Wage Earners and Their Families, in the United States and Canada."

persons living is the first indication of a significant distribution in the industrial population of the disease in its malignant form. Between 25 and 34 years, the rate, 5.4, accentuates the earlier finding. Beyond 35 years there is a rapid rise in the slope of the curve for diabetes. The highest point is observed in the last age period, namely, 75 years and over. But even in the more important period of 65 to 74 years the rate is not far from its maximum. In fact, among white females the maximum is reached in this period.

There is a lower death rate among colored persons at each of the age periods, and this is especially true of colored females as compared with white females. The difference in favor of colored lives becomes more important beyond age 55, when diabetes is an important cause of death. It should be noted also that diabetes has a very marked sex incidence, the rates beyond age 45 being for both white and colored women higher than for males of the corresponding race group. Prior to age 45 the sex ratio of diabetes mortality is reversed. This suggests the interesting question whether menopause may not have some influence in changing the sex ratio of diabetes mortality after 45 years of age.

Diabetes Mortality Among Insured Wage Earners and Among the General Population of the United States Compared.—Among males under 20 years of age, and among females under 35 years of age, in this insurance experience, the diabetes death rates are, almost without exception, lower than the corresponding rates for the population in the Registration Area of the United States. Beyond 20 years of age, however, there is an excess in the rate among insured white males, which increases up to the period 35 to 44. Beyond this age the excess declines to a point where the rates for the two groups are much the same. Beyond 35 years of age, there are significantly higher rates for insured women than for those in the general population. Beginning with the age period 45 to 54 years, the amount of excess varies somewhat from 25 to 30 per cent.

The following table presents the comparison for the disease in the two series; that is, the insured group and the general Registration Area population:

TABLE II.—MORTALITY FROM DIABETES. DEATH RATES PER 100,000 PERSONS EXPOSED. INSURED WHITE LIVES IN EXPERIENCE OF METROPOLITAN LIFE INSURANCE COMPANY, INDUSTRIAL DEPARTMENT (1911 TO 1916) AND GENERAL POPULATION EXPERIENCE OF EXPANDING REGISTRATION AREA OF THE UNITED STATES (1910 TO 1915). CLASSIFIED BY SEX AND BY AGE PERIOD

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.
All ages, 1 and over.	10.8	14.5	74.5	18.5	17.5	105.7
1 to 4.....	1.9	2.2	86.4	1.9	1.8	105.6
5 to 9.....	1.6	3.0	53.3	1.8	3.0	60.0
10 to 14.....	3.1	4.2	73.8	4.1	4.8	85.4
15 to 10.....	4.5	4.8	93.8	4.0	4.1	97.6
20 to 24.....	5.0	4.8	104.2	3.7	3.8	97.4
25 to 34.....	6.5	5.6	116.1	4.9	5.2	94.2
35 to 44.....	10.6	8.6	123.3	8.8	8.3	106.0
45 to 54.....	25.4	22.6	112.4	34.3	27.5	124.7
55 to 64.....	56.6	57.4	98.6	102.1	78.4	130.2
65 to 74.....	95.5	95.0	100.5	161.4	127.9	126.2
75 and over.....	102.1	112.8	90.5	158.2	121.2	130.5

Trend of the Death Rate from Diabetes.—In this experience for insured wage earners there is a slight tendency toward increase in the recorded death rate for diabetes mellitus. There is some significance attached to this increase in mortality from the disease. There are no important diagnostic considerations confusing the statistics for diabetes as may be observed for several of the other diseases and conditions, notably cancer. Fatal diabetes is well reported in this mortality experience, and the certification of the disease has probably not improved materially during the period covered by this experience. The minimum rate was observed in 1911, 13.3 per 100,000 persons exposed. The group of insured white females was very largely responsible for the high figures shown in 1916 in the entire experience. In 1911, insured white females registered a diabetes rate of 16.5 per 100,000 exposed; in 1916 the figure was 20.2 per 100,000.

In the experience of the Registration Area of the United States also there has been observed since 1900 a gradual increase in the death rate of diabetes mellitus.

The figures for the individual years are shown herewith by color and sex:

TABLE III.—MORTALITY FROM DIABETES, CLASSIFIED BY COLOR AND BY SEX. DEATH RATES PER 100,000 PERSONS EXPOSED. SINGLE YEARS IN PERIOD 1911 TO 1916. EXPERIENCE OF METROPOLITAN LIFE INSURANCE COMPANY, INDUSTRIAL DEPARTMENT.

Year.	Persons.	White.		Colored	
		Males.	Females.	Males.	Females.
1911 to 1916	14.4	10.8	18.5	9.5	11.4
1916.....	15.9	11.5	20.2	11.6	14.8
1915.....	15.1	10.3	20.0	8.1	14.4
1914.....	14.2	10.5	18.4	10.0	10.4
1913.....	13.9	10.8	17.5	8.9	10.9
1912.....	13.7	10.3	17.7	9.7	9.2
1911.....	13.3	11.3	16.5	8.1	7.7

THE ORIGIN OF THE SO-CALLED "SPANISH INFLUENZA."

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WE desire to present in this preliminary note a consideration of the similarity of the present epidemic to the epidemic of pneumonic plague which broke out in Harbin, China, in October, 1910, and spread rapidly and continuously throughout Northern China at that time; and to suggest that this epidemic may be the same disease modified by racial and topographical differences. The origin of this epidemic was suggested to the writer soon after its outbreak in our camps by Mr. Guy M. Walker, an eminent American authority on Chinese affairs. This suggestion led to an investigation of the reports of the pneumonic plague in China and there is sufficient likeness of that epidemic to the present one prevailing in our cities and army camps to warrant a consideration of it.

In the latter part of 1910 the pneumonic plague first appeared in Harbin, a town in Manchuria under Chinese control. Harbin is on the Trans-Siberian Railroad, and was the original hotbed

of the disease. The plague had prevailed in Russia previous to November, 1910, but the Russians, alert to its danger, took immediate action and stamped it out. It was believed that the plague was carried into Harbin by the fur dealers and by Chinese laborers returning to their homes to celebrate New Year's Day, a custom universally observed in China. From Harbin the plague rapidly spread in all directions, usually following the lines of traffic along the railroads. It spread as far south as Chefu, a seaport town, probably having been carried there by Chinese coolies returning from the north.

By January 24, 1911, 1,500 Chinese and 27 Europeans, two of whom were physicians, and one an assistant, had died of it. Nearly all who had the disease died of it.

This plague has been very serious. The mortality has been fearfully high. It has spread throughout China. Wherever the Chinese coolies from the North have traveled they have carried this disease. From 1910 up to 1917 China has not been free from it. The writer has heard of several cases being present in Peking last year.

In the early part of 1917, about 200,000 Chinese coolies, collected from the northern part of China, where the pneumonic plague has raged at intervals since 1910, were sent to France as laborers. Part of them were sent around through the Mediterranean; some, and perhaps the majority, were sent across the Pacific, and then through Canada and America, to be transported across the Atlantic to France. Trainloads of these coolies were sent in solid trains across the United States to New York and thence to France. They made splendid laborers in France, and were in back of the lines during the German drive of March, 1918. No doubt many of them were captured by the Germans at that time. Hence the outbreak of it in the German army and its rapid spread in Spain.

So far as we know, this disease first broke out last spring, in the German army, where it is said to have been very serious. We next heard of it in Spain, hence the name Spanish influenza. The name is really a misnomer, but it has stuck probably because it is the first epidemic of influenza that Spain has ever had. Since our soldiers and sailors have been returning from the battlefields of France it has become very prevalent and serious in our camps and cities all over this country.

We wish, after the brief review of the pneumonic plague and the narration of its possible connection with the present epidemic, to compare the diseases both clinically and from a bacteriological standpoint.

It is not necessary here to go into detail concerning the clinical data, except in a very general way. In the China epidemic there were few definite symptoms at the outset of the disease except the general malaise, prostration, loss of appetite, etc., soon to be followed by the pneumonic process and death. So it is in the present epidemic. There have been indefinite symptoms, great prostration rapidly followed by pneumonia and death in the most virulent forms. The outstanding features of the Chinese pneumonic plague were the high infectivity of it and the high mortality. So in this so-called influenza epidemic it is more contagious, is followed more frequently by pneumonia, and attended with a much higher mortality than in any previous influenza epidemic.

In the pneumonic plague epidemic of China the *Bacillus pestis* was almost constantly found associated with the pneumococcus and the streptococcus. It is reported that different strains of these organisms were found in different localities where the plague was prevalent, and the virulence of the disease likewise varied. For instance, Dr. Shibayama made a report on eight different strains of pneumonic-plague organisms before the International Plague Conference in Mukden in 1911.

The bacteria found in patients in the present epidemic have been the influenza bacillus associated with the four groups of pneumococci, the *Streptococcus hemolyticus*, and the *Micrococcus catarrhalis*. For instance, in one camp the organisms found have been the influenza bacillus associated with Group 1 pneumococcus; in another it has been the influenza bacillus associated with Group III pneumococcus; in another, influenza and *Streptococcus hemolyticus*, etc. We see, therefore, how different strains of the pneumococcus and streptococcus associated with a bacillus are the exciting causes of the epidemic in different localities. Likewise, the mortality and virulence of the disease vary in different localities.

Thus we have shown a striking similarity between the pneumonic plague of North China and the present so-called Spanish influenza epidemic. It is not unreasonable to believe that the two diseases may be the same. The influenza bacillus and the *Bacillus pestis* in atypical forms may simulate each other. We know that organisms may assume different forms and have different cultural characteristics in different conditions. The ordinary influenza bacillus is a short, slender bacillus. The plague bacillus is about the same length, but is generally fatter and broader; both are Gram negative. It seems possible that the *Bacillus pestis* may have been present in a non-virulent state in the Chinese coolies, and assumed new virulence, vigor, and a somewhat different form, when transplanted into virgin soil. The high mortality and infectivity of this epidemic strongly suggest it.

On this basis the epidemics which have followed all great wars may be explained. If a nation or tribe can survive any disease long enough it will acquire immunity to that disease. When, however, foreign people commingle freely and intimately, as in war, epidemics will break out. The inactive, non-virulent organisms in one race will become virulent in some other race which has not acquired immunity to that specific organism.

We therefore present this comparison for the serious consideration of the profession. A very grave situation confronts us. Every patient with this epidemic should be quarantined, and everything possible should be done now at its ontset to prevent its spread.

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THE ACTION OF CHLORINE ON SUTURE MATERIAL.

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WITH the introduction of chlorinated lime and its modifications as antiseptics, we are told that these things can be employed in much the same manner as are corrosive sublimate, phenol, and the phenol compounds, and other stable chemicals of the latter sort. We are told that when suspicious of possible wound infection we can apply dressings wet with solutions of these chlorinated mixtures or compounds. In fact, we are told to go ahead with practically the same technique as we had been employing, simply substituting the chlorinated mixtures or compounds for the staple antiseptics. That sounds plausible on first thought, for it is a known fact that the chlorinated antiseptics do destroy germ life and are effective. But there is another, and, it seems to me, rather important factor in the case. Free chlorine is destructive to both animal and vegetable matter, if that matter be dead. Consequently, free chlorine is very liable either to destroy suture material or to render it worthless. This had not entered my mind, even though I knew what bleaching powder did to fabrics, until a case in which I employed a wet chlorinated dressing forced the idea upon me that such technique was all wrong. The following is the history of the case:

A young boy, while playing tag in a swimming pool, was struck over the left eye by a flying ring which had been propelled in his direction by one of his playmates. A wound about an inch long, to the bone, was made through the eyebrow. This was sutured with one silkworm-gut stitch in the center and with two 20 day chrome-gut stitches on either side of the center and, being supposedly an infected wound, a couple of strands of the chrome-gut were placed, for drainage, in the outer angle of the wound. A wet dressing of gauze, wrung out of a solution of one of the chlorinated compounds, was applied. The percentage employed was the one suggested in such cases. Union by first intention obtained. At the end of ten days I started to remove the stitches. Silkworm-gut, at the end of such interval, usually requires removal by cutting away. In this instance, when picking up the stitch, preparatory to putting the point of the scissors underneath, *the silkworm gut came away, as would plain catgut at the end of such interval;* I then lifted the chrome gut and it *came away without the necessity of cutting.* The drainage strands also lifted off at their point of exit from the wound.

This opened my eyes to the fact that something was wrong, for I had never seen silkworm gut act in that manner, and had seen 20-day chrome gut, under other dressings, and even wet ones, cut away at the end of ten-day intervals. Believing that the free chlorine had had some effect upon all the suture material, I placed strands of silkworm gut, twisted silk, and plain catgut in the same percentage solution of the chlorinated compounds, and other strands of the same materials in a tube of plain water as a control. These were left for ten days, during which time the air temperature was about that normal to the body. At the end of the interval I found that while the appearance of the silkworm gut and silk had not changed, they were absolutely useless for any purpose whatsoever. Bending, even so slight, caused breaking of the silkworm gut, and the least pull on the twisted silk had the same effect. The catgut in the chlorinated solution seemed to have undergone a sort of digestion, and had fallen to the bottom of the tube in a fluocculent mass. In the control tube the usefulness of neither the silkworm gut nor the twisted silk had in the least been affected. Of course, the plain catgut was more or less macerated, as had been anticipated, but it had not been affected, as had that in the chlorinated solution.

I understand, following replies to inquiries made by me to men who have had more or less experience with the use of the chlorinated solutions, that experience reaching over a number of years, that others have seen sutures become useless under like conditions. I have been told that such things have been reported in years gone by, but such reports have either been lost or overlooked, it would seem. If not, then the instruction that chlorine solutions may be employed with a technique similar to that used in connection with the staple antiseptics which do not destroy suture material, would seem to me quite wrong. In a wound such as was present in the case reported, and in which there was no great stress or gaping, the giving away of the sutures might make no material difference, but what might happen in a large abdominal wound, where the pull on the borders thereof might be considerable? It may be admitted that a sterile open wound might be the result, but it would not be a very pleasant condition for the surgeon to confront. I am reporting this because I feel that it is something of more than passing interest—something that may serve to save one or many surgeons much embarrassment in time to come.

Medicolegal Notes.

Effect of Express Contract to Pay for Services to Another.—In a suit on an implied contract for service rendered by the plaintiff hospital in caring for the defendant after he had been injured while working for a company, evidence as to an agreement of the manager of the company to pay hospital expenses was held admissable to show an express promise to pay the plaintiff. It was immaterial whether the manager had authority to bind the company, since if he did not he would bind himself. The company's express promise being shown, no promise implied in law, arose on the part of the defendant injured man.—Brightlook Hospital Assn. v. Garfield, Vermont Supreme Court, 104 Atl. 99.

Unlawful Importation of Opium.—The Harrison Drug Act of 1914, imposing a special tax on all persons who produce, import, manufacture, compound, deal in, dispense, sell, distribute, or give away opium or coca leaves or their derivatives, did not in any way affect the Act of Jan. 17, 1914, c. 9, amending the earlier Act of Feb. 9, 1909, c. 100, prohibiting the importation of smoking opium, and declaring a presumption of the illegality of the importation of such opium.—Gee Woe v. United States, 250 Fed. 428.

Accident Insurance—Cerebral Hemorrhage.—Under an accident insurance policy exempting the insurer from liability for disability caused by cerebral hemorrhage, where the insured accidentally fell, striking his head and rupturing a blood vessel in his brain, causing cerebral hemorrhage, which caused partial paralysis and a total disability for eight weeks, it is held that he could not recover from the insurance company on the ground that paralysis resulting from external bodily injury was the proximate cause of disability.—Order v. Dobbs, Texas Court of Civil Appeals, 204 S.W. 468.

X-Ray Photographs in Evidence—Authentication.—In an action for personal injury, the admission of x-ray photographs in evidence, without proof that they were correct portrayals of the injury, is error.—Kansas City M. & O. R. Co. v Swift, Texas Court of Civil Appeals, 204 S.W. 135.

Military Medicine.

TUBERCULOSIS IN FRANCE.

The fear expressed by Americans that their expeditionary forces may be infected on French soil with tuberculosis has given a new impetus in France to the warfare against this disease, and statistics are in demand respecting progress in the campaign. According to Meslier, writing in the *Journal de Médecine de Bordeaux*, the number of soldiers evacuated for tuberculosis from the beginning of the war up to October 31, 1917, is computed at nearly 90,000. But owing to duplication of cases and other sources of error 60,000 is much nearer the mark. The latter figure, however, does not include the tuberculous exchanged prisoners, which according to Swiss physicians numbered 30 per cent. of the whole.

All antituberculosis activities are now centralized, and comprise sanitary hospitals, sanitary stations, and auxiliary committees. On November 30, last the number of hospital beds available for consumptive soldiers was 6,521. The first examination is made in the garrison hospital or patient's home, the second in the sanitary hospital in which the nontuberculous are weeded out, and the tuberculous appropriately treated. If the patient is cured he is discharged, and if convalescent spends three months at a sanitary station where he learns how to care for himself. He is then discharged and returns home where he remains subject to the control of the local auxiliary committee.

The sanitary stations, with thirty departments, control 4,000 beds, making the grand total over 10,000 beds for consumptive soldiers. The function of the auxiliary committees consists largely in contributing in various ways to the maintenance of the consumptive and his family. The money for this purpose is raised by subscription and appropriation, and some departments have as high as 200,000 francs available at one time. There is still another provision made for old soldier consumptives, through the activities of a national committee which lends assistance to the departmental auxiliary committees, the funds of which amount to 3,000,000 francs. The sanatoria for consumptives, which form the ideal resource in antituberculous warfare, do not figure at all in the campaign, for they cannot be improvised, and the activities which could call them into being are fully employed as above outlined.

It may now be asked whether these resources are properly utilized. The writer says that the answer to this must be No. The real problem is one of early diagnosis, and without this no organization can solve it. Again, the disease is on the increase, not only among the troops, but in the civilian population. The causes must be sought and removed. So far as the author can judge military hardships which are unpreventable operate adversely among the troops and so long as men are evacuated home with open tuberculosis they infect the civilians. Just what the actual condition is, however, it is difficult to determine, for the total number of deaths annually from the disease in France has been reckoned as high as 150,000 and as low as 80,000.

The Cafard Again.

About a year ago the word "cafard" began to be recognized among the neologisms coined by the French soldier. It expressed a peculiar mental state which was described at the time in the Medical Record along with the etymology of the word. Since that period the subject has undergone a certain evolution and recently Voivenel, regarded by his medical colleagues as one of the most gifted writers in the profession, has taken up the problem of cafardism in a brochure in collaboration with Huot. The cafard soldier, who seems at first view a shammer and is hence given a nickname with the primary meaning of hypocrite, is in reality a victim of a psychoneurosis due to prolonged and arduous military life. He is a victim at once of abulia and impulsive acts, both defects springing from a common cause. This syndrome antedates the present war, for it has been seen in the colonial soldier. Otherwise stated, a man who has become adapted to a difficult environment finds himself "disadapted" again—a condition not readily visualized in the absence of a severe illness or similar experience. The work of Huot and Voivenel is reviewed in *Le Progrès Médical* for July 27 by Satre. The picture of cafardism differs from the earlier descriptions, for in some cases there are visual or auditive hallucinations which play a rôle in the evolution of the mental state. A physical basis of the condition which is sometimes seen as one of the asthenias, suggests a possible exhaustion of the adrenals. One might have accused a relaxed state of the tone of the splanchnic nerves at an earlier period of our knowledge. However, it is not uncommon to see soldiers who are the picture of health and vigor suffer with marked abulia. It is the appearance of the cafard in this healthy soldier which makes the problem one of such unusual interest—in fact, such behavior in a neurasthenic or psychasthenic would not tempt study, for we are not surprised at anything such subjects do. To see a normal soldier with a good record commit senseless breaches of discipline because he cannot inhibit his desires is in itself sufficient to create a new problem in military life. It must be remembered that these subjects have not been shell shocked or undergone any sudden catastrophe which could have temporarily upset their equilibrium. It is just the lack of motivation that gives to the behavior its mysterious quality. It may some day be possible to understand this condition, which is at present so obscure.

Military Service and Insanity.—Colonel Pearce Bailey, writing in *Mental Hygiene*, July, 1918, on the care and disposition of the insane, has the following to say regarding military service and insanity. The diminished percentage of insanity in any army systematically examined with the view of eliminating those who might become insane seems to contribute something to the answer of a question of military psychiatry which has never been satisfactorily answered. The question is this: Does army life make men insane? The question is especially important in a warfare which involves the whole nation, as bearing upon the economic value of psychiatric examinations. So far as

epilepsy and mental deficiency are concerned, the present statistics do not throw much light. While camp conditions might easily, and as a matter of fact often do, give rise to nervous episodes in the mentally deficient, they have nothing to do with the underlying cause. The same may be said of epilepsy. The frequency of attacks in epileptics may be increased after entering the army, but figures so far obtained do not justify the assumption that a potential epileptic under peace conditions is converted into an actual one by army life. But the matter is quite different with the psychoneuroses, constitutional psychopathic states, and dementia præcox. It seems that even in the training camps any of these conditions may become active and conspicuous through the requirements of military service when they had not manifested themselves to a degree to be incapacitating in civil life. It is not believed that this conversion of a potential psychosic into an actual one in the camps is a result of hardship or physical causes. It is believed rather to be a psychological result of disharmony with new and rigid conditions which the neurotic, who is intensely individualistic, finds it impossible to adapt himself to and so breaks down. This explanation holds true for those who have volunteered quite as much as for those who have been drafted.

So far as the expeditionary forces are concerned, the time has not yet come to explain the method of production of psychoses. Most of the wounded so far returned had departed for France before the neuropsychiatric examinations had been established. Among them there is a percentage of nervous and mental disease of twenty-five, a percentage that seems destined to decrease as the figures more and more concern the examined army. The experience of Bailey and coworkers indicates that a pronounced psychopathic constitution and military service are antagonistic. It is believed, on the other hand, that psychoneurotics who might render excellent service in their civil capacity become incapacitated by the change in their habits of living however patriotically they may have sought it. It is also believed that the army fares better without them, although instances may be brought forward to prove the contrary. Great generals may be cited as epileptics, great leaders who were fanatical to the point of insanity, and others who with unmistakable symptoms of psychoses were nevertheless famous strategists; but these exceptions are rare and do not affect the rule, now well established, that those expected to work effectively and harmoniously under the order of others must be of sound nervous system.

Classification in the Volunteer Medical Service Corps.—Interest among the members of the medical profession as to how their services are to be used in the Volunteer Medical Service Corps, once they have been enrolled and have put on the badge which indicates their willingness to serve and readiness to respond to a request from the Surgeons General of the Army, Navy, or Public Health Service, or from the Provost Marshal General, or from the General Medical Board of the Council of National Defense, has led to the announcement by the Central Governing Board of the basic system of classification for the organization. The lines on which the classification is made were determined by the Committee on Classification of the General Governing Board, and whose report was adopted. This Classification Committee has on it representatives of the Army, Navy, Public Health Service, Council of National Defense, American Red Cross, Hospitals, Colleges, Civilian Doctors, War Industries.

CLASS I.—These will be the physicians first recommended by the Central Governing Board to apply for commissions in the Medical Reserve Corps of the Army, Reserve Force of the Navy, or for appointment in the Public Health Service. They include physicians under 55 years of age who are without an obvious physical disability which is disqualifying, and who have not more than one dependent in addition to self; or who have an income, or whose dependents have an income, sufficient for the support of dependents other than that derived from the practice of their profession.

There are several exceptions provided for because of evident essential needs. Whether a physician's services are essential to his community will be established by the Central Governing Board on recommendation of representatives of the board appointed by it to make a survey of local conditions. Whether a physician is essential to an institution with which he may be connected will be established after conference between representatives of the Central Governing Board and representatives appointed by governing bodies of the institutions concerned. Similarly, the question of whether a doctor is essential to a health department will be established by conference between the Central Governing Board and the head of that health department. The question whether a teacher in a medical school is essential to that position will be established by the Central Governing Board and representatives of the institution. Conference between the board and accredited representatives of industries concerned will determine whether doctors employed as industrial physicians are essential in those positions. A physician essential on his local or medical advisory board will not be disturbed.

CLASS II.—In Class II are physicians under 55 years of age who are without an obvious physical disability which is disqualifying and who have not more than three dependents in addition to self. These will be recommended by the Central Governing Board, when the need exists, to apply for commissions. Exceptions in Class II are the same as in Class I.

CLASS III.—These are physicians under 55 years of age who are without an obvious physical disability which is disqualifying but who have more than three dependents in addition to self; and they are the physicians included among the exceptions from Classes I and II, namely, those essential to communities, institutions, health departments, medical schools, or industries. They will be recommended by the Central Governing Board to apply for commissions when the emergency is so great as to demand their services.

CLASS IV.—In Class IV are the physicians who are ineligible for commissions in the Medical Reserve Corps of the Army or Reserve Force of the Navy, but who are available for all other services. The physicians in this class include those over 55.

those having an obvious physical disability which is disqualifying, and those rejected for all Government services because of physical disability.

Physicians not professionally eligible for the Medical Reserve Corps of the Army or for the Reserve Force of the Navy or for appointment in the Public Health Service will be recorded but not admitted to the Volunteer Medical Service Corps.

Applications for enrollment in the Volunteer Medical Service Corps continue to come in from physicians from all over the country, and by every mail, to the headquarters at the Council of National Defense Building. These are being classified as rapidly as possible. Representative physicians from various parts of the country are assisting in the work incident to the classification. State Executive Committees, enlarged to handle the work of the Volunteer Medical Service Corps, are perfecting the organizations in their States, and county representatives have been appointed in practically every county in the country. Group meetings are being held in many of the States, at which the State Executive Committees and county representatives are being addressed by members of the Central Governing Board of the Volunteer Medical Service Corps.

President Wilson Nominates New Surgeon-General.—President Wilson has nominated Major General Merritte W. Ireland of the Medical Corps to be Surgeon General for the four years beginning October 4, 1918, Major General Gorgas being retired on reaching the age limit. General Ireland was head of the medical department of the army in France prior to his appointment as surgeon-general.

Influenza and Pneumonia in Army and Navy.—Reports received by the War Department from camp surgeons show that on October 3, with three camps, Sherman, Taylor and Jackson, not heard from, the number of new cases of influenza was 12,004, bringing the total of all cases reported by all camps since September 13 to 113,737. Ten camps reported an increase in the number of cases, while the remainder showed decreases. The greatest number of new cases of pneumonia, 133, was reported from Camp Grant, with 31 deaths. Of the 2,000 students at the United States Naval Academy at Annapolis, between 700 and 800 have been stricken with influenza, and thus far there have been three deaths attributed to the disease. The transportation of nurses and nurses' aids from this country to the American hospitals in France has been stopped by the Surgeon General's office until the epidemic of influenza in this country has been conquered. The order also provides that nurses and their assistants will not be received into the training camps on this side until the danger of the disease is passed. Influenza has also spread to Canada, the first death from the disease occurring in the military hospital at Hamilton, Ontario, where there are more than 100 cases.

Increase in Pay of Army Nurses.—The Senate has passed a measure increasing the pay of all chief nurses in the army $10 a month and providing for the payment of salaries of all army nurses while prisoners of war.

Red Cross Recruits More Nurses.—All women who have had any kind of nursing experience are urged to register for service with the Red Cross at the bureau established at 389 Fifth Avenue, New York. A call has just been sent out for the mobilization of all nurses and women possessing even elementary knowledge of the care of the sick.

Physician Gives Convalescent Soldiers and Sailors Outing.—Dr. John A. Harriss, Special Deputy Police Commissioner of New York City, acted as host, on October 1, to 150 convalescent sailors from United States war ships on duty in foreign waters, and 100 marines who are recovering from wounds received in the fighting around Château Thierry. The patients were taken by automobile to Dr. Harriss's steam yacht which conveyed them to his summer home at Collender's Point, Conn., where they were provided with entertainment in the form of a concert and a shore dinner.

Medical Officer Loses License.—The Board of Regents of New York State has revoked the license of an Albany physician who was a captain in the United States Army, after he had been found guilty under the Federal law of accepting money to influence his decision in a matter pending before him officially.

Foreign Branches of Red Cross.—The American Red Cross. in the fifth installment of its war fund statement, gives the report of the Fourteenth or insular and foreign division of the American Red Cross. This division is not yet a year old, but has about 150 chapters and branches, among which are chapters in the South American countries, Hawaii, the Philippines, Spain, Sweden, and Switzerland. To the first war fund this division gave $267,462 and to the second $1,710,000. The South American countries made substantial contributions to these funds and Cuba, in the second drive, gave $155,000. Hawaii, in the latter part of 1917, contributed $200,000 and in the second drive $677,000. China, in the second drive, gave $100,000.

Work of the Red Cross for Civilian France.—The American Red Cross, in a recent installment of its report to the American people concerning the use that it has made of its war funds, states that in carrying out its work in France, in all its activities, it expended up to July 1, 1918, the sum of $36,613,682.73. Of this amount, $15,453,049 was apportioned to relief work among the soldiers and strictly military activities. The balance was appropriated to relief work among refugees, the fight against tuberculosis, and other civilian relief work. The demand for the six months ending December 31, 1918, has seemed greater than at any other period, and an appropriation has therefore been made for this period amounting to $43,582,827, of which $20,753,410 is for relief among refugees, rehabilitation of devastated areas, the fight against tuberculosis, and other civilian activities. In the relief of refugees, of which there have been more than 400,000, the Red Cross has expended nearly $3,000,000. Up to June 1, 1918, the appropriation for the fight against tuberculosis totaled $2,147,327. It is estimated that of the 80,000 French babies who died last year 40,000 might have been saved by proper care. To meet the need for child welfare work, $2,775,877 has been appropriated for the period ending December 31, 1918. For the period ending June 30 the appropriation was $1,149,129.

MEDICAL RECORD.

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SPINAL ANESTHESIA BY "BARBOTAGE."

By the use of a peculiar method of injection, Dr. Fillistre (*Paris Médical*, June 15, 1918, No. 24) has succeeded in obtaining anesthesia of the entire body. The number of cases in which the "barbotage" method, as he calls it, has been applied by Fillistre is over 2,000. To judge by the diagrams, the needle, fifteen centimeters in length, is as fine as that used by Corning in 1885. The point selected for the injection is the space between the last lumbar and the first sacral vertebræ. Cocaine has seemed to be the best agent for this generalized anesthesia. The higher up it is purposed to extend the area of anesthesia the greater—within the limits of safety—should be the amount of cocaine injected. So, too, with regard to the withdrawal of cerebrospinal fluid: less should be taken to anesthetize to the level of the umbilicus than when it is sought to extend the zone of insensibility to the thorax, upper extremities, or head. In accordance with this principle, the quantity withdrawn varies from 20 to 30 c.c. Moreover, the fact that the fluid issues from the needle freely, or dribbles forth drop by drop, has its influence. In the first event somewhat more is withdrawn than in the second.

After the injection of the anesthetic—and we come now to the distinctive characteristic of the method—the piston of the syringe is moved to and fro several times ("barbotage," from "barboter," to dabble), the apparent intent of this maneuver being to further a more complete diffusion of the anesthetic in an upward direction. This done, the patient is told to lie down, and is not allowed to raise his head during the operation or for a considerable time thereafter. Extraneous to the method, strictly speaking, is the injection of scopolamine, morphine, spartein, and strychnine some little time before the operation. Among the more conventional recommendations are silence in the operating room and bandaging the eyes of the patient.

It is noteworthy that before applying this method in human beings Fillistre instituted some interesting experiments. In the apparatus employed, a glass tube nearly filled with water was so arranged as to represent approximately the conditions surrounding the cord. By means of a syringe attached to the inferior end of the tube, and charged with a colored liquid, repeated movements of the piston caused the color to be quickly diffused throughout the column of water.

Subsequently, invoking the method in the human subject, Fillistre ascertained that cocaine alone could be made so to diffuse itself as to bring about a general analgesia of the whole body. Stovaine and novocaine, on the contrary, rarely produced a region of anesthesia extending beyond the umbilicus. Finally, increasing the size of the syringe augments the effectiveness of the "barbotage."

GASTRIC AND DUODENAL ULCER AND CHRONIC APPENDICITIS.

It has long been known that severe maladies on the border line of medicine and surgery are prone to appear in the digestive tract simultaneously. In many cases this sort of incidence makes diagnosis impossible in the absence of exploratory laparotomy. It is common enough in gastric and duodenal ulcers to find other lesions in the small and large intestines, including chronic appendicitis, and such associations must represent something more than coincidence. Dubard (*Journal de médecine et de chirurgie pratiques*, April 25) has recently analyzed a large number of operative cases from this viewpoint, with control by medical examination and the *x*-ray. He has one series of 145 gastroenterostomies. Of these, 44 were operated on in a temporary hospital, and, deducting 8 cases in which the lesion was pyloric cancer, there remain 36 for ulcer and retention of the pylorus. In no less than 12 of these 36, chronic appendicitis was associated, so that appendectomy was superadded to gastroenterostomy. The subjects were all men of military age—21 to 45. In civil practice the percentage of associated appendicitis is even higher.

In the other series of 101 gastroenterostomies, done in regular city hospitals, 40 were performed for ulcer at or near the pylorus, including duodenal ulcer; and among the cases were 18 of appendicitis, or 45 per cent. Of the balance, 48 interventions were for cancer of the stomach and the balance for affections of the gall bladder. (The author makes a practice of adding gastroenterostomy to operations on the gall bladder and choledochus.)

What is the bond of unity between chronic appendicitis and pyloric (juxtapyloric) ulcer? For sixteen years the author has studied this question. Is it some common cause like the tubercle bacillus? In his material there was evidence of past tuberculosis universally present, but the lesions could hardly have been bacillary. The men had either overcome the early tuberculous infection or rendered it latent. In nearly every case there was sensitiveness to pressure over the pneumogastric nerve, either on one or both sides, suggesting the tenderness of the sciatic nerve in sciatica. The diagnosis of past tuberculosis was based on careful examina-

tion by internist and radiographer. There was a correspondence between the sensitive nerves and the formerly diseased apices. The pressure test on the former was naturally made at the side of the neck; and the degree of sensitiveness was often exquisite. The author employs the test in general routine, and in dyspepsia, in the wide sense of the term, has found it present in 8 per cent. This induced sign means for its discoverer a neuritis of the vagus dependent on the tuberculous lesion, and having as a consequence an increased susceptibility to lesions and disorders in the abdominal distribution of the nerve. The changes which make possible the supervention of pyloric ulcer are essentially trophic. The anthor's theory of a neuritis of the vagus was upheld in the only histological case available.

If the author's view is correct, we have an easy explanation of the persistence of symptoms after appendectomy and gastroenterostomy. The sufferings of the patient being the result of the vagus neuritis, operation does not touch them. Polyalgias are a necessary consequence of the neuritis.

THE DIAGNOSTIC VALUE OF PAIN IN ABDOMINAL DISORDERS.

When one is in the presence of a true duodenal ulcer the gastric symptoms are so attenuated that the practitioner may be led to suspect a chronic appendicitis or cholelithiasis, rather than the real nature of the lesion. In numerous writings, Paterson has attempted to differentiate clinically between duodenal ulcer and chronic appendicitis, but he does not limit himself to typical duodenal ulcer. However, by a detailed analysis of the various symptoms of ulcers and appendicitis the clinical differentiation between the two processes can usually be made.

In chronic appendicitis, as in duodenal ulcer, the pain may be felt in recurring paroxysms. In certain forms the predominating digestive disturbances consist of epigastric pain, occasionally with periodical exacerbations, acid eructations, and an increase in the acidity of the gastric juice, so that the diagnosis may well be difficult. In order to arrive at a correct conclusion an entire group of symptoms should be present, although any one of them may be wanting, but each one which exists gives more value to the general conformity of the diagnosis. In point of fact, there is not a single diagnostic sign which may not be misleading.

In the first place, the provoked right-sided pain in appendicitis should be deep-seated, and constant over McBurney's, Morris' or Lanz's points, persisting in the form of lameness after cessation of pressure, and set up by deep pressure made on the left side of the abdomen, which causes dilatation of the cecum by forcing the intestinal gas into it. Spontaneous pain has no absolute diagnostic value, while irradiations of both spontaneous and provoked pain are occasionally so acute that they may lead to an erroneous conclusion as to their starting point. Thus the irradiated pain in the epigastrium, very frequent in the gastric forms of chronic appendicitis, may lead to the suspicion of a gastric or duodenal ulcer, but in this case, if a finger presses upon McBurney's point while with the other hand the examiner searches for sensitiveness in other areas, the principal site of provoked pain can usually be detected.

The difficulty of localizing pain in the right umbilico-iliac area is well shown in a paper by Loeper and Esmonnet (*Bulletin médical*, May 28, 1910), who divided the abdomen into a series of areas of sensitiveness corresponding to various sympathetic chains. The principal points are the epigastric; the upper mesenteric, which corresponds to Morris' point, and represents the small intestine and the right half of the colon; the lower mesenteric point, three centimeters from the midline and three centimeters below the umbilicus; the solar plexus area, corresponding to the umbilicus and periumbilical area; and lastly, the aortic point, situated between the mesenteric points and promontory. In relation to the deep-seated viscera, these points reveal pain the causes of which are most varied, while their multiplicity on the right side of the abdomen indicates the delicacy of a diagnosis based on pain in this region.

On the other hand, we have the duodenal and appendicular zones of Head, but unfortunately all these cutaneous areas, from the diagnostic viewpoint of duodenal ulcer and chronic appendicitis, offer no serious data on which to rely. While these areas of cutaneous hyperesthesia may not exist in either process under consideration they may be present in certain individuals possessing a hypersensitive nervous system but with absolutely normal abdominal viscera. The impossibility of utilizing Head's points is all the more unfortunate because the diagnostic difficulty is increased in cases of gastroduodenal ptosis. In these cases a pyloric or duodenal pain may easily be attributed to the appendix.

It is evident that an intestinal hemorrhage will fix the diagnosis in favor of duodenal ulcer, but this symptom is frequently wanting. Therefore, occult hemorrhage must be sought for by either Weber's or Meyer's technique, and although their positive reaction confirms the presence of an ulcer, a negative result does not invalidate it. A duodenal ulcer does not bleed constantly, and for this reason the stools should be examined for blood on several successive days.

Finally, radiography, after a bismuth meal, will complete the diagnosis, particularly when, as is usually the case, adhesions exist between the first portion of the duodenum and the liver.

Who Was the Original of Balzac's Country Doctor?

It is said that the great French novelist wrote "Le Médecin de Campagne" in three days and three nights and then took three months to revise the

proofs. The general impression is that the character of Benassis was a mixture of several prototypes. Recently this subject has been agitated anew by Faure, a French litterateur. According to *Le Progrès Médical* of July 13, a letter is in existence—when it came to light is not stated—addressed to the novelist's sister in which it is stated unequivocally that the original of the country doctor was a pupil of the famous Frank, whom he had once consulted for palpitation and suffocative sensations. It is not likely, however, that a man of Balzac's genius followed this prototype slavishly. He was in touch up to the time when this novel was composed with a number of prominent medical men and probably borrowed from more than one of them. Among them was a Dr. Amable Rome and M. Faure regards the latter as the logical prototype for the character of the fictitious doctor. The evidence is wholly internal—the life and activities of Rome showed a decided parallelism with those of Dr. Benassis in the story. Balzac was doubtless well acquainted with the facts of Rome's life. The latter was born in 1781 and was graduated at Paris as a physician in 1808. He settled in Bezançon where at once he began his efforts in behalf of the cretins in that community. Benassis did the same thing in fiction. Later their careers became widely dissimilar, but there are still to be seen some striking parallels. The mode of death and the general mourning of the deceased were in accord, but the simple inscription on the tomb was pure fiction.

Effort Phlebitis.

The subjects of sterile thrombosis and thrombophlebitis have been regarded with more or less scepticism in the past, especially when the notion of phlebitis is added to thrombosis. So-called effort phlebitis, however, was first reported in 1884. A second case did not appear in the literature until 1910, but in 1913 a research by Pellot assembled 11 cases. Murard (*Progrès Médical*, May 25) has found two additional cases and has added one personal case, a grand total of fourteen. This lesion has thus far occurred in one of the upper extremities. The author's observation lacked a blood examination and hence has only limited value. The effort in the case was represented by hard labor for two conservative days and nights, the patient being an electrical engineer in the artillery. The right arm was chiefly used, and after the effort began to swell. The superficial veins were in a varicose state, and the arm was quite powerless. Recovery did not occur until after six or seven weeks and was apparently not complete when the patient was discharged. Lenormant, who wrote on effort phlebitis in 1912, suggests that the thrombosis begins in the small veins as a result of mechanical laceration. In these cases the most careful study fails to show any implication of the general health beyond the natural fatigue due to the extreme effort.

A Fine Tonic.

℞ Pecuniæ $1,000
Amoris in patriam q.l.
M. et div. in Syngraphas Libertatis No. 20.
Sig.: One as required, but all within the week.

News of the Week.

Cholera in Vienna and Berlin.—Despatches to the Associated Press announce that cholera has been discovered in Vienna and that a number of deaths have resulted. Berlin is also reported to be considerably alarmed over the appearance of cholera. Six deaths are said to have occurred from this disease in the central part of that city.

Influenza Becomes More Widespread.—Reports received by the United States Public Health Service show that on October 3 Spanish influenza had appeared in every State of the Union except five. The situation in the District of Columbia was so acute that Washington has been declared a sanitary zone by the Public Health Service. Upon recommendations from that organization all schools and places of amusement have been closed. The same drastic measures to prevent the spread of the disease have been taken in Philadelphia and many other cities throughout the country. In Chicago the Health Commissioner and the Chief of Police issued orders to every member of the police department directing the arrest of all violators of the spitting ordinance and also of every person found coughing or sneezing without using a handkerchief. The epidemic appears to be on the wane in Boston, but the manufacturing cities in the vicinity are showing an increase in the number of cases of influenza reported. The number of cases reported to the New York Health Department during the week has been fairly large, 2,930 new cases with 212 cases of pneumonia having been reported for the twenty-four hours ending at noon on October 9. The disease has spread throughout the State and at the request of Dr. Hermann M. Biggs, State Health Commissioner, Governor Whitman has placed $50,000 at the disposal of the State Health Department, which will be used in supplying doctors and nurses where they are most needed. In order to lessen the spread of the disease in so far as is possible Health Commissioner Copeland of New York City, after a conference with the heads of his department and representatives of the Chamber of Commerce, the Merchants' Association, and a large number of other organizations, issued a schedule indicating different opening and closing hours for various industries, stores, offices, and factories in order to lessen the congestion of traffic during the rush hours. Smith College has been closed because of the epidemic and the University of Vermont has received permission from the War Department to defer the opening of the college until such time as the epidemic subsides.

Dr. Nathaniel Bowditch Potter has resigned his position as professor of clinical medicine at the College of Physicians and Surgeons (Columbia University), New York City. The resignation is to take effect from June 30, 1918.

Railway Car Toilets.—The Merchants' Association of New York addressed a letter to Hon. William G. McAdoo, Director General of the United States Railroad Administration, asking for the abandonment of the unsanitary practice of discharging the contents of toilets from trains upon the roadbeds of the railways of this country. This reform has been under discussion at various times, but on account of the difficulties of interstate manage-

ment and health regulations no definite progress has been made to protect the public health from this particular danger. Federal control of the railroads has made possible the adoption of a general plan in this direction, and it is to be hoped the advocacy of the reform by so powerful an organization will insure its adoption.

School Lunches Approved.—The Board of Education of New York City has approved the plan to provide luncheons in the public schools. The letter making this announcement states that "Physical health of children is most essential for their complete mental and moral development. The custom of providing them with luncheons at the schools will further very materially so desired an end."

Tuberculosis Survey in Rochester.—The local tuberculosis committee of Rochester is making a survey of that city for the purpose of locating tuberculosis cases and assisting in securing their proper care, and especially for performing such service for discharged soldiers and men rejected on draft examination. It is the present intention of the tuberculosis committee to employ a sufficient number of nurses in addition to the three now on duty, to supply the needs as demonstrated by this survey.

Niagara County Tuberculosis Hospital.—The common council of the city of Niagara Falls has let contracts for the erection of a new brick fireproof administration building for the Niagara Falls Municipal Hospital at a cost of $24,500. It is planned that this building shall be the initial unit of a modern, well equipped hospital.

Venereal Disease Regulations in New York State.—The September *Bulletin* of the New York State Health Department announces that it is incumbent upon each health district, according to Section 343-a, Chapter 264, of the Public Health Law to draw up rules and regulations for the treatment, care, and detention of persons infected with any of the venereal diseases. The State Commissioner of Health is at present preparing a list of suggestions intended to be of service in fulfilling this law. These suggestions will be submitted to the presidents of the various boards of health. Each board of health is requested to frame rules and regulations and submit them for the approval of the Health Commissioner immediately. Niagara Falls has already submitted for approval such rules and regulations. The Bureau of Venereal Diseases of the State Department of Health is cooperating with the Law Enforcement League in the apprehension of venereally infected persons throughout the State who have been a source of infection to drafted men reporting at the various camps. Complaints received by the league are forwarded to the health officer of the district where the exposure is said to have occurred. Specimens for laboratory examination are secured from these persons and submitted to the laboratory of the State Department of Health or to a laboratory approved by the State Health Commissioner. Those persons found infected must immediately be quarantined and treated and later a charge of felony may be preferred against them. The Bureau of Venereal Diseases is preparing a number of pamphlets for public distribution. One of these publications has just come from the press and will be sent to those who request it. Quantities may be secured by committees or organizations who wish them for distribution.

Public Health Nurses Appointed.—Appropriations have been secured for the appointment of public health nurses in the following places: Syracuse, Ilion, Olean, Rensellaer, Dunkirk, Ogdensburg, Tuckahoe, Herkimer, Endicott, Gloversville, Kingston, Hudson, Norwich, Cohoes, Carthage, Greene, Ticonderoga, and the Dutchess County Health Association.

Dr. Ross McPherson of New York City has removed his office to 125 East Thirty-Ninth Street.

Dr. James Murphy has been appointed Health Officer of Anne Arundel County, Maryland.

Opportunity for Clinical Assistant.—The West Side Dispensary and Hospital, New York, announces that there is a vacancy for a clinical assistant in the Urological Clinic. Experience is desirable but not necessary. Further information may be obtained by communicating with Dr. A. L. Wolbarst, 328 West Forty-second Street.

The Ninth Annual Clinical Congress of the American College of Surgeons will meet in this city on October 21-26, under the presidency of Dr. William J. Mayo. The morning and afternoon of each day will be devoted to work in the clinics. On Monday evening the presidential meeting will be held, addresses being given by a number of civil and military surgeons of Europe and the United States, by the chairman of the Committee of Arrangements, Dr. J. Bently Squier, by the retiring president, Dr. John J. Clark of Philadelphia, and by the new president, Dr. William J. Mayo. Tuesday, Wednesday, and Thursday evenings will be devoted to symposia on war surgery, papers being read by many foreign and American military surgeons. On Friday evening will be held the convocation of the College of Surgeons, at which an address on Hospital Standardization will be delivered by John G. Bowman, the president of the college. Dr. William J. Mayo will also deliver the presidential address.

The New York and New England Association of Railway Surgeons will hold its twenty-eighth annual session at the Hotel McAlpin, New York City, on October 21, 1918. An interesting program is offered. Dr. George Chaffee of Little Meadows, Pa., is secretary.

The American Association of Clinical Research will hold its tenth annual meeting at the Hotel McAlpin, New York City, on October 19. A program comprising twenty-two numbers and covering a wide variety of topics has been prepared. The secretary is Dr. James Krauss, 419 Boylston Street, Boston, Mass.

The Tenth Counsellor District of the Arkansas Medical Society, which met at Fort Smith on September 17, elected the following officers: *President*, J. M. Taylor of Forth Smith; *Vice-President*, Dr. H. D. Wood of Fayetteville; *Secretary and Treasurer*, Dr. O. M. Bourland of Van Buren.

Health Instructions Distributed Through Draft Boards.—The United States Public Health Service has issued a circular entitled "Information for Guidance and Assistance of Registrants Disqualified for Active Military Service Because of Physical Defects." This is a four-page leaflet containing

specific information relating to the commoner causes of rejection or deferred classification and makes a strong appeal to those who have been disqualified to have their disabilities corrected as far as possible. The object of this measure is not only to reclaim men for military service but to lessen the burden of illness and disability among those engaged in essential industrial work. It is hoped that this circular will reach far beyond draft boards and be utilized by all agencies interested in improving the public health to instruct the people with regard to their physical deficiencies and the ways and means by which they can be remedied. Over a million copies of the leaflet have been sent out to draft boards for distribution. Specimen copies may be obtained from the United States Public Health Service, Washington, D. C.

Medical Research Laboratory and Clinic at Santa Barbara.—A new building which is to house the "Metabolic Laboratory and Clinic for the Study and Treatment of Nephritis, Gout, and Diabetes" is in process of construction as a part of the Cottage Hospital at Santa Barbara, Cal. The laboratory is the gift of George Owen Knapp and other philanthropic citizens of Santa Barbara and will be one of the most complete plants of its kind in the country. Dr. Nathaniel Bowditch Potter of the Carnegie Institution is the director of the laboratory.

Obituary Notes.—Dr. IRVING HARRY KAUFMAN, a graduate of the University and Bellevue Hospital Medical College, in 1918, died of pneumonia at his home in Brooklyn on October 1.

Dr. MAX MAURICE FLADDEN, a graduate of the University and Bellevue Hospital Medical College, in 1909, died at his home in New York City on September 30.

Dr. EDWARD J. WARE of New York, a graduate of Physicians and Surgeons, in 1885, and a member of the New York Academy of Medicine, died suddenly at his home, on September 29, aged 60 years.

Dr. DAVID L. HAIGHT of New York died, after a brief illness, at the Rockaway Country Club, Cedarhurst, L. I., on September 30, aged 81 years. He was graduated from Yale University in 1860, served as a member of the Sanitary Commission in 1862, and was assistant surgeon at the Douglas Hospital, Washington, D. C., during the remainder of the Civil War.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE THERAPEUTICS OF RESPIRATION—COLD STORAGE —THE AMERICAN RED CROSS IN ENGLAND— STRIKES —DEATH OF PROFESSOR ROBERT SAUNDBY.

LONDON, September 12, 1918.

THE inter-association from a scientific and medical point of view of activities which on their face do not appear to have much in common is well illustrated in the report of the recent Committee of the Privy Council for Scientific and Industrial Research. This committee has considered during the past year recommendations in respect of aid to twenty-one scientific investigations of industrial importance conducted by other bodies, and has appointed in the course of its activities a committee to undertake research into Mine Rescue Apparatus. The Home Office is the State department having control of the inspection of mining industries. The Ministry of Munitions and the authorities of the Royal Air Force were soon seen to be equally interested in the mine rescue apparatus, it having become evident in the course of a long series of respiration experiments that a man's respiratory behavior, when oxygen is administered during manual work, is dependent on his physical condition. Dr. Henry Briggs, who in civil life is at the head of the Mining Department of the Heriot-Watt Technical College at Edinburgh, has devised a method of measuring physical fitness and stamina which was tested during the first half of the present year on a large number of soldiers and miners. The method as devised by Dr. Briggs bore on the selection of men for mine rescue teams, but has since been found to have a new value at the present time by affording a means of ascertaining a man's fitness for the army. The first physical station on Dr. Briggs's system is now being equipped by the War Office in Edinburgh, where it will be run by a military staff attached to the Scottish Command. Thus we see that the work of various civil departments, having totally different objects, is found, through medicine, to have an intimate bearing on the great problem of the moment—the economical use of man-power for military service.

More than a year ago it was represented to the same committee of the Privy Council for Scientific and Industrial Research that a systematic investigation by the Government on all the problems of cold storage should be undertaken with a view to the preservation of food now lost by decay before it can be brought to market. The committee decided to outline a definite method of attacking the problems in question, giving an estimate of the probable cost of the recommended proceedings, when the Board of Agriculture and Fisheries, the Fishery Board for Scotland, the Board of Agriculture for Scotland, the Ministry of Food, and the Food Production Department were all found to be willing assistants. Committees were appointed to carry on experiments on the freezing of fish, to investigate the process of putrefaction, the chemistry of post-mortem change in flesh, and the processes underlying preservation of beef by cold. Similar investigations have been organized in the physiology of fruit and vegetables at low temperatures and into certain diseases which destroy fruit at once. It is certain that the organization of a group of researches of this kind, undertaken with the assistance of an advisory board of distinguished men of science and affairs, will bring about great results, and one of the greatest will be the breaking down of the artificial barriers existing between specialists in one direction and specialists in another. Given common difficulties to attack, the doctor, the physiologist, the physicist and the chemist soon find that however differentiated their techniques their fundamental knowledge is generally common and their plans of campaign capable of united direction. The partial failure of the British fruit crop has been made good over and over again by a colossal harvest,

but none the less dieticians are viewing with regret a probable shortage of apples for winter storing and of plums and other fruits for preserving as jams or by bottling. Medical men have a direct interest in learning what are the possibilities of fruit and vegetable storage, as it is to the doctor that the public looks in dietetic difficulties.

A report of the work of the American Red Cross in Great Britain has just been issued by the Executive Committee, and testifies to the wonderful all-round energy of the organization. Canteens have been opened at ports of arrival at which thousands of men can be served almost without waiting, and similar canteens have been set up along the ordinary routes of travel between the British ports and the point of departure for France. At a large western port and a well known northern port hospitals have been constructed, while an Irish naval base now boasts a large convalescent camp for Americans. In the metropolis the American Red Cross occupies a huge building in the central neighborhood of Hanover Square, and from here the Distributing Service is dealing with an untold number of different requisites—the report shows that on an average over a million articles are handled each month. The Home Communication Service is now housed in Grosvenor Gardens, the splendid mansions overlooking the grounds of Buckingham Palace. A great Red Cross Hospital is also rapidly approaching completion in the Southampton district; this hospital will already shelter upward of 1,000 patients, but its hut accommodation is being extended, and by the beginning of November at least double this number of beds will be available. Difficulties of labor supply do not seem to impede our Western Allies.

It is an open secret to all the world that social life in England has recently been much embarrassed by strikes; it is with deliberation that nothing is said about the effect that industrial unrest may have in affecting our relations with our allies for the conduct of the war. No doubt the occurrence of numerous strikes is a medical symptom of war-strain. This does not imply that none of the strikers have or have had reason on their side, nor does it imply that the authorities have always been free from provocation or judicious in their attitude, but both the governed and the governing classes undoubtedly have frayed nerves through whose pathological working misunderstandings are quickly elevated into disputes and disputes into strikes. It is not often that a strike actually affects the working of the medical profession or the conduct of its duties towards the public, though examples have occurred, notably in Ireland, and in certain industrial centers in England, where the refusal of medical men to accept certain terms and conditions has for a season limited the local medical service. Recently, however, there has been a strike in a lunatic asylum which, in itself, might have had grave consequences and which, if the movement had spread, might have led to serious tragedy. The subordinate personnel of a lunatic asylum in an English county went on strike without warning, leaving the establishment to be conducted as best it could by two doctors and one or two nurses. Those who remained by the ship manned her efficiently, but no one who is acquainted with the medical and administrative working of a lunatic asylum can fail to be aware that whatever they did they must have been compelled to leave much undone that required doing, while their personal responsibility, not to say risk, was such that it cannot be easily contemplated. No particular lesson can be drawn from this strike with regard to the action of the authorities or of the subordinates; the facts will undergo full inquiry and have not as yet been made public in detail. But the mere occurrence points to a frame of mind on one or both sides which must be guarded against in these days of stress, mental anxiety, and material embarrassment. That 120 attendants and a rather larger number of nurses should have suddenly deserted the charge of 2,500 insane patients, some falling under the category of violent, and many, of course, entirely helpless, denotes, to say the least of it, a disregard of responsible humanity which could not have occurred in normal times. It is to be hoped, therefore, that all the attendant circumstances will be thoroughly probed so that the reasons for the situation may become apparent, and a pattern of conduct laid down for the staffs of similar institutions, whereby, while legitimate grievances are redressed, the most miserable victims of pathology are neither seriously jeopardized nor allowed to seriously jeopardize their more fortunate fellows. There is a well-known French comic story describing an émeute in an asylum where the insane inmates rose, overpowered the nurses and attendants, deposed them to the position of patients, assumed the reins of government, and conducted the institution, as far as we remember, with propriety. As a story the situation is droll enough. In real life there is not much in it to provoke laughter.

The death is announced of Professor Robert Saundby, a well known consultant physician, who was for many years professor of medicine in the University of Birmingham. Professor Saundby was a prominent figure on the General Medical Council, and the author of a popular book on medical ethics.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

CONGRESS OF WOMEN WAR WORKERS IN PARIS—SOME FRENCH MINERAL SPRINGS—THE PIANO TRAIN—EXHIBITION OF CHILD WELFARE WORK—RED CROSS ACTIVITIES—ANTI-ALCOHOLIC PROPERTIES OF CYANIMIDE.

PARIS, August 27, 1918.

THE day and hour of the women have come; the war brought them their opportunity and they have shown themselves equal to and worthy of every trust. The great mass meeting of the women war workers of the allied nations has just been held in Paris with representative bodies from America, Great Britain, France, and Belgium. The Y. W. C. A. conference was held at the Hotel Petrograd, where Miss Harriet Taylor of New York, a member of the National Board of the Y. W. C. A., made the opening speech. Miss Caroline Dow, who is at the head of the training school, followed with a short talk, and Mrs. Emerick of California, who is returning to America to speak throughout the country for the Y. W. C. A. drive, also made a few remarks.

The women of the Y. M. C. A. held their conference at the residence of Mrs. Theodore Roosevelt, 39, Rue de Villejust. The American Fund for French Wounded called its members together at the Alcazar, in the Avenue des Champs Elysées. The Red Cross workers met at 4, Place de la Concorde. The English deputation held its meeting at the Lyceum Club, while the French organizations held conferences wherever their work took them. The banquet given at the Hotel Palais d'Orsay in the evening was the great feature of the day. Five hundred women war workers of all nations of the Allies sat down to dinner. Mrs. Robert Woods Bliss presided and spoke in French. Comtesse Hélène Goblet d'Alviella then spoke for Belgium, followed by Mrs. Alfred Lyttleton for England, Miss Maxwell for America, and Mme. Emile Boutroux for France. The band of the Garde Républicaine played throughout the dinner and rendered the national anthem as each of the women spoke for the Allies. The wife of the President of the French Republic held an evening reception for them at the Elysées Palace.

Professor Hayem, whose work upon diseases of the stomach is known worldwide, recently presented before the Academy of Medicine a study upon the action of saline waters in the treatment of dyspepsia. After having described the physiological action of five types of water, representing as their chief components bicarbonate of sodium, sulphate of sodium, chloride of sodium, and chloride of magnesium, and taking as representative types the waters of Vichy, Chatel-Guyon, and Santenay, he entered into their application. In a case of hypersecretion, with dilatation of the stomach and motor insufficiency, he employs the water of Chatel-Guyon, which contains per litre 50 gm. of chloride of sodium and magnesium and 2 gm. of bicarbonate of sodium. He prescribes two glasses of this water before breakfast with one-half hour between, continuing the cure from 25 to 30 days. When the stomach trouble is spasmodic with constipation he adds to the water from 3 to 5 gm. of sulphate of sodium. He has found these saline waters render a great service in many types of dyspepsia. Bourget of Lausanne made them the basis of his treatment which became famous the world over.

One of the duties of the American medical profession at the close of this war will be to aid in turning the trend of travel from the German springs to those of France. I have long had in view a paper to be devoted to a study and description of the famous springs of France and hope to prepare it before long.

At the same meeting Dr. Courtois-Suffit read a report upon delayed and relapsing hemorrhage following wounds of the lung in 34 cases. One case exhibited a hemorrhage 30 months after the wound and was discharged from the army as tuberculous, but later examination disclosed no general symptoms nor were any evidences shown by the *x*-ray, and the sputum contained no bacilli. The report was considered of great interest from a medicolegal standpoint that the delayed hemorrhage and relapsing cases were likely to be wrongfully discharged from military service, as the case cited was distinctly a type of compensatory hemorrhage.

It was a Frenchman, an engine-driver on the Chemin de Fer de l'Est, who gave me the first news of this; and in my innermost heart I cannot wonder at his emotions. "Ecoutez, m'sieur. Without doubt all your Americans are mad; but up by the Verdun sector there are Americans madder than all the rest. Believe me or not, they conduct trains by music." Then he went off into a long harangue about it all, little of what he said being intelligible. As it happened, though, my course bore toward the Verdun sector, and there I had light upon the mystery.

"Là," said a peasant, giving me a direction when I inquired regarding the presence of certain Americans in the district; and his direction pointed to a stretch of standard-gauge track laid with eighty-pound rails of American origin. Presently there hove into view a huge consolidation engine; a "road hog" of the familiar American type. From trucks to tank it was as Yankee as a doughnut, and, what is more, from the cab window leaned forth a figure in jean jumpers that looked as if it had just stepped out of a yard-hutch. By way of greeting the figure gave me a yell and a wave of the hand. The yell was the rebel yell, while the wave of the hand was a veritable "high ball," a signal such as no French trainman ever threw. The light began to dawn then. This was the railroad I'd heard about—one operated by a regiment of United States troops. I went upon that road. I traveled from one end to the other of its hundred miles of trackage; and many things I saw and heard that may not be told of here, for that is military information not to be divulged, but in the course of time I solved the mystery of the piano, and that I may lay clear.

It was a summer's day, sunny and quiet, and it was Sunday. The track, sweeping round the flank of a little hill, entered a heavy cut and was hidden from the view. With four soldiers, all four trainmen of the C., B. & Q., I squatted in the shade of the old French railroad station, or what was left of it since the Boche had dumped his last shells into the place. Then from down the hidden track came the clicketty-click of wheel flanges rolling on the points of the cross-over switches.

The ex-C., B. & Q. trainhand I was talking with said, "Here comes the gas car from H. Q.," and he was going on with his tale when I heard a voice lift itself in song. With the song came the tinkling of a piano. I sat up and took notice.

"Mine eyes have seen the glory of the coming of the Lord:
He is trampling out the vintage where the grapes of wrath are stored;
He hath loosed the fateful lightning of his terrible swift sword:
His truth is marching on."

The piano crashed and other voices broke in with the refrain, fresh, buoyant, youthful voices. Then out of that railroad cut rolled the band of choristers, and such a choir I have never seen before. There came first a gasoline car, such a car as is used by railroad superintendents in the States to inspect the trackage under their care. There were four seats in the car, and the four seats were crowded with the soldiers, all of them singing joyously. Behind the car came a flat, steel-bodied trailer, the kind a contractor uses on railroad work for hauling dirt away from the steam shovels. In the trailer was the piano and seated at the piano was a soldier thumping away at the keys. Other soldiers were

grouped about him, and standing by the instrument was a middle aged man with the brassard of the Y. M. C. A. on his sleeve. Well, I had my mystery explained to me now. This was a soldier's Y. M. C. A. outfit making its regular round up and down the road.

The Red Triangle man told me all about it: "The way it goes, this outfit can't all get to the Y. M. C. A. hut at headquarters, so we go to them. Some of the boys are in places close up to the German lines, and we go to them too. Of course, we have to keep off far enough so that the Huns won't hear us, because if they did we'd have them heaving shells around our ears. But it's great the way the boys take to it. They all turn out when the piano in the trailer comes along." He was right in saying the boys "took to it great." The places they live in have been banged and battered about by the German shells till nothing but ruins remain; and in many places, on account of the shelling, the men in charge of the line have to live in dugouts. In spite of this they manage to operate the road, hanging on through thick and thin. So, indeed, the coming of what they call the "piano train" is a great event. In addition to the piano, the Red Triangle man often takes a moving picture machine on the trailer, and gives the boys a show. Occasionally, too, he has some wandering visitor of prominence to make the boys a talk. One Sunday recently, for example, Judge Tod B. Galloway of Columbus, Ohio, author of the "Gypsy Trail," went out on the car and entertained the boys. It was a quiet day at the front and the judge did not get his head knocked off by a shell. However, there is always a chance of something happening; and one doesn't wonder at the Frenchman's emotion.

Mr. Homer Folks, Director of the Department of Civil Affairs of the American Red Cross in France, has opened an exposition of child welfare work at St. Etienne. In his opening remarks, Mr. Folks said a hundred thousand Americans, through the American Red Cross, presented their greetings to the people of St. Etienne, extended to them their most sincere sympathy, and thanked them for the privilege of being permitted to aid in diminishing the hardships which four years of war had brought upon the children. This Exposition, joint enterprise of the French Government, expressing the national interest in every child of the National League Against Infant Mortality, expressing the philanthropic and volunteered concern for the child welfare of the local authorities and the private agencies at St. Etienne, in children, precious not simply in their irresistible appeal to the emotions, but precious in a more rationalistic sense, in that these young citizens are those who will remake the civilized world when the war is over, carry its burden on their shoulders, and carry out the new policies that must put an end to war. If the lot of this generation has been a hard one—and none has ever been harder—theirs, also, will be extremely difficult. These will need clearness of vision, firmness of purpose, unbounded faith in themselves and their fellows, and unquenchable devotion to the ideals of human betterment. Perhaps it is because we in America recognize how much we owe to France for our social and democratic ideals that we wish to help in every possible way in conserving the childhood of France. We know that France is the home of ideals, the cradle of liberty, always looking to the future, always building a more democratic nation, and therefore, we rely to such an extent upon the part which she must take in the reconstruction of the civilized world after the war.

The exposition if it serves its purpose will accomplish two objects: First, it will attract the attention of everybody to the needs of children and create a general conviction that it is a very easy and simple thing to do, a great deal better for the children than has been done before. Second, it will have set on foot a coordination and rounding out of agencies, public and private, for the care and protection of childhood, addressing themselves seriously and in a comprehensive way to the development of this side of community life as its industrial side has already been developed.

Yesterday the American Red Cross sent seven tons of surgical dressings and five tons of special diet food to the principal evacuation hospital of the American Army in the present offensive. The American Red Cross medical offices, storehouses, pharmacies, and all the services necessary to meet army medical emergencies, operate day and night during the offensive. For example, on Thursday night the chief of the medical section arrived in Paris from the front at 1 A.M. with a list of emergency supplies. He started back at 3.15, having assembled a load of emergency medical supplies containing 50 gallons of alcohol, 2,000 doses of tetanus antitoxin, many surgical instruments, several gross of surgical needles, and operating materials of all kinds. The American Red Cross has added during the present offensive an American Annex of 350 beds, with an American personnel to the American Red Cross hospital at St. Pol, and has enlarged a tent hospital just outside Paris to 300 beds. In addition to these activities the Americans open next Monday in Paris a hospital for skin diseases to be known as the American Red Cross Military Hospital No. 9. This hospital will have an Army personnel, but is equipped by the American Red Cross.

Dr. Langlois has drawn the attention of the French Academy of Medicine to the peculiar anti-alcoholic properties of cyanimide as observed in munition factories, where this important substance is prepared or used. Workers who handle cyanimide, he states, cannot drink even a simple glass of wine without being made seriously ill, the indisposition lasting 12 to 18 hours. On workless days they can drink wine without risk. This new malady is to be further investigated.

146, Avenue des Champs Elysées.

Franco-Spanish National Park in the Pyrenees.—The first steps have been taken toward the establishment of a park in the Pyrenees region which will lie astride of the boundary between France and Spain and be shared equally by both countries. The suggestion for this step appears to have come from the national parks in the United States, Australia, New Zealand and Tasmania, while some of the European countries now have forest reserves.—*La Presse Médicale.*

Progress of Medical Science.

The Boston Medical and Surgical Journal.

September 26, 1918.

1. Mortality from Organic Diseases of the Heart Among Wage Earners, 1911 to 1916. Louis I. Dublin.
2. Military Orthopedic Surgery: Its Scope and Aims. Sir Robert Jones.
3. "Birth Control." Mabel D. Ordway.
4. Hearing Test with Voice to Detect Malingering. Capt. John F. Callahan.
5. Treatment of Symptoms and Complications in Tuberculosis. Herbert F. Gammons.
6. Tetanus with Incomplete Trismus; Recovery with Serum. Robert W. Angevine.
7. Non-Surgical Care of Incompetence of the Ileo-Cecal Valve. John Bryant.

1. Mortality from Organic Diseases of the Heart Among Wage Earners, 1911 to 1916.—Louis L. Dublin points out tnat in the experience of the general population of the expanding registration area in recent years, organic heart disease has ranked first as a cause of death. From 1911 to 1916, inclusive, 75,345 deaths from this cause were recorded among policy-holders of the Metropolitan Life Insurance Company; that is, 11.9 per cent. of the 634,499 deaths from all causes. Though the disease is primarily one of advanced life, the toll is high at the younger adult ages. The death rate is higher among colored persons. It is higher for females than males up to the age period 20 to 24 years, after which the situation is reversed. Comparing the death rate for males in the expanding registration area with that for white insured males, it is found that with exception of the period of early childhood—one to four years—the death rates are much higher for the insured group than for the general population. This is also true in the case of females. The facts of mortality from organic diseases of the heart, as for tuberculosis, show with advancing age the cumulative effect upon the vitality of wage earners of more severe conditions of life and work, and perhaps less favorable hygienic conditions than are found in the general population of the United States. We also find the death rate during the age period from 25 to 45 years very much higher for males than for females in the wage earning element. In the general population, on the other hand, the rates are slightly higher for females. In the industrial department of the Metropolitan Life Insurance Company the rate for 1916 is lower than for 1911 (140.2 as compared with 141.8). In the general population on the other hand, the rate has increased from 140.9 in 1911 to 150.1 per 100,000 in 1916. This increase, however, is largely fictitious, resulting from increased reporting of organic diseases of the heart as cause of death, the inclusion of "endocarditis" and "myocarditis," which prior to 1900 were excluded from the statistics, and so on; and it is significant that in the case of insured wage earners, where such increase would have been expected to show, it is absent.

New York Medical Journal.

September 28, 1918.

1. Civilization and the Liberty Loan. George D. Stewart.
2. A Mecca of Medicine for the Future. Frederick Tilney.
3. The General Diagnostic Study by the Internist. Lewellys F. Barker.
4. Sex Hygiene. George W. Franklin.
5. Syphilis of the Stomach. Albert F. R. Andresen.
6. Intestinal Stasis. Julius W. Weinstein.
7. Congenital Dislocation of the Hip in Three Generations. Samuel A. Jahss.

3. The General Diagnostic Study by the Internist.—Lewellys F. Barker. (See MEDICAL RECORD, February 9, 1918, p. 259.)

5. Syphilis of the Stomach.—Albert F. R. Andresen points out that autopsies on 1,384 known cases of syphilis compiled from the literature revealed but five cases in which histological diagnoses of gastric syphilis were made, and that among 741 of these cases, although 14 had gastrointestinal symptoms, only one was shown to have a luetic lesion of the stomach. The percentage of patients with gastro-intestinal symptoms or lesions of various kinds found to have syphilis is reported as from three-tenths to two. Out of a total of 1,000 patients suffering from all kinds of gastrointestinal symptoms, Andresen found 70, or 7 per cent., had strongly positive Wassermann reactions; of these 70, 26 had demonstrable lesions of the gastrointestinal tract, but in only one case does he feel justified in giving a definite diagnosis of syphilis of the stomach. He calls attention to the fact that a syphilitic may develop an ulcer or a carcinoma as easily as any other individual, and, in the same way, an ulcer patient may acquire syphilis. It is therefore unwise to class gastric ulcer cases with positive Wassermanns as gastric syphilis. In considering the pathology of the disease, Warthin's statement must be borne in mind, that the "common pathology of syphilis is not the gumma, but is a mild chronic interstitial inflammation, leading to parenchymatous atrophy, degeneration and fibrosis." The demonstration of spirochetes by Warthin in these lesions in latent and supposedly cured cases of syphilis has been a surprise to syphilographers. Warthin considers the following changes as characteristic: (1) areas of lymphocyte and plasma cell infiltration; (2) fibroplastic proliferation, frequently of the myxomatous type; (3) vascular proliferations and obliterations. These changes result in localized or diffuse infiltrations of the stomach wall, producing ulcers with marked tendency to perforate, hourglass deformities or pyloric stenosis, or perigastric adhesions; or, in the case of diffuse infiltration, a cirrhosis of the stomach. Gummata occasionally occur. Symptoms of gastric syphilis are not characteristic. In general they depend upon the character and location of the lesion. Loss of weight is a constant symptom, together with more or less severe anemia. Diagnosis is difficulte. Although a strongly positive Wassermann demonstrates the presence of syphilis in some part of the body, it does not establish a diagnosis of gastric syphilis; and, on the other hand, spirochetes have been found in the tissues in cases where the Wassermann reaction was negative. An absolute diagnosis can only be made on the microscopical examination of tissue obtained at operation or necropsy, and even here syphilitic lesions cannot always be distinguished from those that are tuberculous. Nor does gastric analysis aid materially. Since diffuse infiltration of the gastric wall is probably the most usual lesion, achylia is the most common finding, but hyperacidity frequently occurs, especially in pyloric stenosis. positive Wassermann demonstrates the presence of lactic acid, lactic acid bacilli, and a positive Wolff-Junghaus test. In ulcerative cases blood is found in gastric contents and feces. The Roentgen ray indicates the size, location and general character of the lesion. In the therapeutic test it must be remembered that a case of carcinoma may derive temporary benefit from specific treatment. However, if a patient with definite gastric lesion previously resistant to usual treatment, and found to have a strongly positive Wassermann and other evidence of syphilis, improves definitely, with disappearance of lesion, etc., under antiluetic treatment, a diagnosis of syphilis of the stomach may be accepted. Treatment consists of the employment of salvarsan, mercury and the iodides. At first, particularly if salvarsan is given, there may be irritation of the gastric lesion, but as a rule maximum improvement is attained in from four to six weeks. Pyloric or hourglass lesions may clear up completely, but cicatricial stenosis often develops. Patients with perigastric adhesions may be improved, but not cured, while the cirrhotic type of stomach will naturally remain small. The ulcer or gumma cases respond best to treatment. Diet should be soft, soothing and concentrated, with frequent feedings. Dumulcents and alkalies with lavage may be indicated. Rest is important. All foci of infection should be eradicated. Operation should be performed only in the presence of complications, and should be palliative. Treatment results in permanent relief of symptoms in not more than 40 per cent. of cases.

Journal of the American Medical Association.

September 28, 1918.

1. Handling of the Venereal Problem in the United States Army in the Present Crisis. William Allen Pusey.
2. Neurosyphilis; Its Diagnosis and Economic Importance. John A. Fordyce.
3. Syphilis and Venereal Diseases as a Public Health Problem. H. G. Irvine.
4. The Question of Operation in Gunshot Abdominal Wounds. Joseph Rilus Eastman.

5. Hemorrhage Degeneration of Myomas and Their Relation to Sarcomas. Arthur E. Hertzler.
6. Parotitis Following Induced Abortion in a Case of Pernicious Vomiting in Pregnancy. W. P. Manton.
7. Clinical Supervision of the Well Baby During the First Year. H. H. Yerington.
8. The Principles of Treatment in Mercuric Chloride Poisoning, with Results of Treatment. H. B. Weiss.
9. The Pulse After a Marathon Race. Paul D. White.
10. A Filtrable Toxic Product of the Hemolytic Streptococcus. Admont H. Clark and Lloyd D. Felton.
11. The Treatment of Amebic Dysentery with Ipecac by Rectum. George B. Lawson.
12. A New Contact Test for Albumin in Urine. Ulmont P. Stewart.
13. The Prevailing Pandemic of Influenza. J. J. Keegan.
14. Influenza at a Navy Base Hospital in France. A. W. Hewlett and W. M. Alberty.
15. Laboratory as Aid in Contagious Disease Admissions in Cantonment Hospitals. A. B. Morrill.

1. Handling of the Venereal Problem in United States Army in the Present Crisis.—William Allen Pusey classifies the methods of attack on venereal diseases as (a) social measures to diminish sexual temptation; (b) education in regard to venereal diseases; (c) prophylactic measures against venereal diseases, and (d) medical care. Social measures may be divided into (1) the repression of prostitution and of the liquor traffic, which go together and are both important factors in the diffusion of venereal diseases, and (2) the provision of proper social surroundings and of opportunities for recreation and diversion. The control of the liquor traffic and of prostitution has called for cooperation between the federal and local authorities; inside cantonments and other Government reservations and within a zone of five miles around each cantonment the federal authorities are supreme, but in other places reliance has been placed in great measure on the local civil authorities, who have realized their responsibilities and made every effort to improve conditions. For the past few years the public interest in measures for the control of these diseases has been steadily growing. Clinics are being established and reorganized all over the country, hospitals are being provided, and from the Atlantic to the Pacific a systematic attack is being made on venereal diseases. Through the Commission on Training Camp Activities the Government is pursuing a policy which aims at creating a class spirit among the men through sports and diversions, much the same as that of a college community. Civil organizations, such as the Y. M. C. A., the Knights of Columbus and the Y. W. C. A., are doing an incalculable work for the soldier both in the cities and in the camps, and the civil population has taken its full share in this work. Among the soldiers the work of education in sexual matters is for the most part under the direction of the War Department Commission on Training Camp Activities and the Social Hygiene Section of the Surgeon-General's office. Instruction is given by lectures, by pamphlets, by exhibits and moving pictures. Information is also distributed to the individual soldier through his company commander, and company officers, both line and medical, give lectures to the men on sexual matters and the dangers of venereal diseases. Though everything is done to discourage prostitution, no attempt at segregation and regulation in the Continental sense has been made, as such measures have not been considered advantageous. As for the medical program, venereal prophylaxis is part of the duty of every regimental infirmary, and is seriously carried out. If a man contracts venereal disease he loses his pay during disability if he has had prophylaxis; if he has not had prophylaxis, however, he is courtmartialed and punished. The loss of pay and the fortnightly inspections are regarded by the Army authorities as important measures in the reduction of disease. The treatment of venereal diseases has been standardized as far as possible, and includes the hospitalization of acute cases. Laboratory facilities are provided in cantonments, and specialists serve as instructors of other medical officers. In addition to this, three schools have been established for the intensive training of men in this work. Pusey points out that the present policy of the United States Army is not new: it is one that has been developed by the medical department, and which resulted in a reduction of venereal diseases by 50 per cent. from 1911, when the rate was 164 per thousand, to 1913, when it had dropped to 86 per thousand. Mobilization on the Mexican border resulted in an increase of cases, and the rate in 1916 was 91.4. In September, 1917, with the second week of mobilization, the rate shot up to 367 per thousand. In the National Guard at that time the rate was 150, and in the Regular Army 80. (It should be remembered that the high rate for September, 1917, in the National Army includes all cases of venereal disease, old as well as new.) The contrast between the figures in the National Army and the National Guard is interesting, for it affords a comparison of the prevalence of venereal disease in the National Guard with its relatively lax discipline with that in civil life. From the time of mobilization the rate rapidly declined, and for the whole Army for the year 1917 it was only 88. Among the American forces in France, from November, 1917, to June, 1918, for only two weeks has the venereal rate reached 90, the figures from December 21 being 75, 57, 74, 58, 52, 55, 44 and 48.

4. The Question of Operation in Gunshot Abdominal Wounds.—Joseph Rilus Eastman. (See MEDICAL RECORD, August 10, 1918, p. 260.)

5. Hemorrhagic Degeneration of Myomas and Their Relation to Sarcomas.—Arthur E. Hertzler. (See MEDICAL RECORD, August 10, 1918, p. 262.)

6. Parotitis Following Induced Abortion in a Case of Pernicious Vomiting in Pregnancy.—W. P. Manton. (See MEDICAL RECORD, June 22, 1918, p. 1114.)

7. Clinical Supervision of the Well Baby During the First Year.—H. H. Yerington. (See MEDICAL RECORD, June 22, 1918, p. 1106.)

The Lancet.

August 24, 1918.

1. The Lumleian Lectures on Celiac Disease. Lecture III G. F. Still.
2. The Treatment of Wounds. Captains John T. Morrison J. N. J. Hartley, and E. F. Bashford.
3. Post-Diphtheritic Paralysis. Note on a Form Following Cutaneous Diphtheria. Major F. M. R. Walshe.
4. The Treatment of Staphylococcal Infections by Stannoxyl "Mixed Infection" of Pulmonary Tuberculosis. Captain Arthur Compton.
5. Blood Pressure Measurements: Uses and Limitations in Modern Medicine. Major Eugene S. Kilgore.
6. Five Cases of Rapid Decrease in Young Men. Major Adolphe Abrahams and N. F. Hallows.
7. A Case of Hypoadrenia Simulating Intestinal Obstruction. Major H. M. Rashbrook and F. W. Carter.
8. A Device for Prevention and Treatment of Adenoids Isabel Ormiston.

1. The Lumleian Lectures on Celiac Disease.—G. F. Still takes up in his third lecture the treatment of celiac disease. He commences his discussion by pointing out that until celiac disease has been traced to one specific cause, or the grouping called by this name has been shown to be divisible into specific entities, treatment must be more or less symptomatic and empirical. Drugs, while not entirely impotent in the treatment of celiac disease, have a very limited scope, and chief reliance is to be placed on scrupulous care in dieting. One of the outstanding features of the disease is failure of fat assimilation, and therefore the element in the food which requires most consideration is the fat. Moreover, the form of fat which seems most obnoxious to children suffering from this disease is the fat of cow's milk, and this is a point upon which the greatest emphasis should be laid, for the tendency is to put such a case upon milk, whereas nothing is more likely to retard recovery. Experience has shown that the best results are to be obtained by reducing the fats to a minimum. This may be done by replacing fresh milk by a dried milk containing only a small proportion of milk fat, or by asses' milk, which usually contains not more than 1 per cent. of fat. These children appear to have a special intolerance for the fat of cow's milk; they do excellently on human milk, which contains a larger proportion of fat, and are unable to tolerate cow's milk given in the form of whey in which the fat has been reduced to not more than 1 per cent. Fats derived from other sources are also badly tolerated, cod-liver oil, oil obtained from the soya bean, and even that present in the yolk of egg, all aggravate the symptoms, the intolerance manifesting itself by increased looseness and offensiveness of the stools. Starches are better tolerated than fats, but bread is particularly liable to aggravate symptoms. Sugar is allowable only in small quantity. "Nurso" and "Malac"

biscuits, "Ravenlenta" prepared from lentils, chicken or veal broth, and sweet jellies, rice boiled in water for three or four hours, and in some cases eggs may be given. Such a diet is definitely scorbutic, and as a rule fruit juices and green vegetables increase the looseness of bowels; sometimes grape-juice is tolerated. Dr. Gee mentions a child who did well on a quart of Dutch mussels daily, but relapsed when the mussel season was over, and next season could not be prevailed upon to take them. Marked success has been obtained in some cases by a "fat-free" diet consisting of rusks, Robb's biscuits, jellies, chicken and veal broth, rice boiled in water, ravenlenta, mashed potato, pounded chicken or fish, barley water or weak tea with sugar. In this the potato is an effective antiscorbutic. Contrary to what might have been expected, rickets is strikingly absent in cases of celiac disease; this is true also when fat has been eliminated from the diet. From the point of view of general nutrition it is desirable that fat should be absorbed if possible. There is evidence that it can be absorbed if injected into the subcutaneous tissues, a mode of administration obviously undesirable for children. Still has attempted to treat cases by inunction, but the results have been inconclusive. The administration of digestive extracts has likewise been tried, but without result. Calomel seems to aggravate the bowel symptoms. Most of the astringents, both vegetable and mineral, have proved useless; castor oil in small doses given three times daily usually brings about some improvement, and silver nitrate has been of use in certain cases. Chromo-santonin may prove of value, but further observations on its worth in celiac disease are required. Vaccines have been of only temporary advantage, and in some cases have produced no effect at all. In view of the arrest of growth in these cases, it has been thought that one or other of the internal secretions might be deficient. In three cases the author administered thyroid, but without improvement. In one case increase in height followed the use of polyglandin, but the child's power of assimilation had also improved so much that it cannot be said that growth was the result of the drug. It is, of course, conceivable that the general interference with nutrition caused by failure of fat absorption may affect the internal secretions and therefore the growth. Professor Still believes that with due care in dieting—remembering the intolerance for fat—it is possible to obtain marked improvement in these cases, and that a large proportion of them can be coaxed back to health and even to an average power of assimilation after many months or years of patient perseverance with a very restricted diet.

British Medical Journal.

August 17, 1918.

1. A Clinical Lecture on Ischemic Myositis. Sir James Purves Stewart, K.C.M.G., C.B.
2. Subacute Bacterial Endocarditis. Lieut. H. J. Starling.
3. An Attempt to Breed Tubercle-Immune Cattle. Lionel James Picton.
4. A Modification of the Stokes-Gritti Amputation. Major W. A. Chapple.
5. An Acid-fast Bacillus Obtained from a Pustular Eruption. Louis Cobbett.
6. The Influenzal Epidemic in General Practice. G. Holliday.
7. Collosol Manganese in Furunculosis. W. E. Levinson.

1. A Clinical Lecture on Ischemic Myositis.—Sir James Purves Stewart defines ischemic myositis as an affection of a muscle, or part of a muscle, resulting from local limitation of its blood supply. Its causation, in times of peace, is usually the too tight application of bandages or splints over a fractured forearm or elbow; in war it is obstruction of the main artery of the limb by ligature; or, in some cases, it may be due to spontaneous obstruction of the main artery from embolism or thrombosis. As to treatment, in ischemic myositis due to tight bandaging and splinting, usually limited to the flexors of the wrist and fingers, artificial lengthening of the flexor tendons at the wrist has been tried. The disadvantages of this operation are the extensive dissection required and the prolonged after-treatment of the wound. A simpler operation is one which shortens the bones of the forearm by excising an inch or more of both radius and ulna, so as to allow of the fingers being placed in a position of extension and even slightly hyperextended. The patient then has a shorter forearm but a more useful hand. The drawback to this procedure is the tendency to the formation of still more scar tissue by operating on an already sclerosed limb. It is therefore better to attack this class of case, as recommended by Sir Robert Jones, by means of careful and systematic stretching of shortened tissues. The wrist is first passively flexed by an assistant, allowing the fingers to extend. Small metal finger splints are fixed to each digit by adhesive strapping, leaving the pulps of finger tips exposed. Over these digital splints, either at the first sitting or a day or two later, is fixed a flat palmar splint, to keep the phalanges and metacarpals in line. At intervals of two or three days the wrist is gradually extended, a few degrees at a time, being fixed in its turn to a series of suitably angled splints, until wrist and hand are in a position of extreme dorsiflexion. The wasted finger pulps begin to fill up, and the power of voluntary dorsiflexion gradually reappears. Massage, hot douches and whirlpool baths aid in softening and stretching the affected muscles, and may be supplemented by local hypodermic injections of thiosinamine. A considerable degree of recovery can thus be obtained. In cases due to arterial obstruction, balneological measures, massage and passive movements may be of value, but if a muscle or group of muscles has been practically reduced to fibrous tissue, little can be expected in the way of recovery of voluntary motor power.

British Medical Journal.

August 24, 1918.

1. Education and Brain Development. A Psychological Problem. William Ainslie Hollis.
2. Restoration of Function After Penetrating Gunshot Wounds of the Knee Joint. Major John Everidge, with Note by Colonel A. Fullerton, C.M.G.
3. Suggestions for the Treatment of Septic Wounds. Frederick W. Robinson.
4. A Bed and Some Appliances for Gunshot Wounds. Major Maurice G. Pearson.
5. A Case of Septicemic Meningitis, with Recovery. Lieut. John Dunbar.
6. "Rabbit Gut." Victory Bonney.
7. A Case of Pyorrhea Alveolaris Treated by Emetine. George P. Bletchly.
8. Soft Paraffin as a Wound Dressing. Major Wm. Haig.
9. Acute Pneumonia with Displacement of the Heart to the Side of the Lesion. Reginald G. Hann.
10. Tetanus following Subcutaneous Injection of Gelatin. F. Parkes Weber.

3. Suggestions for the Treatment of Septic Wounds.—Captain Frederick W. Robinson analyzes 1,000 cases which came under his observation. All were in a more or less convalescent stage; 75 were neurasthenic, while 505 were the subjects of wounds, 249 suffering from disability owing to pain, limited movements and deformity. Disability was entirely due to scar defects, the scars being distinguished by their multiplicity and by the large number that were adherent, irregular, and infiltrated—the result of early infection of wounds and the impossibility of applying appropriate treatment at the early stage. The prevalence of intractable neuralgias Captain Robinson believes to be due in great measure to the large number of these adherent scars. As a result of his experience in the South African war, he has invented an instrument by means of which a wound may be elevated and immobilized. This instrument, which can be made on the smallest scale and adapted to the finest surgical needles, consists of two slender looped splints, a system of wormed needles with detachable points and nuts which travel on the needles. In this way the splints are made to approximate to each other and so compress the intervening tissues. An immobility is thus obtained quickly and easily, and is far more perfect than that obtained by splints. There is no traction on any part of the area included within the needles, and the edges of the wound are flaccid and tend to fall together. In the compressed area the circulation is controlled and easily regulated; it is more equable and protected from reflex vasomotor impressions. The physiological engorgement ensures a flooding of the basal areas with bactericidal serum and the infected interstices and lacunæ are reached. The base of the wound is rendered more superficial and more adaptable for any surgical toilet

that may be necessary, and the lymphatic spaces are opened out and easily reached. Where there are wound diverticula at the base the procedure is modified as follows: Small portions of tissue are pinched up and transfixed and retained by small splints; an encircling ligature is thrown round the wound, passing beneath the needles, and drawn tightly. The distance between the wound margin and the ligature must always be greater than the deepest part of the wound. During the progress of healing, the perfect immobility of the compressed area obtained by the use of this instrument gives the best possible condition for the building up of healthy scar tissue. Robinson points out that the avoidance of anything that tends to depreciate the vitality of the growing cells is of equal importance, and here the nature of the dressing must be considered. Any dressing that is to be applied to a granulating surface must be absorbent, absorbable, and perforated. Many years ago the author invented a dressing from cancellous tissue of bone which is both absorbent and absorbable. It fails, however, in freely secreting wounds, and does not provide sufficiently for drainage. He believes, however, that if modified, the matrix of bone tissue will ultimately form a basis for dressings. For the development of perfect scar tissue he points out that absolute rest in the healing zone is essential. Contractility in a scar presupposes undue traction in the wound, and it is the presence of this quality in a scar that is responsible for so many disabling conditions that remain after healing.

Berliner klinische Wochenschrift.

July 29, 1918.

On Lymphogranulomatosis.—F. Kraus and von Lubarsch publish two papers in the form of reports followed by a prolonged discussion. Some of the speakers have noticed a real increase of cases of this disease since the beginning of the war. As to the relationship between lymphogranulomatosis and tuberculosis the various speakers consider it as generally doubtful, even in the attenuated forms which gave rise to this supposition. Umber refers to certain symptoms of the disease which we think are new, namely, a dryness and pigmentation of the skin with violent pruritus.

Some New Procedures in Bacteriological and Serological Examination of Influenza.—W. Leventhal describes a new culture medium which facilitates the diagnosis of the grippe, namely, nutritive agar-agar at 2 to 3 per cent. liquefied at 70° C. and then cooled. To this is added defibrinated blood at the ratio of one drop to each c.c. of agar. Then boil lightly three times, allowing it to cool each time. Decant or filter and then pour it on to plated and inclined tubes. The aspect of this medium is that of pure agar but chemical reaction detects the presence of hemoglobin. Colonies of Pfeiffer's bacillus develop in the form of colorless droplets in large number. They may be used for agglutinating sero-reactions which are positive at 1/25 up to 1/100. Leventhal has also observed that this culture medium is very favorable for the growth of the Koch-Weeks bacillus (conjunctivitis).

Münchener medizinische Wochenschrift.

July 23, 1918.

The Relation of Nephritis to Lipoid Metabolism.—W. Kollert and A. Finger have found that the majority of nephritic subjects offer a more or less cloudy blood-serum (pseudochylous) during the period when their urine contains lipoïdes. The only exception to this rule is nephritis from sublimate poisoning, the blood-serum remaining perfectly clear during the entire evolution of the process. The writers believe that the hypercholesterinemia of the nephritides is due to the concomitant hepatic changes which prevent the physiological elimination of the lipoïdes. They have been able to detect a hypercholesterinemia in all nephritides accompanied by an albuminuric retinitis and they likewise affirm that this condition of the blood is absolutely necessary for the production of this ocular complication.

Is Radical Excision of the Wound in Comminuted Fracture from Bullets Proper?—L. Böhler is absolutely adverse to the present tendency of excising wounds of warfare extensively and the prophylactic removal of bone fragments. He even goes so far as to deny the propriety of this procedure. This extreme conservative opinion is quite legitimate in Böhler's opinion from the excellent results he personally has obtained from conservative treatment. He likewise maintains that free incision and resection of the bone fragments favors the production of pseudarthroses. Therefore, he proceeds with the same prudence in wounds of the joints and he is of the opinion that wounds of the soft structures alone may be treated by excision of tissues whose vitality is compromised.

Deutsche medizinische Wochenschrift.

July 25, 1918.

On Regeneration of Joints.—E. Payr has collected various data relating to regeneration of traumatic lesions and dislocations of joints. The genesis of fissure of a joint would seem to be more particularly related to the movement of the various parts composing the joint, the shape and extent of the fissure being decided by the muscular movements and the point of insertion of the muscles. From the viewpoint of development, Payr recalls that the articular capsule of many vertebrates possesses a layer of cartilage over its entire extent, the synovial membrane thus representing a modified type of cartilage. The synovial fluid must not be regarded as an inert liquid having a passive rôle, but rather as a product of a processus of wear of both cartilage and synovial membrane, and it plays an active part in the nutrition of the joint, and, perhaps, even in histogenesis. From the viewpoint of regeneration it is the most inert tissue of the body, cicatrization of traumatic injuries to it being always insufficient when not aided by the intervention of the perichondral and subchondral connective tissue structures. Other than for the cartilage, joints are among the structures giving rise to the most perfect regeneration, and the writer supposes this to be due to the relative simplicity in function and the slightly advanced differentiation of the parts making up a joint. Repair is more complete in surfaces undergoing reciprocal friction than in the complimentary surfaces of the joint, from which it results that glenoid joints undergo better repair than hinge joints. The joint capsule possesses an astonishing regenerative faculty. This fact is illustrated by its rapid repair after extensive excision as is practised, for instance, in chronic arthritis with a fluid collection (lymphatic drainage of the joint). As to the joint ligaments, their possibility of regeneration has been little studied, but as a feeling of insecurity exists in this respect, it has given rise to aponeurotic plastic operations, sutures, etc.

La Presse Médicale.

June 24, 1918.

The Sign of Vitropression.—Nicolas, Favre and Saleur describe this little known diagnostic sign, which is regarded in some quarters as classical for the dermatologist. Perhaps it would be more correct to state that this sign is not known by that name, or indeed by any name, for the sign of vitropressure is nothing but the anemia produced by pressing on the skin with a slip of transparent glass. By thus eliminating the redness due to mere hyperemia, we can analyze other sources of discoloration due to different causes. In lupus the use of the glass slip is indeed classical, for if we force out the blood from a given area the lupus lesion is seen to present a characteristic shade of color which has often been compared by the English and Americans to apple sauce and by the French to apricot preserves. More accurately, the hue is reddish yellow, and moreover it is somewhat translucent. A refinement of this test is the anointing of the skin to be examined with vaseline, the latter rendering the scales of the lupus placques somewhat more translucent. In a case quoted the patient presented a large area of disease over one of the scapulæ. There were infiltration and ulceration. In some of the outlying discreet papules of the disease, the act of vitropression gave the typical apple-sauce shade of color. In the absence of this sign the first or temporary diagnosis would doubtless have been

syphilis, for the very good reason that the man was a syphilitic and presented undoubted lesions of the disease elsewhere. He even presented typical syphilitic lesions in the skin of the thigh. A biopsy of the lupus-like lesion revealed histological evidences of tuberculosis. From the practical viewpoint the case could hardly have been important, for all of the lesions, including the supposed tuberculide, disappeared under mixed treatment. A second case of the same type in which there was a lupus-like lesion of the face gave under vitropression the lupus coloration—a variety known to experts as the barley-sugar color. This patient presented no evidence of syphilis, but his Wassermann was positive. This patient also recovered under mixed treatment. The author adds a number of similar cases. The question must now arise whether these lesions were really tuberculous or were syphilitic. The apple-sauce color and the histological picture of tuberculosis are not in themselves enough for a diagnosis of the latter. To make certain of this diagnosis we should have to discover the bacillus or obtain a positive tuberculin reaction. The authors did not go to the trouble of settling this question, doubtless because convinced that the cases were frankly syphilitic. It is evident that the apple-sauce coloration under glass has no real final significance in the diagnosis of lupus.

Norsk Magazin for Laegevidenskaben.

June, 1918.

Retronasal Tumors.—Leegaard tabulates the records of 14 cases of retronasal tumors treated by him durthe past four years. In nearly all of these cases the growths were extirpated by Denker's operation, the only exception being a recurrence. Two subjects died as a result of the intervention, one apparently from shock and the other from the results of persistent postoperative hemorrhages. Ten cases were cured permanently, and one is marked "doubtful" recovery. The remaining case is an unoperated recurrence. The total number of recurrences was three, of which two were cured by second operation. The patients were with one exception adolescents—boys of from 13 to 20 years of age; the exception was a boy of six years. The absence of any girls from this series may have been due to the character of the operation, which excluded their sex on account of the resulting disfigurement. The microscopic diagnosis appears to have had no connection with the prognosis. The cases marked sarcoma recovered, while the relapsing and fatal cases were not sarcomatous. The narcosis used was general in all but five cases, chloroform being the anesthetic; in the five exceptions Kuehn's intubation was substituted. The shock death occurred under the latter, morphine and ether having been the anesthetics.

Poisoning from Hexamethylene Tetramine.—Ustvedt relates the case of a man of 31 who had been attacked by poliomyelitis. During the next two days the drug was pushed until 12 grams had been taken. The patient was urinating freely at first, but the diuresis was suddenly checked and blood appeared in the urine along with much backache. There was no headache or vomiting, and the urine increased again and cleared up somewhat. The hematuria lasted five days in all. The 12 grams of the drug had been ingested within 36 hours, equal to a five-grain dose hourly for that period. Such cases are not so rare, and are not usually classed as drug intoxication, but rather as simple overaction.

Correspondenz-Blatt für Schweizer Aerzte.

June 15, 1918.

Does Achylia Gastrica Predispose to Cancer of the Stomach?—Hofmann recalls that the discovery of absence of free HCl in cancer of the stomach goes back to 1879. Its importance was at first somewhat exaggerated, for it was believed that this defect was pathognomonic of cancer. The condition known as achylia gastrica was not recognized until long after. However the symptom of negative Congo red gastric juice is one of the most valuable in clinical medicine, and is present in at least 80 per cent. of cases of gastric cancer. The rationale of the symptom is still to seek. The various hypotheses sound far fetched. Significant is the fact that diminished free HCl is found in some cases of cancer in localities not near the stomach. After extirpation of the cancer from the organ the free acid does not reappear in the gastric juice. This fact seems to antagonize Riegel's toxin theory, which might otherwise prove to be the most plausible among the various speculations. Even when the neoplasm is very small there may be a high degree of defect of free acid. The highest degree of low acid is found in cancer of the fundus and conversely one may not infrequently find free acid in cancer of the pylorus. But the twenty per-cent. of negative results furnish a considerable handicap to understanding the relation of acid to cancer, while in the opposite direction we find anacidity in such unlike conditions as pernicious anemia and cholelithiasis, in diabetes and consumption, in migraine and syphilis. We also find lowered acidity in various other affections, as arteriosclerosis and nephritis. As a result of all of these finds we have to imagine a general condition—achylia gastrica—which occurs in a great variety of conditions of which cancer of the stomach is merely one. In addition to the preceding, anacidity or hypoacidity is found in a considerable per cent. of local affections of the stomach exclusive of carcinoma. The notion of a general affection, achylia gastrica, was introduced into clinical medicine by Einhorn in 1892. The great frequency of achylia in cancer must lead to the query, "Might not the former be a predisposing factor in the latter's evolution?" It is most certain that when we find an achylic in the clinic we begin to fear a future cancer and we keep such a patient under strict control, especially if we look forward to the possibility of early surgical intervention. There is even a forensic side to the question, as appears from the following case: A woman of 42 was found to have a persistent achylia which her medical attendant thought lightly of. In an application for life insurance she did not think it necessary to mention it and the policy was duly issued. Nine months later her health failed and she repaired to a sanatorium, where Schorlemmer made a diagnosis of cancer of the fundus. After her death the insurance company refused to pay the claim by reason of the obvious deception practised on them. Schorlemmer in his testimony appeared to take the woman's side of the case, that her health was not involved at the time of the examination and that no wilful deception was practised. The mere fact of simple achylia is certainly no evidence of the likelihood of cancer, although in theory there is certainly a plausible connection between the two. There is reason to believe that at the outset the irritation of a beginning cancer along with the interference with digestion and the consequences of indigestion would rather tend to set up a gastritis with increased acidity; this condition might in turn be followed by the opposite state of anacidity. Certainly the cases which develop on an ulcer basis must often pass through a period of hyperchlorhydria. There is another argument remaining for consideration. It is often quite overlooked that in the elderly—the people of cancer age—there is often a physiological decrease in the amount of free acid in the stomach. Hence the alleged frequent association of hypoacidity with certain of the diseases of old age is often no more than a coincidence. It is also pointed out that achylia is an eminently chronic condition which may often be followed up in the clinic for many years and that these chronic cases do not become cancerous. Two authors have previously worked out the problem with a relatively large clinical material, and have found that a small percentage of achylics do become cancerous, but the percentage was far too small to possess any significance. The author now introduces his own large figures and shows that of 340 achylics only 4 actually became cancerous during the observation period (4 to 16 years).

Chaulmoogra Oil in Leprosy.—Stévenel claims that since this substance undoubtedly has power over leprosy we are bound to use it intensively by intravenous injection. This route is in fact inevitable for the drug cannot be pushed by the mouth without the development of intolerance. The author makes a 5 per cent. emulsion with distilled water and has to report encouraging results.—*Bulletin de la Société de Pathologie Exotique.*

Book Reviews.

On the Fringe of the Great Fight. By Colonel George G. Nasmith, C.M.G. Price, $1.50. New York: George H. Doran Company, 1918.

This is one of the most interesting books of the war, for it treats of a phase of which little has been said, of the life, military and civilian, immediately behind the front. It is written by a sanitary officer of the Canadian forces who, while not on the front line, yet had an opportunity of seeing a great deal of the fighting as well as of the transport, cantonment, sanitary, and other work preliminary and auxiliary thereto. He saw and describes the first gas attack near Ypres, and he devised the mask with its antidotal medication to protect against the chlorine fumes. He saw much else of interest in the life of the troops and of the civilian population immediately behind the front and describes it in an easy narrative style that pictures it all most clearly to the reader. The description of the beauty of springtime in England and of the dreariness and misery of life on Salisbury Plain during the tiresome period of training is most vivid. One might think the book would be especially attractive only to the medical man, but this is not quite correct, for there is nothing technical about it, and the chapters on the "Medical Organization of the British Army," "Keeping the British Soldier Fit," and "Laboratory Work in the Field" will be just as interesting to the layman as to the civilian physician.

The Treatment of Syphilis. A Critical Review by L. W. Harrison, D.S.O., M.B., Ch.B., Lt.-Col. R.A.M.C., Lecturer in Venereal Diseases and Officer-in-Charge Military Hospital, Rochester Row. Price, $1.00. Oxford: Clarendon Press, 1917.

The greater part of this work deals with arsenicals in the treatment of syphilis. It is an excellent digest of the scientific work done in this branch of medicine, especially in Europe. The author quotes many opinions which give light on some of the puzzling intricacies of physiological chemistry following the administration of arsenicals. He likewise deserves our thanks for excerpting opinions frankly condemning certain preparations vaunted by their manufacturers.

The Elements of the Science of Nutrition. By Graham Lusk, Ph.D., Sc.D., F.R.S. (Edin.), Professor of Physiology at Cornell University Medical College, New York City. Third Edition, Reset. Price, $4.50. Philadelphia and London: W. B. Saunders Company, 1917.

The subject of nutrition is of the first importance, and has been recognized as such for some time; but it is only recently that it has been regarded as a science. The able discussion of the subject by Professor Lusk will appeal to physiologists, laboratory workers on problems of nutrition, dietitians and practising physicians. The aim of the book is "to review the scientific substratum upon which rests the present-day knowledge of nutrition both in health and disease." The work begins with an important introductory chapter; this is followed by a description of the Atwater-Rosa Respiration Calorimeter; then follow chapters on starvation; regulation of temperature; the influence of protein food, of fat, and of carbohydrate; the influence of mechanical work on metabolism; normal diet and the nutrient value of various materials used as foods; the food requirements during the period of growth; metabolism in anemia, at high altitudes, in myxedema, in exophthalmic goiter, in diabetes, in phosphorus poisoning, in nephritis, in cardiac disease, in other cases involving acidosis, in fever; purin metabolism, gout; and the influence of certain drugs upon metabolism. The first edition of this book appeared about twelve years ago, and was half the size of the present volume; in the preface to this new edition the author states that he has no intention of again revising this book. This, then, may be a suitable place in which to record the value of Professor Lusk's work and the debt of gratitude owed to him by students, practitioners, and scientific workers. It is to be hoped that writers on dietetics will make use of the contents of this volume; for some of the available works on dietetics are not up to the standard of Professor Lusk's book.

A Treatise on Cystoscopy and Urethroscopy. By Dr. Georges Luys, Former Interne, Hospitals of Paris; Former Assistant in the Department of Urinary Diseases at the Lariboisiere Hospital; Laureate of the Faculty of the Academy of Medicine. Translated and Edited with Additions by Abr. L. Wolbarst, M.D., New York, Cystoscopist, Beth Israel Hospital; Consulting Urologist, Central Islip and Manhattan State Hospitals; Genito-Urinary Surgeon, West Side German Dispensary and Hospital; Author of "Gonorrhea in the Male," etc. With 217 Figures in the Text and 24 Chromotypographic Plates Outside the Text, Including 76 Drawings from Original Water Colors. Price, $7.50. St. Louis: C. V. Mosby Company, 1918.

The review of the parent volume of this work appeared in these columns October 24, 1914 (Vol. 86, No. 17, page 734). The translator gives as reasons for the English edition, first, to bring Luys' message to English readers; second, "to express in concrete form the love and affection which the translator feels for France." He is indeed to be congratulated for his proficiency in the lyric language of Corneille since in no paragraph, sentence, or phrase has he been traitorous to Luys.

The editor has written sixteen bracketed paragraphs aggregating twelve hundred words inserted through the chapters. Braasch's contribution on "Direct Cystoscopy" covers two pages. He advocates direct vision with lens instruments and water dilatation of the bladder. Winfield Ayres (page 356) submits his conclusions on the treatment of vesical cancer by radium and finds that this agent is less effective in bladder cancer than in neoplasms in other parts of the body.

The figures and plates are identical with those of the original work and from a mechanical viewpoint the book is all that could be desired.

Modern Operative Bone Surgery with Special Reference to the Treatment of Fractures. By Charles George Geiger, M.D. Price, $3. Philadelphia: F. A. Davis Company, 1918.

The preface tells us that the author believed there was a great demand for a "comprehensive, yet abridged, book on 'plastic bone surgery' suitable for the busy surgeon," but he found this "a difficult task, because there is no similar work on the subject published up to the present time" and "all previous publications on bone surgery are largely composed of reports of cases."

One having a fair acquaintance with this subject would deduce from these quotations that the author could not be very familiar with the literature, for books previously published do cover the subject thoroughly and certainly are far from being "largely composed of reports of cases." And yet, as we read this book, we soon gained the impression that the author must have been a rather close student of at least one of the older and quite adequate books, for many of the "author's methods" reminded us most forcibly of Albee's, and many of his instruments and other mechanical devices reminded us again of Albee, of Murphy, of Lowman, and of Hawley. That our impression of the author's cognizance of Albee's book, at least, was correct was proved when we found not only sentences but even paragraphs taken bodily from Albee's book on "Bone-Graft Surgery," sometimes with slight changes in wording here and there, but rarely, if ever, distinguished by quotation marks as having been borrowed from some other author's work.

It is our impression that this book is a rather good compilation, "comprehensive, yet abridged," on bone-graft surgery.

V. Magnan. Sa Vie et Son Œuvre (1835-1916). Par le Dr. Paul Sérieux, Médecin des Asiles d'Aliénés. Paris: Masson et Cie, 1918.

This biography of the eminent French alienist comprising 168 pages is reprinted from articles which appeared originally in the *Annales Médico-psychologiques*. The effort is not divided into chapters and is merely a running account, but an interesting one, of the subject's personal and professional activities and productions. It contains a reproduction of a medallion which was struck off in 1908 in commemoration of Magnan's retirement from his active labors at the age of seventy-five.

Society Reports.

MEDICAL SOCIETY OF NEW JERSEY.

One Hundred and Fifty-Second Annual Meeting, Held at Spring Lake, N. J., June 25 and 26, 1918.

(Special Report to the MEDICAL RECORD.)

(*Concluded from page* 609.)

THE VICE-PRESIDENT, DR. THOMAS W. HARVEY OF ORANGE, IN THE CHAIR.

Address of the Vice-President.—Dr. THOMAS W. HARVEY of Orange delivered this address. He said, in part, that the officers of the society had been hoping all along that their president, Colonel William G. Shauffler, would arrive at the eleventh hour to take charge of the meeting. The exigencies of the service had prevented his coming. They had also hoped that if Colonel Schauffler did not come his address would arrive. The delay was not the fault of their president, but was probably due to the fact that all public addresses made by men in the service had first to be viséd by the Surgeon-General's office. Under these conditions Dr. Harvey said he had not prepared a formal address. He felt sure that all took pride in the work their president was doing. He had always been an active man of affairs, in the State Sanitary Association, in the work of the State Board of Education, and in the National Guard. They had always known that it was good policy to follow where he should lead, and that he could always be found on the side of sanity in any progressive work. He had now the good fortune to be serving his country when so many were fretting at the reins. Their society, dating back as it did well into Colonial times, had passed through all the wars of the Republic. Its records showed that before the Revolutionary War broke out it had twenty-five members. New Jersey was the battle ground of the Revolution and naturally all activities save those of war were at a standstill and this society held no meetings and made no reports for six years. During the Civil War the meetings of the society went on as usual, but large numbers of its members enlisted in the service and many never returned. When the present war began our medical men in large numbers immediately responded to the call to arms, sacrificing, as ever, more than any other class of men in their efforts to relieve suffering and to prolong life. The men of their State had responded well to the call and many more were willing to go. There were some 3200 doctors in New Jersey, 525 were already commissioned, and in this second call their quota was 100. There could be little doubt that the required number would come forward and many more. Over 17 per cent. of the New Jersey doctors had accepted commissions, while the average for the country at large was 13.7 per cent. Already two members of their society had made the great sacrifice and it was fitting that their names should be mentioned. They were Dr. Archibald T. Graham and Dr. James E. Griswold. To the older men had come the call to serve in many ways. To those who had served on exemption boards and medical advisory councils had been given the opportunity to do their bit, and certainly more interesting work would be hard to find. It was very gratifying to be told by their fellow member, Dr. Costill, that of the men sent up to the cantonments by their various boards not more than 3 per cent. had been rejected. Over 500 of their doctors had been serving on the various boards of the State. Now other opportunities were about to be offered to those of them who could not be soldiers. It seemed unnecessary to call on the members to respond. Let all who could place themselves at the disposal of the Government for any work for which they had a capacity. The work of the world to-day was war, and it was a war that would end only when we had firmly established the principle that the will of no one man nor group of men could exploit the bodies and minds of other men for their selfish ambitions. Medicine had always held out this idea to its followers. All their efforts, all their lives, were devoted to the conservation of life and the relief of suffering. Any ideal that could add to suffering was abhorrent. To-day the issue was fairly engaged. America was on that side of this war that aimed to realize such ideals. We, as a people, were united to-day as never before for this purpose and we, as medical men, would be false to our training and to the ideals of our art if we did not in every way and at any cost devote our knowledge, our talents, and our lives to further every effort that our country was making. To-day there was no middle ground—it was either America or destruction.

Oration on Surgery.—Dr. GEORGE D. STEWART of New York delivered this address, in which he said, in part, he had elected to take a rapid and general survey of certain parts of the field of surgery rather than to attempt to go into detail on any specific topic. Although what he had to say was supposed to concern surgery and surgical practice, he wished to be understood as speaking in some degree for the whole profession and to enter a protest against the assumption that all medicine and medical practice in war was surgical. The relations between medicine and surgery had been complex enough and too often diverging without encouraging any further sundering at this juncture. One factor in America, at least, which tended to make schism between these two branches of an honorable profession was our interne system which, at the end of two years, turned out men who had done a few operations which the patients had survived and who, in consequence, believed themselves to be capable and fully equipped surgeons. To prevent these premature surgical births he had recommended one year hospital for all graduates, promotion within the ranks at the end of that time for merit and aptitude and still further promotion at the end of eighteen months or two years to the position of residents (surgeon or physician) with pay. Dr. Stewart then spoke of how war generally had affected the study and practice of medicine. He said that for a long time it had been his opinion that wars did not teach much in the way of medicine and surgery, but he had changed to the feeling that in some departments of our science war afforded the largest and unfortunately the most sorrowful of experimental laboratories—laboratories that would not be possible under any other conditions of civilization.

Dr. Stewart said that we might group the methods of wound treatment now in use as (1) the antiseptic, (2) the vaccine and sera and physiological, and (3) the dissection of devitalized tissue. Under the antiseptic method he considered the Carrel-Dakin method, the bipp method (bipp being bismuth subnitrate or carbonate, one part; iodoform, two parts; paraffin in quantity sufficient to make a soft paste), brilliant green, and methylene blue. Antiseptics constituted a revival and improvement of Lister's work in the prevention of infection, by means of modern highly efficient antiseptics combined with an adequate technique. Whether or not the Carrel-Dakin method would maintain itself in its original form or be utilized under the form of dichloramine-T it was impossible to say, but some entertained the feeling that, after all, the antiseptic agent might turn out not to be the essential part of this treatment, and that the secret of the success which had lately attended this treatment in contrast to the acknowledged failure of surgery in the first year of the war was due, not so much to any one of the numerous antiseptics now in vogue, as to the thoroughness with which the contaminated areas were extirpated surgically during the first ten or fifteen hours, before actual infection had taken place. In discussing the polyvalent sera-vaccine treatment of wounds Dr. Stewart stated that the polyvalent serum of the French investigators contained the antibodies corresponding to the various inflammations and suppurations, represented by several varieties of staphylococci and streptococci, the colon bacillus, pyocyaneus, and proteus. To these aerobic germs they added several types of anaerobes, the perfringens and septic vibrio. The polyvalent serum was obtained from horses which had been immunized against the different pyogenic organisms. It was originally intended for purely local use as a direct application to infected wounds, but it had also been successfully employed in hypodermic and intravenous injections in certain cases of staphylococcus and streptococcus septicemia. A

method of wound treatment by the introduction of living cultures of a spore bearing anaerobe of the proteolytic group had recently been investigated by Donaldson and Joyce. They made the observation that cases which emitted a bad odor made no headway and that in these cases a certain bacillus was found to be apparently constant, and it was constantly absent from those cases that did not smell. This bacillus acted, apparently in virtue of its proteolytic powers, only on devitalized tissue and possibly on toxalbumins, and appeared to have no power of attacking healthy structures. It succeeded also in attacking microscopically damaged structures. As a result, the body forces were freed from the constant menace of septic poisoning, thus allowing them to begin the work of repair. It was too early to comment on this new departure beyond pointing out that it was an added argument in favor of the growing conviction that the presence of devitalized tissue in a wound represented the real danger element. The fear of opening the chest had now been changed, and a lung, wounded and bleeding, or containing a foreign body, was attacked by making an opening, palpating the foreign body, removing it, and controling the bleeding by suturing, then suturing the chest and expanding the lung. Penetrating wounds of the chest had a mortality which could be estimated at 20 per cent., according to the statements of the Interallied Surgical Conference in 1917. The immediate mortality was highest, due to hemorrhage and asphyxiation. Shock played a prominent part in the immediate and early deaths. The ultimate mortality was usually due to pleuropulmonary infection.

The Inorganic Nervous System and Organotherapy. Dr. JOHN ROGERS of New York presented this paper, in which he demonstrated that there was experimental evidence to prove that definite and prompt reactions could be obtained by the injection into dogs of certain materials derived from the thyroid and other endocrine glands. These reactions showed an intensification of either the activating or the inhibiting function of the different portions of the involuntary nervous system and seemed to be produced through the direct stimulation by the organ extracts of the terminal filaments of these nerves. The stomach was an organ in which the function of its vagus and sympathetic nerve supply had been quite clearly demonstrated and could be well arranged for study by means of a Pavlov or Janeway fistula. Experiments showed that the injection into an animal of the non-coagulable or "residue" portion of a saline extract of the thyroid increased a little more than in the normal dog the quantity and acidity of the gastric juice and atropine inhibited the flow. Adrenalin, after the destruction of the sympathetic, was inert. Tests made with nicotine seemed to show that this drug inhibited the gastric secretion through a paralyzing effect upon the vagus, but less actively than atropine. Residues of saline extracts of other organs were then tested, and it was found that only the entire pituitary acted like the entire adrenalin and apparently through stimulation of the inhibitory power exerted by the sympathetic. The thyroid, the parathyroid, the pancreas, and the spleen, all in different degrees, when the dose was standardized by its nitrogen content, seemed to intensify the activating power of the vagus. Tests of the effects of the thyroid on other organs, though not as complete as those upon the stomach, showed that only the "residue" of a saline extract of thyroid stimulated the flow of pancreatic secretion, apparently, as in the stomach, through the terminal filaments of its vagus nerve supply. It also increased the vigor of the contraction of both voluntary and involuntary muscle fibers, apparently through their nerve supply, and in kymograph tracings it was a vasodilator, but did not cause any appreciable increase in the pulse rate. Tests were then made with alcoholic and ethereal extracts of thyroid, and these were found to be fully as active, if not more so, as the residue of the saline extract. If, however, the extracts were made from thyroid material which had been dessicated, like the commercial thyroid powder, the results showed that their activity was more or less impaired. After freezing, however, the organs could apparently be stored for a long time and the extracts would still be indistinguishable in their effects from those of the "fresh" organs. There was some substance which could be extracted from the thyroid with ether or alcohol, or with a slightly alkaline saline solution, but not with distilled water, which was capable of producing an immediate response in the dog's stomach and other organs. This non-coagulable material appeared to act through the terminal filaments of the vagus and not through the sympathetic, because its effects were prevented or inhibited by atropine and by section and degeneration of the vagus. Furthermore, when administered intravenously and the results noted in kymographic tracings, there occurred vasodilatation and no appreciable increase in the pulse rate. These reactions indicated that the only material capable of producing immediate physiological reactions which could be obtained from thyroid stimulated, not the sympathetic, as generally believed, but the vagus. In the stomach, at least, extracts of pituitary and adrenalin glands, and these extracts contained something more than adrenalin, seemed in different degrees to intensify the function of the sympathetic, while the thyroid, parathyroid, pancreas, and possibly other organs similarly in different degrees seemed to intensify the action of the vagus. If these observations could be confirmed and extended, then there was opened a new chapter in nutrition. When myxedema could be relieved or cured by thyroid feeding, the patient must first of all possess a certain minimum amount of thyroid epithelium which was capable of performing a certain minimum amount of normal biochemistry. If these cells were insufficient in number or had been damaged beyond some (unknown) point, then, both experimentally and clinically, thyroid feeding, although some temporary alleviation of symptoms might occur, was in the end ineffective. This meant that the ingested material, after its passage through the gastrointestinal tract and liver, must emerge into the circulation, probably as an iodized amino acid which could not perform the normal functions of the gland, but must first be absorbed by it as a nutriment and then be metabolized as thyroid product. Dr. Rogers made a practical application of these principles to various clinical conditions and more particularly to that large group of disorders in which the most constant and most important causative factor seemed to be fatigue.

Acidosis in Infants.—Dr. JULIUS LEVY of Newark presented this communication. He said the symptoms of acidosis were hyperpnea, great restlessness, often going on to stupor, marked irregular temperature, ashen gray color of the skin without cyanosis, and great reduction in the urinary output. For several years the essayist stated that he had been following a group of cases which presented some symptoms in common with this syndrome, but were sufficiently distinctive in several particulars to require separate consideration and classification. The clinical picture was that of a child between one and two years of age, usually well kept and carefully fed, who suddenly vomited several times the same day; the temperature was normal, or but slightly elevated, the child very pale, very quiet, apathetic, and rather somnolent. There was no diarrhea and, in fact, the child had been rather constipated and we often learned that the stool was cream colored and greasy. There was often a sudden diminution in the amount of urine. From the severe vomiting that occurred at intervals and seemed to bear no relation to feeding severe prostration set in and these cases had in several instances been mistaken for meningitis and again for appendicitis. After two or three days the vomiting ceased, the child brightened up, had two or three large watery stools, passed more urine, and appeared to be in its normal condition. In a few cases the vomiting occurred several times a day with slight remissions for weeks or months and the child might die from atrophy or acidosis. The urine showed large amounts of acetone and diacetic acid at the onset of the vomiting attack. This point was emphasized to make clear that it was not the result of starvation. On the second or third day small amounts of albumin and a few hyaline casts would frequently be found in addition to the acetone and diacetic acid and in severe cases granular casts and a few blood cells had been noticed. There was found to be a constant correlation between the urinary findings and the vomiting and somnolence, which suggested that this group of cases was one of true aci-

dosis. It was important to recognize these cases so that they were not mistaken for nephritis, appendicitis, or meningitis, and so that the dietetic errors might be corrected. In the treatment of these cases the best results had been obtained by giving daily high irrigation of one pint of water with one dram of bicarbonate of soda, and in addition supplying one dram of bicarbonate of soda mixed with the food, which had consisted of skimmed milk, malt soup, and cereals, with a gradual return to a rational diet. The child's diet usually needed reconstruction with special attention to the caloric requirements and the fat tolerance.

Dr. THEODORE TIEMER of Newark said that while morphological and mechanical conceptions of physiological and pathological processes had dominated medical thought for a long period of time, the application of chemistry to the same problems had within our own time yielded remarkable results. It had not only thrown light on many difficult problems, but it promised to change some of the fundamental ideas in medical science. Depending largely upon the viewpoint of the investigator, various conditions had been described as acidosis, so that the meaning of the term in medical literature had become somewhat hazy. As suggested by Martin Fisher, the term should be used in the original sense as "intoxication with acid." The mere presence of abnormal acid did not mean acid intoxication, but an altered chemistry from which an intoxication might result. Alteration of the chemistry of acid formation and acid elimination might evidently result from metabolic disturbances associated with an interference with the normal production of carbon dioxide. Such was the condition in patients with heart disease with failing compensation, in which an inadequate supply of oxygen was furnished to the tissues. In these cases an increased amount of acid was not only proved by the direct finding of more acid in the blood, but also by analysis of the urine. The same sort of intoxication existed in cases in which the tissue cells, with the maintenance of normal circulation and plenty of oxygen reaching the tissues, were damaged by a poison of some sort, so that they could not use the oxygen after it had reached them. Such cases were represented by the acid intoxication subsequent upon narcosis by ether, chloroform, morphine, and other protoplasmic poisons. The toxemias also seemed to belong to this group. Another form of intoxication was intimately associated with the infectious processes occurring in the body and assuming degrees depending largely upon the intensity of the infection, the nature of the microorganisms, and the duration of the disease process. While the localization of the disease process frequently dominated the whole clinical picture, the acid intoxication usually exerted a generalized effect and its importance was frequently underestimated. Dr. Tiemer then discussed another group of acid intoxications dependent upon disturbances of metabolism in the narrower sense—disturbances in which the utilization of food materials necessary for maintenance of health had become defective through more or less profound changes in the agencies governing these metabolic processes. The classical example of such metabolic disturbances was furnished by diabetes mellitus. This form of relative acidosis described by Dr. Levy was of special interest to the pediatrician, as it frequently occurred in infants that had been overfed with fats. The feces of such infants contained more alkali than had been supplied in the food and which must, therefore, have been derived from the fixed bases of the body. If fat overfeeding were continued for a long time a peculiar symptom complex might become established which depended upon the withdrawal of alkali. The possibility, however, existed that some of the symptoms presented by such infants were dependent upon a superimposed true acid intoxication due to disturbed metabolism. Other children, ranging from two to eight years, actually showed clinical symptom complexes which had been interpreted as due to a true acidosis, like the cyclic vomiting. It must be admitted, however, that good observers considered cyclic vomiting as a form of hysteria in children and the appearance of acetonuria in such cases as only secondary to the profound disturbance of nutrition.

Dr. HYMAN I. GOLDSTEIN of Camden said a lot of material had been presented by these gentlemen, but, as he understood it, the subject was, first, acidosis, and, second, acidosis in infancy, and not acetonuria. He disagreed with the writer of the paper when he said that we did not know more about acidosis than we did about eclampsia. We knew the chemical cause of acidosis and certainly we knew that recurrent vomiting was not hysterical, because in recurrent vomiting the chemical examination showed urates and acid phosphates increased in the blood, and this was not shown in hysteria. One never heard of bicarbonate being given in hysteria, but we obtained good results from its administration in recurrent vomiting. Dr. Levy gave the impression that he made the diagnosis of true acidosis on the basis of acetone in the urine. That had prompted him to speak, for he wished to emphasize the insignificance of acetonuria in acidosis. Those cases might not have been true acidosis, but may have been due to infections or something else. There might also have been acetonuria in addition to a true acidosis. In true acidosis there was a diminution of acetone in the urine. About 50 per cent. of children suffering from various conditions had acetone in the urine, but one never treated a case as a true acidosis simply because of the presence of acetonuria.

Dr. ALEXANDER MARCY of Riverside emphasized the fact that all cases of acidosis were not necessarily cases of cyclic vomiting, but in addition to the cyclic vomiting one might have acidosis. Some one had said that cyclic vomiting was hysterical. He was willing to admit that there was a large nervous element and that there was something periodically wrong with the nervous system in cyclic vomiting. The physiological mechanism was disturbed and there was acidosis, but there was certainly something more than acidosis. Anyone who has seen a severe case of cyclic vomiting has seen one of the most awful things a child could go through. These children before they had acetonuria had indican in the urine, and after the indican had appeared the acetonuria followed. Undoubtedly treatment in these cases was useless; the attack ran its course and after a given length of time the child recovered. He had seen one case that proved fatal, in which an autopsy was made and it was found that the liver had undergone fatty degeneration and the kidneys showed an acute parenchymatous nephritis. Every organ of the body had undergone acute degenerative changes and yet that child had been apparently a perfectly healthy child. This case had occurred years ago. Now, in such cases they began immediately saturating the patient with bicarbonate by way of the mouth and through the rectum and they took away food. He always approached a case of cyclic vomiting with fear lest it be accompanied by degeneration such as he found in this case.

Dr. F. H. TODD of Paterson said that sometimes in focusing their attention on the symptoms of acidosis they said too little about the cause of this condition. Personally they all agreed that acidosis was of intestinal origin and had its foundation in high fat and high protein feeding. Under such conditions changes must take place in the intestinal tract, changes in the bacteria which gave rise to a mass of purins which broke up the fatty acids and these were absorbed and the only symptom was acidosis. Nephritis was a natural consequence and pathological changes in the liver were perfectly natural. The vomiting was not due to any changes in the stomach itself, but to the absorption of toxins from the intestinal tract. Acidosis was the same thing as cyclic vomiting and the reason it came on periodically was because there was a gradual accumulation of the products of the fatty acids and when they had reached a certain amount there was a sudden attack of acidosis with vomiting. The treatment indicated was to neutralize the acid and inhibit the growth of intestinal bacteria. The point to be emphasized was that acidosis was only a symptom of the real trouble.

Dr. DAVID E. ENGLISH of Summit expressed the opinion that we could not make acidosis a disease by itself. It occurred in the course of so many diseases that to make it a separate entity with a specific cause was a mistake. He wished to call attention to the connection between cyclic vomiting in infancy and migraine in the adult. He had lived long enough to see babies

that had suffered from cyclic vomiting grow up and have migraine, and he believed the cause of both conditions was the same, namely, a lack of development or an overdevelopment of some endocrine gland. He did not know which one, and perhaps it was not always the same one. He believed in the bicarbonate treatment, whether the condition was due to acidosis or not, because it had a good effect. That had led him to think that bicarbonate of soda might have a beneficial effect in migraine, and he had tried it with considerable success.

Dr. Levy, in closing, said that what he had wished to bring out was that there was a clinical entity, somewhat different from the laboratory idea; scientifically it might not exist, but clinically there was such a thing. There was such a thing as cyclic vomiting, but that was not what he was speaking of. He meant a type of case not as frequent as the gastrointestinal case. These patients were helped by cleaning out and by bicarbonate, but they should not be starved. A second point he wanted to bring out was that they should get rid of the idea that bacteria were the cause of all digestive disturbances. The type of case he was describing was due to a metabolic cause, and was likely to be due to high fat and high protein feeding. There was also a type of case that ran for weeks or months, which was that to which Dr. Marcy probably referred. Not every case that had aceton in the urine was a case of acidosis, but a case of acidosis might have aceton in the urine together with the other symptoms that he had mentioned, and these cases should be treated as he has described.

Hospitals and Hospital Standardization.—Dr. John M. Baldy of Philadelphia made this address, in which he stated that the general trend of hospital development was good. The surgeon had been the pioneer in hospital work, because for the development of surgery hospital facilities were essential. To-day the internist was in the same position as the surgeon was fifteen or twenty years ago. It was impossible without the laboratory to develop a good internist. Every community having a hospital should also have a laboratory in connection with that hospital or cooperating with it. The day had long gone by when the hospital could be looked upon as simply a place in which to care for the sick. That was the prime function of a hospital, but there were others that went with it. The hospital should be an instrumentality for the education of the coming medical man, of the staff men, of other doctors, and of the people of the community as to what the proper practice of medicine was. Without the educational feature as a safeguard it was absolutely certain that the patient was not well cared for. The community had cmoe to understand that better treatment could be obtained in a hospital than elsewhere and they were demanding this treatment. Any person who sent a servant to an institution and who saw the laboratory examinations that were made and the intensive study given the case was not going to have himself treated by prescription writing. Every man when he started out to practise medicine should have the facilities to practise medicine as he had been taught to do. Complaints were heard that men could not be found for the laboratories in the smaller towns. He had been advising those who made that complaint to take the last young doctor who had come to the town and put him into their institution. These young men were proud of being connected with the institution, and they knew how to work and would develop the institution. They also served to arouse competition and to set a new pace for the older men.

Oration in Medicine—War Strain and Shell Shock.—Dr. M. Allen Starr delivered this oration, in which he stated that the terms "shell shock," "war shock" and "war neuroses" had been coined and had proved very convenient, as they did not commit one to any particular pathology or diagnosis. He discussed the etiology, pathology, and symptoms of the condition, calling attention to the points whereby shell shock might be differentiated from injuries of the brain or cord. He said it was admitted by all investigators that the chief etiological factor in shell shock was the long continued emotional strain. But this produced many pathological effects and could not be dismissed with the label of mere hysteria. Back of the lines before the men got into actual trench service they heard tales of the strain which others had undergone, of the shocks they had suffered, and they saw the wounded and the nervous and mental wrecks coming back from the front. When the man finally got into the trenches he was subjected for a period of three to seven days to a continuous nervous strain, living in ceaseless noise, in constant danger, with little or no sleep, and in a constant state of excitement and apprehension. Both private and officer were subjected to mental strain to which they were wholly unaccustomed. In this connection Dr. Starr referred to the effect of emotion on bodily activities, reviewing the investigations of Cannon of Harvard, Crile of Cleveland, and Heckel of Paris. As Crile pointed out, anger and fear directly affected the adrenals and the thyroid secretion and he likened the condition present in fear to that in exophthalmic goitre, with staring eyes, marked pallor, and the profuse sweat, diarrhea, and general tremor, which he produced in his animals under a state of alarm. The mental state which had been described as characteristic of the soldier in the trenches was far greater in its intensity of emotional content than that which could be produced in laboratory animals. There were many proofs that each of the pathological effects described by the physiologists as occurring in animals were present in cases of war neurosis and, therefore, in the study of the symptoms it was manifest that no mere dismissal of them lightly with the designation of hysteria in any way met the case. In the study of the symptoms of shell shock we must recognize not merely the mental attitude, not merely the emotional element, but also the physical effects which this attitude and emotion inevitably produced, unconsciously to the sufferer, but none the less manifest to the physician, and we could not expect relief from these symptoms until there was a spontaneous subsidence of the physical and chemical conditions which this emotion had produced. The symptoms which appeared under the conditions of war strain were so numerous and differed so greatly in different cases that it seemed necessary to classify them by distinguishing between the mental and the physical symptoms. The physical symptoms might be divided into motor, sensory, reflex, and sympathetic. The motor symptoms were in many cases most striking from the beginning and included tremor, sometimes active spasmodic contractions, torticollis, shrugging of the shoulders, playlike movements of the arms, kicking movements of the legs, all of which interfered with voluntary movements and resembled regular types of chorea. All these motor symptoms appeared to cease during sleep and many of them could be arrested by hypnosis. Paralysis might appear as a motor symptom, though its characteristics were not those occurring in organic disease, as there was no muscular atrophy, no change in the reflexes, and no loss of electrical response Marked contractures of a bizarre type of the hands and feet were frequently seen. The gait was peculiar, the feet being dragged along as if weighted, and staggering and falling were common. Among the sensory symptoms the special senses were very often affected, blindness, deafness, hemianesthesia, and mutism being not uncommon. Sudden restoration of sight and also of hearing under hypnosis had convinced all observers that the loss of sense was functional. The blindness was never attended by atrophy of the optic nerve or a change in the optic discs and the deafness was not attended by vertigo. The reflex symptoms consisted of hyperexcitability of the skin to irritation, resulting in initial pallor, followed by flushing and urticarial-like swelling of the surface, but a loss of skin reflexes had not been observed. The deep reflexes might be slightly exaggerated, but ankle clonus and a Babinski reflex were absent. The sympathetic or vegetative symptoms were marked in very many instances. A rapid, irregular action of the heart, irregular respiration, defective digestion, glycosuria, and polyuria, irritability of the bladder and rectum without loss of control, and symptoms pointing to an irregular and imperfect action of the ductless glands were very common. Both hyper and hypo-thyroidism had been observed. A curious form of aphasia was quite common, in which the patient appeared to be quite unable to utter a word, though able to understand and to write his thoughts and wishes. In organic motor aphasia writing was

impossible. There were further evidences that in shell shock there were actual pathological conditions not at all psychical. Mott had recorded a number of cases in which minute capillary hemorrhages had been found in the brain, scattered through both gray and white matter, and hence capable of arresting the action not only of the brain cells which received, stored up, and sent out impulses, but also of the connecting fibers which associated these impulses, and subserved of the memory, reasoning and self-control. Recovery did not necessarily militate against this pathology. Another pathological condition to be considered was multiple thrombi through the brain from gas bubbles. It was known that when, as in caisson disease, an artificial atmospheric pressure was suddenly removed from the body such bubbles formed in the blood, just as when bubbles appeared in champagne when the bottle was uncorked. By observation with aneroid barometers it had been shown that when a large shell exploded it produced an air pressure of ten tons to the square yard on all bodies within fifty feet. This sudden pressure was followed by a sudden relief of pressure, hence the secondary effect of the explosion was comparable to coming out of a caisson. Thus multiple gas emboli might occur in men in the trenches and throw the soldier into a state like that seen in caisson disease. Here again recovery was not impossible. The *mental* symptoms were particularly common and, though some of the cases were diagnosed as insanity, they did not correspond to the typical forms of insanity. Among the symptoms particularly frequent were disturbance of the consciousness and personality, disturbance of memory, and an emotional condition characterized by great depression and distress of mind. The patients were often content to sit and brood and cry. They had no definite delusions of a melancholic character. It was a primary emotional state rather than a reasoning depression. Relapses into this condition from time to time during the process of recovery were frequent. Impairment of the will power was another symptom which occurred. The power of self-direction, of control of the flow of thought, of the control of emotions, and even the power of control of voluntary activity was lost. Morbid impulses and morbid ideas were very frequently manifested, leading to the most unusual and irrational acts. Fits of terror were very common in both the mental and the physical cases. This was not a manifestation of cowardice, for a coward preserved his instinct of self-preservation and tried to escape or to protect himself and did not recover his equanimity until he was safe. In shell shock terror there was a complete mental paralysis, with no attempt at safety. As to the treatment, in some complete rest, relief from anxiety, the assurance that return to fighting was impossible, happy surroundings, diversion, productive occupation, and good nutrition were the chief remedies. In others a process of encouragement to stimulate the will was needed. Re-education was the means of restoring to health many of the victims of shell shock. To-day in England and Canada hundreds of devoted patriotic women were laboring in hospitals with these men, teaching, encouraging, stimulating them to resume normal activity. Preparation for this work was being made in New York City by several agencies. It was not wise to send these patients home to anxious relatives, where a recounting or exaggeration of symptoms only excited interest and there was little stimulation to recovery. Shell shock must be treated by those who were especially interested and fitted by previous training to handle the mental and physical conditions which were so multiform and so perplexing. In every case the will to recover, like the will to win, was half the battle.

Address of the Third Vice-President—Is It Good Practice for the Surgeon to Perform Visceral Exsections and Resections While the Viscera Are Inflamed?—Dr. PHILANDER HARRIS of Paterson read this paper. He recalled that many years ago he had registered a protest against immediate operation in every case of acute appendicitis. On July 2, 1903, he saw, with a very dear medical friend, a case of appendicitis upon which it was desired that he should operate at once. It was then but a few hours after the onset of the first symptoms and it was the patient's first attack. He advised against operation, but at the insistence of others operated, and the young man died within eighteen hours. Since that time he had not operated on any case of appendicitis in the attack, except for the purpose of the evacuation of appendical abscess and establishing drainage. He had seen many cases and carried the patient through the attack without death, and from very many of them he later removed the appendix at a time when the patient was in a condition more safe for operation. After this prelude the writer discussed the subject of viceral inflammation in the abstract. Inflammation was always a secondary condition and must be regarded as a reconstructive process, and was only incidentally or unwillingly a destructive one. The pain produced by inflammation was a wise provision of nature, and suggested, invited, or compelled the individual of his own initiative to rest. The early arrest of peristalsis was the most potent factor in effectually walling off an injury to the pelvic or abdominal viscera, and an early and complete walling off was the very particular condition tending to limit the field of infection, and thus sequester the injury or infection and lessen the draft of the vitality of the individual in his effort to recover. As experience had proved that almost all cases of infection of the gallbladder, appendix, and Fallopian tubes might be carried through an acute attack without fatal issue, should we interfere with nature by going counter to her tendencies? The intrusion upon nature by untimely operation might make recovery impossible, and in cases thus prematurely operated on which did finally recover a new and large area of tissue had been exposed to infection and healing was thereby delayed.

Patriotic Addresses.—Lieutenant-Colonel F. F. SIMPSON of Pittsburgh said that as a nation we were irrevocably committed to such a course of action as would secure an enduring peace with liberty. That meant that every man, woman, and child has committed himself or herself to perform the maximum service of which he or she was capable. In considering the duty of the medical profession it was sometimes necessary to take a broad view of the subject. In reviewing the task that lay before America the first fact that stood out was that America had a divided enemy. Germany was fighting from two centers; she had an invisible army in America and a visible army in Europe. The Germans, whose chief mental characteristic was to make a map of everything and to calculate everything to the most minute point, had taken a close account of the vast stretch of territory in this country, of the enormous population, of the immense stores of raw material and food; all these she had planned to grasp and stood ready to stamp with her iron heel. She intended to do here what she had done in Russia and Belgium and Roumania. The only thing to do here was to have a better and a quicker preparation and to strike first and fast. It was estimated that for every 1,000,000 men in times of peace 7,000 medical men were required; for the same number in times of war 10,000 doctors were required. By August 1 of this year it was calculated that there would be 3,000,000 men under arms; that would mean that 35,000 medical men would be needed. It would be seen by this that the doctors must respond from every county and from every State in the Union. He had no doubt that the medical profession would respond to every demand made upon it and that they would respond voluntarily. That would take many vigorous men from the communities, institutions, and industries of the country. This was going to create a problem which we should go about solving in a sane and sensible way. The institutions and industries must be classified, and we must adjust our supply of doctors to their needs and do the best we could with the man power allowed to remain at home. We might rest assured that the Surgeon General would make the best possible use of the man power that went to the front. In the war hospitals the care given the soldiers would be of the best. The internes in these hospitals were taken from the chiefs of staffs of the civil hospitals, while in the large civil hospitals the internes were the recent graduates. The young men were willing and anxious to serve the nation, and were offering to assist in this problem of the readjustment of the civilian medical fabric of the nation to meet the war needs. The medical profession, in addition to its services to the nation and to the civil population, had

another duty. That was in reference to the invisible enemy in this country. We had among us many spies who had an insidious way of appealing to the best sentiments of men and through them undermining the unity of our nation. They had tried this plan of crushing the pride and undermining the morale of the people of Italy and for the moment the Italian people were taken off their feet, but the patriotism and loyalty of the Italian people were soon crystallized with such firmness that they would never again be the dupes of deceptive German agencies. The same thing was going on in this country. Whenever we saw references to pacifist propositions we might put it down with mathematical precision that they were made in Germany. The medical profession could exert a powerful influence in combating this invisible army.

Dr. Joseph MacDonald, Jr., spoke briefly of the needs of the Government for medical men. He said many physicians said that when they were needed they would go, but there never was a time when they were needed more than at the present moment. There were in the State of New Jersey 2,935 male practising physicians, 679 of whom were in the Medical Reserve Corps and 650 were over age. From these figures it might be seen that there was still ample material to furnish not only one quota that the Government has asked from New Jersey, but many more.

Dr. Harold D. Corbusier of Plainfield made an address in which he pointed out that there were two ways in which the medical profession could serve. One was by staying at home and picking up various activities that were helpful in winning the war and by influencing the younger men in the profession to go into the service, and the other way was by actually getting in oneself. Figures had been given which showed the number of men that were needed, but it must be remembered that we would have to keep on supplying men, whether infantry or artillery, or whatever the branch of the service. Some men would be killed and some would be retired, and we should have to be constantly filling up the ranks. Many men thought they could not go into the service and they gave very excellent reasons, but if they would get to thinking the matter over and trying to adjust their affairs they usually found a way. There was a place in the service for specialists as well as for general practitioners of medicine. The speaker urged men when they enlisted to say they were internists if that were the case. Nearly every man who enlisted said he was a surgeon. Internists were needed, and laboratory technicians and *x*-ray men were needed. The speaker described the routine duties in camp and the training camp activities, and emphasized the importance of this training for the medical men who wished to serve in the Army.

AMERICAN GYNECOLOGICAL SOCIETY.

Forty-Third Annual Meeting, Held at Philadelphia, May 16, 17 *and* 18, 1918.

The President, Dr. John G. Clark of Philadelphia, in the Chair.

President's Address: Medical Teaching and Research After the War.—Dr. John G. Clark of Philadelphia selected this topic for his address and presented the following conclusions concerning the scholastic maintenance of gynecology and obstetrics: (1) An adequate endowment or an annual budget of not less than from $25,000 to $30,000 a year for salaries would render it feasible to combine the departments of obstetrics and gynecology. Some of the advantages of this plan were stated as follows: (*a*) There would be less duplication of teaching in embryology and in the anatomy and physiology of the female reproductive organs. (*b*) The pathological aspects of the two subjects could be correlated, making only one laboratory necessary. (*c*) As many of the diseases were referable to the child bearing process, they might well be grouped under one head. (*d*) The opportunity was afforded of studying in the obstetrical department the results of various operations and the remedial measures employed for the relief of gynecological diseases. (2) When an endowment was not sufficiently large to equip fully and maintain a combined department in the most comprehensive way, or when special endowments for the maintenance of an obstetrical and gynecological department could be secured, but were not large enough to allow the chief assistants and director to retire from private practice, such departments might be conducted more successfully as separate units, for the following reasons: (*a*) In a university medical school special departments were likely to turn out a more refined product and to offer better instruction if the field to be covered was not too extensive. (*b*) When properly endowed, the department of gynecology might very logically expand and enter the domain of general surgery. The chief function of the head of such a department was that of instructor in diseases of women, and in a minor role of clinical teacher of abdominal surgery. (*c*) With separate chairs, more time could be given in the obstetrical department to the teaching of the very important subject of diseases of nursing infants, a subject that was now receiving inadequate attention for the reason that the obstetrician had no time to devote to this branch.

Fetal Anatomy of the Female Pelvis.—Dr. Fred L. Adair of Minneapolis based his report on two studies: (*a*) the ossification centers of the fetal pelvis, and (*b*) a wax reconstruction of the pelvis of a female fetus of 14 weeks gestation. The first part of the work was based on observations of 14 *x*-ray plates of fetuses, 21 transparent embryos and 25 sets of serial sections. From these two investigations the following conclusions were drawn: "(1) The first ossification center of the pelvis appears in the ilium about the 60th to 65th day of fetal growth in embryos with a C. R. length of from 30 mm. to 35 mm. (2) The median center of the first sacral vertebra is the next to appear about the 74th to 76th day in embryos having a C. R. length of 51 or 52 mm. (3) The lateral sacral centers appear when two or three median centers are present, in embryos 80-82 days old having a C. R. length of 65 mm. (4) The ischial center appears about the 94th to 98th day in embryos whose C. R. measurement is from 88 mm. to 100 mm. (5) The pubic center is present on the 129th day in an embryo with a C. R. length of 150 mm. At this time all other centers which appear, until just prior or subsequent to birth, are usually apparent. (6) Practically all antenatal pelvic ossification centers are evident by the end of the 19th week of fetal life. (7) The skeletal pelvis resembles closely that of the adult in its form and markings. Most of the structures of the adult are indicated in the fetal pelvis. (8) The most striking differences between the adult and fetal pelvic skeleton are: (*a*) The second sacral vertebra occupies, in early fetal life, about the position of the last lumbar in adult life. (*b*) The short distance between the ischii which lie almost parallel in the fetus. (*c*) The very acute pubic angle (15°). (9) The absence of sacral concavities in the fetus. (10) Sex differentiation is well marked in this specimen on the vulva, most of the different structures in the external genitalia being easily recognizable. (11) The vagina is well formed. The cervix is relatively large; the corpus occupies about its adult relations. flexures, and position. It is flattened anteroposteriorly. (12) The two tubes show marked differences in length, source and height as well as in their relations to the ovaries. (13) The ovaries are large, being much bigger than the uterus. The two differ in their relative positions. They both lie above the pelvic brim. (14) The bladder is well differentiated from the rest of the urinary tract. It is distinctly an abdominal organ. (15) The ureters and arteries stimulate the adult relations. (16) The development of the rectum and anal region is well advanced and corresponds approximately to the adult type. The colon enters the pelvis in the mid line and appears not to have been filled with meconium."

Escape of Foreign Material from the Uterine Cavity into the Uterine Veins.—Dr. John A. Sampson of Albany, N. Y., stated that radiographs of the uterus, tubes and ovaries in which the uterine cavity had been injected with bismuth (introduced through the cervix) showed the form of this cavity under various conditions: and also by what channels and under what circumstances the bismuth might escape from the uterus. If the tubes were patent the bismuth escaped into them;

the ease with which this occurred varied with the degree of patency of the tubes. These experiments suggested that intrauterine irrigations were attended with the danger of some of the irrigating fluid, at times, escaping through the tubes into the peritoneal cavity; and also that fluid in the uterine cavity, under favorable circumstances (patent tubes, relaxation of uterus and obstruction in the cervix) might be forced into the tubes and peritoneal cavity. This was one way that salpingitis and peritonitis might arise. If the endometrium was intact the bismuth would not escape into the venous uterine sinuses even though great force was used. If the patient was flowing when the uterus was removed the bismuth might gain access to them. If the endometrium was removed by curettage, the injection mass would usually escape into these sinuses. The ease with which this occurred varied with the size of the sinuses in the individual specimen and the degree of relaxation of the uterine wall. Under favorable circumstances of venous hyperemia and uterine relaxation, the bismuth easily escaped into the venous sinuses and into the venous circulation outside of the uterus. A study of uteri in which the venous system had been injected with bismuth through the uterine and ovarian veins showed a rich venous plexus in the endometrium and also one in the myometrium; the latter might be subdivided into a peripheral and radial plexus, situated in the peripheral and radial zones. Arcuate veins between the two zones conveyed the venous blood to the uterine plexus between the layers of the broad ligament. Relatively large sinuses (receiving) radiated from the base of the endometrium into the myometrium and conveyed the blood from the endometrial plexus into the deeper portion of the radial. If these receiving sinuses were exposed by removing the overlying endometrium and the uterus was relaxed, thus holding the lumina of the receiving sinuses open, fluid and small solid material could easily escape from the uterine cavity into them and thence into the venous circulation outside the uterus. Clinical experience had taught us that solid material from the uterine cavity gained access to the venous circulation—puerperal infection and the presence of placental cells (benign and malignant) in the lungs of puerperal women. Experimentally solid material (bismuth in suspension) could be forced from the uterine cavity into the venous circulation under very little pressure if these sinuses were exposed and the uterus relaxed. Anatomical and physiological studies demonstrated how this might occur, exposure of the lumina of the receiving sinuses, uterine relaxation, and pressure in the uterine cavity greater than that in the sinuses. He believed that uterine contraction following relaxation, when there was obstruction in the cervical canal and intrauterine irrigation might bring about this increased pressure and force fluid, sterile or containing in suspension bacteria or placental cells, into the venous circulation, one way, and probably a frequent one, by which puerperal infection arose and placental cells reached the lungs.

Dr. George W. Kosmak of New York City said that the work of Dr. Sampson was a striking demonstration of the warning that we ought to stay out of the uterus as much as possible because the invasion of this organ, particularly in the puerperal state and at other times, was attended with a great deal of danger. Observations which he made some years ago with reference to the extrusion of irrigating fluid through the Fallopian tubes demonstrated this to him in such a dramatic manner that he should never forget the subject, and Dr. Sampson's remarks not only clearly demonstrated but had shown most convincingly the possibility of the invasion of the general venous system by mechanical methods, as he had demonstrated by his injection specimens.

Dr. John O. Polak of Brooklyn, N. Y., said the demonstration of the protection of the endometrium against invasion from curetting the uterus was particularly impressive. Years ago we were taught not to operate during the menstrual period, yet in the hurry of hospital work we had violated the rule. Dr. Sampson had given us a clear idea of why in some cases we got infection.

Dr. Thomas J. Watkins of Chicago thought the paper was of great value in bringing before us positive evidence against curettage of the puerperal uterus, and the society should put itself on record against any such procedure. Whenever the question of puerperal infection came up before a body of gynecologists and obstetricians, it was to him surprising and shocking the number of men who continued to curette and wash out the puerperal uterus. Dr. Sampson had presented an excellent argument against it. He related briefly a series of investigations which he had made bearing on the subject. The uteri in 200 cases, which were removed by hysterectomy, were examined bacteriologically by Dr. Curtis, and an interesting point was this: In nearly all these cases the endometrium was sterile, whether it was a chronic case or not, except in those in whom a preliminary curettage had been made. If the curettage had been done two or three days or two weeks before the hysterectomy, and done under aseptic precautions, invariably the uterus was found to contain bacteria following such a curettage; and the work of Dr. Sampson emphasized the danger of increasing infection by curettage, and especially increasing the dangers of doing hysterectomy a few days after the preliminary curettage.

Dr. J. Wesley Bovee of Washington, D. C., said that the work of Dr. Sampson confirmed what he had been doing in the last few years, namely, discarding frequent curettage that was so common—and he feared too common now—and he, still clinging to the necessity of having to invade the uterine cavity, injected iodine into it. In two specimens in which he had injected iodine previous to removing the body of the uterus within ten days for Neisserian infection, he found iodine in the blood channels in the uterine body, so that caused him to discard injections of iodine. Then came the paper of Dr. Curtis, which showed the interior of the uterus was nearly always a harmless structure above the internal os, and now came Dr. Sampson's paper, which confirmed that position.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Colorado Board of Medical Examiners.

Denver, April 2, 1918.

(*Concluded from page* 574.)

OBSTETRICS.

1. Describe local maternal changes at end of first half of pregnancy.
2. Give your method of conduct of a normal labor.
3. Describe the mechanism of labor of an L. O. A.
4. Name the positive signs of pregnancy.
5. Etiology, symptoms, diagnosis, and treatment of puerperal insanity.
6. Diagnosis and treatment of placenta prævia at the eighth month.
7. Indications and contraindications for use of forceps.
8. (*a*) How would you control post-partum hemorrhages? (*b*) How deliver the after-coming head?
9. (*a*) Describe the clinical course of extrauterine pregnancy. (*b*) Differential diagnosis of ectopic pregnancy. (*c*) What would you carry in your O. B. bag?
10. (*a*) Describe briefly your conduct of the puerperium. (*b*) Name the three most frequent causes of hyperemesis gravidarum.

SURGERY.

1. Discuss acute osteomyelitis.
2. What are the symptoms and diagnosis of intestinal obstruction?
3. Give symptoms and diagnosis of cerebral abscess.
4. Describe a tuberculous abscess.
5. Give symptoms, diagnosis, and prognosis of fracture of the surgical neck of the humerus.
6. What are the symptoms produced by gallstones?
7. What are the clinical characteristics of a malignant tumor?
8. Give the symptoms and diagnosis of tuberculosis of the shoulder joint.
9. Discuss fractures of the upper third of the femur.
10. Discuss congenital clubfoot.

ANSWERS.

OBSTETRICS.

1. The *local maternal changes at the end of the first half of pregnancy* are: The uterus is enlarged, the cervix is softened, the vagina is softened, congested, and has a violet hue, the vulva is thickened and its secretion is increased, the breasts are enlarged and distended and the secondary areola is observed with enlargement of Montgomery's tubercles, striæ may be seen on the abdomen, menstruation is absent.

2. *The patient* should receive a full bath before labor begins and all bed clothing and personal clothing should be clean. If there are any pathological discharges from the genitals, the vagina should be thoroughly scrubbed with tincture of green soap and hot water, followed by a mercuric chloride douche (1:2000); this followed by a douche of sterile water. The physician's hands should be scrubbed for ten minutes with tincture of green soap and hot water, followed by alcohol, and immersion in mercuric chloride (1:1000). All instruments should be boiled for ten minutes or immersed in mercuric chloride (1:1000) for half an hour. Examinations should be made when necessary to determine the position, presentation, size of the fetus, etc.

During the first stage a rectal enema of soapsuds with turpentine (℥1) should be given, and when the os is dilated to the size of a silver dollar, the patient should be placed in bed, lying upon the side toward which the fetal back looks. If the pain is severe, chloral hydrate (gr. 15) may be given every half-hour for three doses.

During the second stage examinations should be made only when necessary. In multiparæ, the membranes may be ruptured with the finger or with some aseptic instrument. Care should be taken not to injure the child's scalp or the lower uterine segment. The pain may require the administration of chloroform or ether, but not to the extent of complete anesthesia. The expulsive force of the abdominal walls may be increased by directing the patient to pull upon a sheet firmly secured to the foot of the bed. Attempts may be made to prevent laceration of the perineum by making firm backward and upward pressure against the occiput during the pains; by restraining voluntary expulsive efforts during the pains; and by securing expulsion of the head between the pains. The head should be supported when born; the eyes should be cleansed with sterile water; and if the cord is coiled about the neck, it should be loosened or slipped over the head. Delay in delivery of the shoulders may be overcome by stimulating the uterus by friction through the abdominal wall or traction. The cord is ligated and cut when pulsation has ceased, and the child is placed by the mother's side with its face turned away from the maternal discharges.

During the third stage ℥1 of fluidextract of ergot is administered and irritation of the uterus by friction through the abdominal wall is practised for ten to fifteen minutes. If the placenta is not expelled by this time, the uterus is firmly grasped between the thumb and four fingers and compressed. Firm pressure is then made from above downward and backward in the direction of the pelvic canal. This usually causes delivery of the placenta. A vulvar pad of salicylated cotton and carbolized gauze and an abdominal pad and binder are then applied.—(*Pocket Cyclopedia.*)

3. *Mechanism of Labor in L. O. A.*—"(1) Accommodation of the size of the fetal skull to the size of the pelvic canal by flexion; accommodation of the shape of the fetal skull to the shape of the pelvic inlet by moulding; accommodation of the direction of the head to the direction of the pelvic canal by lateral inclination. These movements occur prior to labor, when the head enters the pelvic inlet with the subsidence of the uterus. (2) Further flexion, moulding, and accommodation of the head to the pelvis by lateral inclination, when labor pains appear, and the head is subjected to a propulsive force and to the resistance of the lower uterine segment, the cervix, and the pelvic walls. (3) Dilatation of the lower uterine cavity and of the cervical canal. (4) Descent of the head to the pelvic floor, mainly by an extension of the fetal spine. The fetal body, as a whole, is not yet propelled along the birth canal, because, during a pain and while the head is obviously descending to the pelvic floor, the fundus uteri and the breech do not sink to a lower level. On the contrary, there is a slight elevation of the fundus, and elongation of the uterus, and the distance between the head and the breech increases during a uterine contraction. (5) Anterior rotation of the occiput. (6) Propulsion and extension of the head in the direction of least resistance under the pubic arch until it is delivered, again following the direction of the lower pelvic floor, which is now upward, forward, and outward. (7) Restitution. The rotary movement of the head is not followed by the shoulders. As the former escapes from the vulva with the sagittal suture running anteroposteriorly, the neck is necessarily twisted. As soon as the head is released from the forces which compel its rotation, it immediately resumes its natural relationship with the shoulders, which lie with their long axis in the oblique diameter of the pelvis. (8) External rotation. This movement of the head is explained by the movement of the shoulders within the birth canal. (9) Descent, rotation, and birth of shoulders. The anterior, or right, shoulder first strikes the resistance of the pelvic floor. In obedience to the universal law that whatever portion of the fetal body first encounters this resistance is directed downward, forward, and inward, the anterior shoulder is compelled to travel in these directions by a rotary movement of the shoulders on the spine. The anterior shoulder finally appears under the arch of the symphysis; unable to move further forward, the posterior shoulder and arm are propelled over the floor of the pelvis and are born, their escape being followed by the birth of the anterior shoulder and arm. (10) Delivery of remainder of the body by a movement so rapid that the eye cannot well follow it, the birth canal being so widely dilated that its walls offer no resistance to the escape of the small and compressible thorax, abdomen, and lower extremities."—(From Hirst's *Obstetrics.*)

4. *Positive signs of pregnancy.*—(1) Hearing the fetal heart sound; (2) active movements of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpation, and (5) the umbilical or funic souffle.

5. *Puerperal insanity.*—Heredity and personal predisposition, exhausting and debilitating conditions, postpartum hemorrhage, excessive lactation, intoxications, primiparity, mental distress, and septic infection are generally given as the etiological factors. The condition generally comes on early, in the first week; it is of a maniacal type, and may be suicidal or infanticidal; persistent insomnia is said to be a precursor of this insanity; when menstruation returns the condition often improves. Puerperal insanity is to be distinguished from lactational insanity; this latter generally comes on later, about the fourth month, and is apt to be of a depressed and melancholic type. The patient must be constantly attended and watched so that she may not hurt herself or her child; sleep and nutrition should be secured; commitment to an asylum or sanitarium may be necessary or advisable.

6. *Placenta prævia* is the condition in which the placenta is attached in the lower uterine segment, and may be near or over (partially or completely) the internal os. *Symptoms:* Sudden hemorrhage, accompanied by syncope, vertigo, restlessness, and feeble pulse. *Treatment:* Stop the hemorrhage by vaginal tampon; this must be tight and thorough. *Accouchement forcé* is indicated; this consists of dilatation of cervix, version, and immediate extraction of the child.

Treatment before term: Rest in bed, with or without a *tampon*, will arrest hemorrhage for the time; the sinuses are closed by thrombi, and the case may go on to term or another hemorrhage. The patient should be allowed cold drinks; opium may be used where pain is present. If the hemorrhage is great, it is safer to induce labor at once than to wait. Occasionally no hemorrhage occurs during pregnancy, not even in labor.

7. *Indications for the use of forceps are:* "1. *Forces at fault:* Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (*a*) Impending exhaustion; (*b*) arrest of head, from feeble pains. 2. *Passages at fault:* Moderate narrowing 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. 3. *Passenger at fault:* A. Dystocia due to (*a*) occipitoposterior, (*b*) mentoanterior face, (*c*) breech arrested in cavity. B. Evidence

of fetal exhaustion (pulse above 160 or below 100 per minute.) 3. *Accidental complications:* Hemorrhage; prolapsus funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both."—(From Jewett's *Practice of Obstetrics.*)

Contraindications: Mechanical obstruction in the parturient canal; incomplete dilatation of the os; nonrupture of membranes; non-engagement of the presenting part; the fetal head being too large or too small; distended bladder or rectum.

8. (*a*) *Treatment of postpartum hemorrhage:* Grasp the uterus at once, through the abdominal wall, and massage it firmly. Anything in the uterus should at once be cleaned out. Pass one hand into the uterus, and with the other on the outside make firm pressure. A hypodermic of ergotin, or ergot can be given by an assistant. An intrauterine douche of hot sterilized water (about 115° F.) may be given. Sometimes a very thorough packing and plugging of gauze of uterus and vagina may be necessary. Whatever is done must be done promptly; and everything likely to be needed for this emergency should be prepared beforehand in every labor.

(*b*) *Extraction of the after-coming head:* "If the arms are extended by the side of the child's head, they should be delivered first. The posterior arm is located by the position of the trunk and shoulders. To deliver the right arm, the child's ankles should be grasped with the left hand, and the body raised upward and outward over the mother's right thigh. The fingers of the right hand are passed along the posterior surface of the arm beyond the elbow. The fingers are hooked in the elbow, and traction is exerted; the forearm is then delivered by extension. The left arm is delivered in a similar manner. In the *Wiegand-Martin method* extraction of the after-coming head is effected by the insertion of the index finger of the supinated right hand into the child's mouth and making traction upon it, while pressure is exerted through the abdominal wall by the left hand. In the *Mauriceau* or *Veit-Smellie method*, in addition to the right hand index finger in the mouth, the left hand is also introduced into the vagina, along the back of the child, the middle finger presses against the occiput, while the remaining fingers exert traction over the clavicles. In the *Prague method* the child's ankles are grasped in the right hand, the fingers of the left are flexed over the clavicles, and traction is made. In these methods, when the perineum is distended, the child's body is raised toward the mother's abdomen. *Forceps* may be applied after the child's body has been raised and traction made in the direction of the axis of the parturient canal."—*Pocket Cyclopedia.*)

9. (*a*) Ectopic gestation. *The Symptoms* for the first few weeks are exactly similar to those of normal pregnancy. Later, sharp, cramp-like, periodic pain occurs and is reflected down one thigh. About the third month menstruation returns. The bleeding is profuse and attended by some pain. Flesh-like masses (decidua) are discharged. Nearly all the signs of normal pregnancy are present. Physical examination will reveal a softened cervix, an enlarged and displaced uterus, and the presence of a small cystic tumor, sensitive and adherent, on one side of the uterus. *Rupture* is attended by great pain and syncope. If the hemorrhage is intraperitoneal and extensive, death results in a few hours, attended by symptoms of profound shock; rapid, weak pulse, blanched, cold skin; sighing respiration, and fall of temperature. If the hemorrhage is extraperitoneal, it will be limited and the symptoms of shock and bleeding will be slight. Before rupture the diagnosis is difficult, but afterward the history of the case pointing to early pregnancy, and the sudden occurrence of intense pain, syncope, and collapse will distinguish this condition.

The treatment consists of removal of the affected tube and ovary as soon as the diagnosis is made. In late extrauterine pregnancies it may be necessary, after controlling hemorrhage, to suture the sac-wall to the lower angle of the abdominal incision.—(*Pocket Cyclopedia.*)

(*b*) The following tables (from Dorland's *Obstetrics*) give the main points to be looked for in a *differential diagnosis of extrauterine pregnancy:*

From *cornual pregnancy:*

EXTRAUTERINE PREGNANCY.	CORNUAL PREGNANCY.
Rupture is most prone to take place at some period during the first three months.	Rupture usually occurs between the third and sixth months.
The tumor exists to one or the other side of the uterus, and is usually distinct.	There may be but one tumor, this being dependent upon the degree of bifurcation.
The tumor is exceedingly sensitive and semi-elastic.	The tumor is not so sensitive and presents the characteristics of a uterine tumor.
The round ligament may be felt attached to the uterus on the inner or uterine side of the gestation sac.	The round ligament is displaced outward and is attached to the external side of the gestation sac.
Examination of the removed specimen shows an absence of true decidual tissue.	True decidual tissue will be found surrounding the fetal membranes.
In interstitial pregnancy the gestation sac communicates with the uterine cavity by the orifice of the Fallopian tube.	The two halves of the uterus are united by a muscular band.

From *pyosalpinx:*

EXTRAUTERINE PREGNANCY.	PYOSALPINX WITH INDISTINCT HISTORY OF PREGNANCY.
The uterus is enlarged, with a soft cervix and the peculiar softening of the body that is present in pregnancy.	The uterus is probably not enlarged, the cervix is not soft, and there is not the elastic feel that is present in pregnancy.
There is a history of sterility, with the signs of endometritis or salpingitis.	There is a history of acute attacks of peritonitis occurring at intervals after an attack of gonorrhea.
The tumor is small, exceedingly sensitive, but, as a rule, not firmly bound down in the pelvic cavity.	The tumor is large, moderately sensitive, firmly bound down in the pelvis, and surrounding by a mass of exuded lymph.
Rupture is likely to occur at some time during the first three months.	The history may have covered a period of months without the symptoms of rupture.
The usual clinical manifestations of pregnancy will be present.	The clinical manifestations of pregnancy are absent or very indistinct.

From *intrauterine pregnancy with fibroid tumor:*

EXTRAUTERINE PREGNANCY (TUBAL VARIETY.)	INTRAUTERINE PREGNANCY COMPLICATED WITH FIBROID TUMOR.
There is discovered to one side of the uterus a mass, rounded, exceedingly sensitive, and elastic or semi-fluctuating.	The mass may be rounded; more often it is nodulated, very hard, non-elastic and non-fluctuating, and not sensitive to the touch.
The uterus is enlarged, but not to a size proportionate to the period of gestation.	The size of the uterus corresponds to, or is even in excess of, the time of gestation.
The menstrual history is irregular, and there may be an early return of the show.	Menstruation is likely to be suppressed.
Rupture occurs at the usual time.	No signs of rupture follow.
Pain is an early and prominent symptom.	Pain develops only after the tumor has reached sufficient size to press upon the surrounding structures.

(*c*) The following articles should be taken by the accoucheur to a confinement. Tablets of bichloride of

mercury, or some other material for making antiseptic solution; forceps; ether or chloroform, with inhaler or mask; fluidextract of ergot, hypodermic syringe, with tablets of strychnine, morphine, etc.; needles, sutures, and needle holder; nail brush and nail cleaner; umbilical scissors; carbolized vaseline; stethoscope; male catheter (rubber); a one per cent. solution of nitrate of silver.

10. (*a*) *Care of mother during puerperium: "During the first week* the patient keeps the bed, but after the first few hours she has considerable license. She may assume the sitting or half-sitting posture to take her meals and to nurse the baby, and, if necessary, for evacuation of the bladder and rectum. She should assume the lateroprone posture both right and left, several times a day, and lie upon her abdomen for at least an hour daily. Frequent change of position favors uterine drainage and massages the uterine supports. *During the second week* she has greater liberty, while the greater part of her time is spent on the bed or lounge. She may sit up for her meals, to urinate, and for bowel movements, and she should spend at least half an hour, twice daily, in abdominal and leg exercises to keep up her muscular tone. *The third week* she may be moved to a chair for a part of the day, having the liberty of the room. After sitting up for any length of time she should be instructed to take the genupectoral position before lying down. Prescribed exercises for the legs and abdominal muscles are to be taken daily. *The fourth week*, if all goes well, she may leave the room and have the benefits of air and sun. Physical exercises should be continued. The duration of the lying-in period and the degree of freedom to be given the patient after the second week must, however, depend on the character and amount of the lochia, the general progress of her convalescence, and the rate of the uterine involution."—(Polak's *Obstetrics.*)

(*b.*) *Three most frequent causes of hyperemesis gravidarum:* Toxemia, reflex irritation, neuroses.

SURGERY.

1. *Osteomyelitis* is inflammation of the bone and marrow; the term is often used now for inflammation of bone.

It is *caused* by infection, the bacteria gaining entrance either through a wound, or by extension from neighboring tissues, or they may be brought by the blood.

Symptoms: Sudden onset; pain, tenderness, fever, chills, swelling of soft parts; sometimes the joint can be moved gently without pain; septicemia or pyemia may be present.

It is to be *diagnosed* from (1) *Rheumatism,* in which more than one joint is affected and the tenderness is *in* the joint, and not *near* it. (2) *Tubercular arthritis,* in which the onset is slow and the trouble starts in the epiphysis rather than in the diaphysis. (3) *Cellulitis* in which the bone and periosteum are not affected, and in which there is always a wound.

In *osteomyletis,* the *treatment* consists in relieving constitutional symptoms and preventing the bone from necrosing. An incision down to the bone is made; if pus is beneath the periosteum, the latter is also incised; a piece of bone is removed by chisel or trephine, pus is removed, the endosteum is hurt as little as possible, the wound is irrigated with hot bichloride solution and packed with gauze; the soft parts are closed and the wound well drained. In case this fails, amputation may be necessary.

2. *Intestinal obstruction* may be caused by: Strangulation, kinking, volvulus, foreign bodies, intussusception, stricture, fecal accumulation, and tumors either within or outside the bowel.

STRANGULATION.	INTUSSUSCEPTION.	TWISTS (VOLVULUS)
Subjective Symptoms.	*Subjective symptoms.*	*Subjective Symptoms.*
1. Generally occurs after age of 20.	1. Most frequent in childhood.	1. Most frequent after age of 30.
2. Pain localized, rapid collapse.	2. Constant tenesmus.	2. Pain diffuse.
3. Pain intense, paroxysmal in character.	3. Pain develops suddenly and is continuous.	3. Pain paroxysmal; recurs less often than in strangulation.
4. Constipation complete.	4. Frequent diarrhea, passage of bloody mucus.	4. Constipation complete.
Objective symptoms.	*Objective Symptoms.*	*Objective Symptoms.*
1. Temperature often subnormal.	1. Temperature normal or subnormal.	1. Temperature slightly elevated.
2. Location in small intestine.	2. Localization in small intestine; bowel frequently protrudes at rectum.	2. Location, small intestine; abdomen often protrudes, in certain areas giving dullness on percussion.

—(*Pocket Cyclopedia.*)

And see SYMPTOMATOLOGY, Question 2.

3. CEREBRAL ABSCESS. "The *symptoms* in traumatic cases are acute and, as there is usually diffuse meningitis, there is intense pain, fever, and rigors, coma quickly supervening. In the more common chronic cases the symptoms are often vague in the early stages, but when well marked consist in signs of intracranial pressure. 1. The *headache* and tenderness are severe and localized to the site of the abscess. 2. The *temperature* is subnormal, unless there is associated meningitis. 3. The *pulse* is markedly slowed, even down to 30 or 40. 4. The patient is quite intelligent, but *cerebration* is very slow; vomiting and optic neuritis are usually present. 5. *Motor symptoms* may occur if the abscess is in the anterior part of the temporo-sphenoidal lobe, either irritative or paralytic. If the cerebellum is affected, there is giddiness both while walking and lying down, together with weakness of the hand grip and increase in the knee jerk on the side affected. Lateral nystagmus often occurs.

Diagnosis: From *meningitis,* by the fact that in meningitis there is fever, great restlessness, delirium, photophobia, pain, and spasm in the muscles, especially at the back of the neck. An *extradural abscess* is always accompanied by fever. In *lateral sinus thrombosis* there are rigors and profuse sweats, and there may be a hard tender cord in the situation of the internal jugular vein. Chronic abscess and tumor are often indistinguishable in their symptoms, but the presence of chronic otitis media suggests abscess."—(*Aids to Surgery.*)

4. *Tuberculous abscess.* When the tubercle bacillus attacks a spot there is a surrounding area of chronic inflammation. A combination of action between the bacilli and their products, and the obliteration of the neighboring arterioles by chronic endarteris, brings about liquefaction of the central area. This liquefied material is "tuberculous pus." The process may extend to the surface directly, or, if under deep fascia, spread to a spot far distant. A common example of the latter is a psoas abscess. None of the signs of acute inflammation are present. The wall of the abscess cavity is lined by pulpy, gelatinous-looking granulation tissue containing miliary tubercles.

5. In *fracture of the surgical neck of the humerus,* "the symptoms are pain (which may be reflected along the large nerves from pressure), abnormal mobility, crepitus, shortening of the limb (1 inch or more), a depression just below the shoulder, and abduction of the elbow from the side of the body. The upper end of the lower fragment passes into the axilla, owing to the inward traction of the muscles attached to the bicipital groove (pectoralis major, teres major, latissimus dorsi), and the upward pull of the deltoid, biceps, coracobrachialis, and triceps; the upper fragment may be abducted by the supraspinatus, but there is little or no rotary displacement, because the subscapularis in front and the teres minor and infraspinatus behind nearly or quite balance each other; if impaction be present the signs are obscure and the diagnosis difficult. The deformity resembles that of dislocation of the shoulders, but in the former the depression is lower, the head of the bone is in place, and, when the arm is rotated, there is immobility of the head with crepitus. The *x*-ray should be used in doubtful cases. The complications are injuries of the axillary vessels or nerves, particularly the circumflex nerve, which passes around the bone at or near the line of fracture. The prognosis is good,

but in the old and rheumatic stiffness and pain are frequent legacies."—(Stewart's *Surgery.*)

6. The *symptoms of gallstones* are: "*Indefinite pains;* fullness in right hypochondrium and epigastrium. *Paroxysms of colic* begin in hypochondriac and epigastric regions, spread toward navel and right scapula; generally begin in daytime, during exercise, and last a few minutes to several hours; collapse, sickness, or vomiting. *Sickness and malaise,* quite independent of colic. *Vomiting.*—At end of paroxysm; bile-stained vomit; calculus is rarely vomited. *Collapse.*—Feeble pulse; clammy skin, low temperature. *Calculi in feces.*—Absence in some cases accounted for by stone having failed to reach the intestine. *Jaundice.*—Usually occurs 12 to 36 hours after colic; skin, urine, conjunctiva are yellow; feces are clay colored and offensive; rarely, and in old people, jaundice occurs without preceding colic; does not occur when stone is in cystic duct; is partial, *i.e.* feces contain bile when obstruction is partial, or when fistulous communication exists. *Temperature.*—Sometimes rigors, with temperature 103° or more, occur after colic; probably due to septic infection at seat of ulceration; fever may be of an intermittent type, associated with catarrh of bile-ducts and an impacted calculus; may be remittent, and lead on to septicemia or septic endocarditis; associated with suppuration in bile-ducts."—(*Synopsis of Surgery.*)

And see SYMPTOMATOLOGY, Question 1.

7. The *clinical characteristics of a malignant tumor* are: "It is not encapsulated, it grows rapidly, it infiltrates the surrounding tissues, it often ulcerates, it gives rise to metastatic growths, it has a tendency to recur after excision, causes cachexia, and tends to destroy life.

8. *Tuberculous disease of the shoulder joint.* "This is usually met with in young adults, and is more common in the right shoulder. The prominent features are pain, rigidity, and wasting of the deltoid and scapular muscles. The pain is sometimes severe, shooting down the arm and interfering with sleep, and it may be associated with tenderness on pressure over the upper end of the humerus. In cases with advanced carious destruction of the articular surfaces, there are starting pains and the upper arm is shortened. If a cold abscess forms in the bursa underneath the deltoid, the pus may burrow and appear at the anterior or posterior boundary of the axilla or in the axillary space. Pus formed in the joint tends to gravitate along the bicipital groove. The axillary glands may become infected. The *diagnosis* is to be made from (1) arthritis deformans, in which the movements are less restricted, and are attended with grating and crackling; (2) paralysis involving the deltoid and scapular muscles—by the absence of pain,and the flail-like character of the movements; (3) disease in the sub-deltoid bursa—by the absence of rigidity and other evidence of implication of the articular surfaces; and (4) sarcoma of the upper end of the humerus—by the history of the case, the use of the *x*-rays, or an exploratory incision."—(Thomson and Miles' *Manual of Surgery.*)

9. FRACTURES OF THE UPPER THIRD OF THE FEMUR.—"*Intracapsular fracture* most commonly occurs in people over fifty, especially women, owing to senile changes in the bone rendering it brittle. As a rule, indirect violence is the cause—*e.g.* slipping off a curb or catching the toe in a carpet. The patient falls, and is unable to walk or raise the limb. The head may be held at first by the retinacular fibres. If impaction, which is uncommon, occurs, the neck is driven into the head. The displacement consists of drawing up of the lower fragment and external rotation. The rotation is due to the weight of the limb and to greater breaking up of the posterior surface than of the anterior. Shortening is rarely more than three-quarters of an inch. Treatment.—Fibrous union nearly always occurs in old people, as the blood supply of the upper fragment depends solely on the obturator branch running in the ligamentum teres. Then, old people often die of hypostatic pneumonia if kept lying long upon the back. If the patient be young, he should be put upon a long Liston splint, with extension, for six weeks. The same should be tried with old people, but the moment the respirations begin to increase the patient must be got up, wearing a Thomas's hip splint. Impaction favors bony union, and so should not be broken down.

"*Extracapsular fracture* means fracture of the neck near the trochanter, and often is associated with splitting up of the trochanter. The usual cause is a heavy fall on the great trochanter, and impaction is common. Shortening always occurs, up to a much as 3 inches; external rotation of the limb is always present, and if there is impaction the trochanter is broadened.

"*Signs and Symptoms of Fractures of the Neck.*—1. Pain, bruising, and swelling are more marked in extracapsular fractures. 2. Crepitus is present in the unimpacted fractures. 3. Loss of power usually occurs in both, but patients have walked with impacted fractures. 4. Eversion is a striking feature in both. 5. Shortening is much more marked in extracapsular fractures. 6. The position of the great trochanter is altered. It is raised, everted, nearer to the mid-line, and rotates in the arc of a smaller circle than the opposite one.

Its position is demonstrated as follows: *Néalton's line* is drawn from the anterior superior iliac spine to the tuber ischii. The top of the trochanter should touch this line if the limb is placed in the axis of the body. *Bryant's line:* Drop a vertical line to the bed from the anterior superior spine, and measure off the length of a line running at right angles from this to the trochanter, and compare it with a similar line on the sound side. *Morris's bitrochanteric test:* Measure and compare the distances of the trochanter from the mid-line. 7. Broadening of the trochanter only occurs in extracapsular fracture. *Treatment.* Unless there is great deformity, it is not advisable to break up impaction. Bony union always occurs. The patient should be anesthetized, and traction kept upon the leg during fixation. A stirrup extension is first put on, and then the leg is firmly bandaged to a long Liston splint, with the eversion corrected. The chest is fixed to the splint by a binder; the foot of the bed is raised, and a weight of 8 or 10 pounds is put on to the cord of the stirrup extension. Hodgen's splint may also be used. Union occurs in six weeks.

"*Fracture of the great trochanter* without fracture of the neck is very rare. If the fragment is displaced, it should be wired or pegged.

"*Separation of the epiphysis* of the head of the femur resembles intracapsular fracture. Impairment of growth may follow.

"*Fractures of the shaft of the femur* may be due to either direct or indirect violence. The displacement varies according to the situation and obliquity of the fracture. In the *upper third* the upper fragment is flexed, abducted, and rotated out by the psoas, iliacus, and glutei, while the lower is drawn up and adducted by the adductors, and rotated out by its own weight."—(*Aids to Surgery.*)

10. *Congenital club-foot.*—By club-foot is meant a deformity of the foot due to muscular, ligamentous, or osseous causes, the displacement occurring mainly at the ankle and mid-tarsal joints. It may be congenital or acquired. *Congenital malformation* is responsible for a certain percentage of the cases, resulting from imperfect formation of the bones of the foot, occasionally from absence of the lower end of the tibia or fibula, or very rarely from intra-uterine paralysis of central origin. Other cases are due to malposition of the feet in utero, possibly resulting from a deficient amount of liquor amnii, as a result of which the feet are abnormally compressed and held in one position. Naturally the legs of the fetus are in a state of flexion, and the feet usually in a position corresponding to that of talipes varus; it is easy then to understand that in an unusually small uterus this position may become fixed. Spinal bifida in the lumbar region is occasionally associated with congenital talipes, which is then probably due to impairment of nervous control. The congenital variety is often hereditary, and may occur in several members of the same family, or be transmitted through many generations.—(From Rose and Carless' *Surgery.*)

Gas Phlegmon.—Rumpel on the German Western front saw 160 cases of gas phlegmon in 1200 wounded, mortality 50 per cent. There has been no progress in treatment but a preventive serum appears able to reduce the mortality to 6 per cent.—*Office International d'Hygiène Publique.*

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THE WAX-MODELING DEPARTMENT OF THE ARMY MEDICAL MUSEUM OF THE SURGEON-GENERAL'S OFFICE, AND THE APPLICATION OF THE ART TO GENERAL MEDICINE.

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WHEN we come to regard as a whole all of the various branches and specialties that go to form the one great common science encompassed by the terms medicine and surgery, it will be noted that this branch of human learning has, up to the present time, enlisted in its service or invoked the aid of the major part of the achievements of nearly every department of research which man has entered upon. This thoroughly justifiable species of appropriation has long been evident with respect to the mechanic arts, wherein the surgeon has utilized, in one way or another, hundreds of the most ingenious creations of the inventors comprised in the various departments that go to make up that heterogeneous combination of industries. In untold numbers of inventions, employed by the surgeon in his profession, we see the application and adaptation of every principle known to ancient and modern physics—as the lever, the wedge, the screw, and the rest; while in the fields of matter, force, and motion, as exemplified by those laws which we designate as gravitation, hydrodynamics, gases, acoustics, heat, light, electricity, and meteorology, there is not one that the practitioner of modern surgery is not more or less indebted to for the measure of his various successes. All of the mechanical contrivances he employs rest, in one way or another, in some one of these sciences, and surely there is a very large number of them.

So, too, with the various equipments employed in photography, in pictorial work, in the fine arts, and in biology in its broadest sense.

Of all these we have but to invite attention to one in the present article, and this pertains to an art rather than to an exact science, although some of the elements of scientific requirements enter into it. Aside from what photography or any line of pictorial achievement can do for him, the surgeon, the specialist, or the general practitioner of medicine

FIG. 1.—Captain James Frank Wallis, M.C., U. S. Army. Modeling Department, Army Medical Museum.

FIG. 2.—Miss Eleanor Courtenay Allen. Modeling Department, Army Medical Museum.

frequently desires, for many reasons, to give material expression to what those callings bring before him in the line of his work. For example, we may have the arm of a man presenting all of the characteristic ravages of tertiary syphilis; however

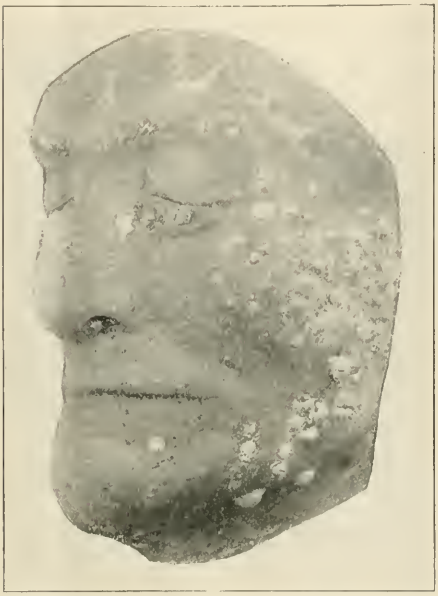

Fig. 3.—Left oblique view of face. Baretta model. Army Medical Museum. 9840. Wax. Sebaceous epithelioma or cancrodial acne. Æt. 67. 12 years' duration.

vividly the syphilographer may describe this case, it will ever lack what accurate visual manifestation can do for it. To be sure, it may be photographed and colored, or pictorially illustrated in other ways; but in all of these we lack the advantage of rotundity, associated with accurate coloring. Here is where the art of the modeler in wax comes in, with his ability to reproduce the actual color of the pathological condition he desires to preserve in the form of a model having the exact contour of the original.

When the awakening of the old Army Medical Museum of the Surgeon General's Office took place, due to the stimulation engendered by the present war, Colonel Wm. O. Owen, the officer in charge of that institution, was quick to perceive the necessity for preserving, through the art of wax modeling, various pathological conditions that would be exemplified in man and in the lower animals, which might in time, after the conflict, be quite unfamiliar to the coming generations of physicians and surgeons.

The Army Medical Museum already possesses quite a large collection of the J. Baretta wax models, secured many years ago; both Baretta and Mons. Tramond were celebrated workers in this art in Paris during the last century. The models we have of the first-named expert are, as a rule, of skin diseases, including the venereal ones; they are exhibited in table-cases on the main museum floor, and a number of them have been injured through having been exposed to the direct rays of the sun. Some of this damage has lately been repaired through the skill of Miss Eleanor Courtenay Allen, whose work will be illustrated further on in this article.

During the early summer of 1918 the department in question began to assume the unmistakable evidences of an awakening, and some remarkable results in the way of wax models passed into the temporary cases of Series "B," which is the great war series. Fortunate it was that the Medical Department secured the services of Captain J. Frank Wallis, of the Medical Corps, for not only is he a finished modeler in wax, but a teacher, and a well-known author in dermatology and allied branches of medicine. (Fig. 1.)*

In this section of the Museum is also attached,

*Commissioned 1st Lieut. M. R. C. Aug. 30, 1917. Capt. June, 1918. Graduate in Pharmacy, 1889, Univ. Penn., 1895. Dermatologist to Southern Dispensary, Phila., 1896-1910. Instr. in Dermatology, Post-Grad.

Fig. 4.—Wax model of right hand, dorsal aspect (Captain Wallis); school boy, æt. 16, showing effects of poison sumach.

Clinic, Phila. Polyclinic, 1898-1905. Dermatologist to Henry Phipps Inst., Phila, 1907-1911. Kensington's Hospital for Tuberculosis, Phila., 1907-1912. State Hosp. for the Insane, Morristown, Pa., 1907-1912. Member several dermatological societies, and an active researcher in that branch of medicine.

as noted above, Miss Eleanor Courtenay Allen. She was a student for one year at the Milwaukee Downer College in the art department; then went to the Chicago Art Institute for three years, taking a course in decorative designing, and graduat-

Fig. 5.—Dorsum of right hand. Nævus unius lateris. Boy, æt. 11, 7 years' duration. Wax model by Miss E. C. Allen, Army Med. Mus., Path. Ser. No. 14,736.

ing in 1912.* Fine specimens of her work, as well as admirable productions by Captain Wallis, illustrate the present article. Through the kindness of Miss Allen, I am enabled to give her portrait here in Figure 2. Her superb work speaks for itself, and her wax models of hands of infants, men, and

Fig. 7.—Left hand. Syndactylism. Fourth and fifth digits absent. Other hand normal. Model by Miss Allen, Army Med. Mus.

women are so natural that they, when draped, have

*Miss Allen designed and taught drawing in the public schools of Wisconsin for one year. She then went to Milwaukee Public Museum as wax modeler, remaining there four years. The first models she made were of fleshy fungi, both the edible and poisonous varieties, for exhibition to the public as means of identification of the various species. Fifty groups of these mushrooms are to be seen at the museum, shown in their natural habitat. She did the collecting of these specimens and the material for their habitat. In assembling them, she grouped the wax mushrooms in surroundings to simulate the natural. She also made a

Fig. 6.—Polydactylism. Child seven months old; girl. Description in text.

large diagrammatic model of the *Amanita phalloides*, giving a cross section to show the structure of the plant. While at this museum she made wax models of batrachians, showing the following groups of frogs in their natural environment in various positions: leopard, pickerel, and green. She also made fish models in wax and colored them. A collection of wax models made by her showing four mushrooms and a human hand have been placed on exhibition in the Smithsonian Institution at Washington, D. C. During her four years at the Milwaukee Public Museum she made, in her spare time, some pathological models at the suggestion of a Chicago surgeon. Dr. Edward H. Ochsner, and in 1915 she exhibited these models at a monthly meeting of the

Fig. 8.—Girl subject. W. G. Æt. 7. Absence of all the thumb bones of the radius. Allen model in wax; nat. size.

Chicago Surgical Society. Miss Allen came to the Army Medical Museum and began work on March 13, 1918, making pathological models exclusively, and she considers this to be her best line of work. She is now serving in France, and obtaining models for the Museum.

all the appearances of belonging to living individuals.

Few realize that the art of wax modeling dates back to Lysistratus, who flourished about 300 B.C. He devoted himself largely to the human face, taking his molds in plaster. These colored busts were used by the ancient Romans as evidences of nobility, and were exhibited in the vestibules of their homes. Much later, that is, in the 18th century, Ercole Lelli and Giovanni Manzoli brought fame to the Institute of Bologna through their contributions of anatomical wax models of its collections, while Susini and Fontana did the same for Florence by filling no fewer than fifteen chambers with a superb array of anatomical models in wax. As we pass to modern

Fig. 9.—Anterior aspect of right thigh. Self-mutilation, followed by eruption of Eczema traumatica. History of case in text. Wallis model.

times, we find many such collections in the museums of both Europe and America. It is truly remarkable to note the morbid interest taken in such displays by the visiting lay public; but, upon the other hand, to the student of dermatology and many of the superficial pathological conditions, they are often invaluable.

At present there is a large literature upon this subject, and astounding advances have been made in every line of the technique of the art in recent years. This not only consists in the making of the actual model, but also in the coloring process and the mode of exhibition. This history is altogether too extensive to even pass briefly in review in the present connection. What chiefly interests us here is the fact that we have, at the Army Medical Museum, actively and continuously at work during the regular government hours, two such masters of this art as Miss Allen and Captain Wallis, and that they are producing magnificent finished models, colored to life, of many superficial conditions, a number of which—as mustard gas poisoning and so on—are incidental to the present war. These will be described in the forthcoming medical and surgical history of this war, and the originals exhibited in the Army Medical Museum, for the study of every one interested in the years to come.*

The photographs of these models were made by Mr. Roy Reeve and his assistants in the galleries of the Army Medical Museum, which is a guaranty of their accuracy and merit. The face of the case shown in Fig. 3 is that of a farmer whose sister had the same disease—a malignant cancroidal acne. The cast is of the left and part of the right side of the face, exhibiting this sebaceous epithelioma in every stage of its development. There is a large ulcer on the right side of the nose, which shows only in part in the illustration. It will be noted that numerous patches of incipient epithelial acne cover a good part of the face. There are also patches of the second degree and horn-like vegetations on the left side of the forehead, which are red, excoriated, and papillomatous; an epithelial ulcer on the lower eyelid of the left eye, and other pathological states diagnostic of this disease. This man had a brother who died at 75 years of age; he had "crusts" on the body. One sister had spots like the patient, the latter having been admitted to the St. Louis Hospital, Paris, in November 13, 1886, and left six days thereafter. The disease began as small, yellow spots in 1874, and in 1882 the largest, on the right side of the nose, commenced to ulcerate; by 1886 it appeared as in the model. In 1883 a second group of ulcerations appeared on the lower eyelid.

In Figure 4 Captain Wallis has given us a model showing a typical case of "Dermatitis venenata" (*Rhus venenata*), the subject being a school boy sixteen years of age. I have been furnished with the following record of the case: "One of twelve

*There is an excellent article on "Wax Models of Unusual Types of Skin Diseases" (Figs. 1-4) in the *Transactions of the Section on Cutaneous Medicine and Surgery* of the A. M. A. (53d Ann. Meeting, 1902), by Captain Wallis (pp. 183-188) which is well worthy of study. At the time of its reading it was discussed by Dr. W. S. Gottheil of New York City, who said that "Having done work of this kind myself, I am in a position to appreciate the very great amount of patience and skill that is required to make these models. Nothing in the way of a photograph or painting, and still less anything in the way of verbal description, can approach it as a means of recording skin lesions. It is not possible, however, for a practitioner to devote to it the time that is required; and until we have some one like Baretta of Paris here, it can only serve as an occasional means of record in the hands of younger and artistically inclined dermatologists." (P. 188.) The art of wax modeling, and how these models are colored true to life, is quite fully treated in another article by Captain Wallis, entitled "Exhibit of Wax Models of Cutaneous Diseases, with Remarks Upon the Uses of Wax Models and Their Preparation," published in connection with Dr. Jay F. Schamberg. Trans. Coll. Phys. of Phila., 3r scr., Vol. 23, Phila., 1901, pp. 36-41. Discussed by Dr. James K. Young and Dr. Schamberg. This article is deserving of very careful study by the art student in this department of the fine arts.

boys used the wood of poison sumach to make arrows. All became severely involved, the eruption appearing upon the hands, face, arms, legs, and pubic region. One boy used his teeth to remove the bark, and suffered with intense involvement of mucous membrane of the mouth and throat. Brothers and sisters of the boys playing with the arrows became subject to the eruption. Model represents the first twenty-four hours after exposure to the poison. Twelve hours later the hands became greatly swollen; blebs became confluent. The face suffered much disfigurement; the eyes became closed for two days. Solution of hyposulphite of soda (*sodium thiosulphate*) afforded the greatest relief when applied as a wet compress."

Fig. 10.—Same patient referred to in Fig. 9. Photo. from life. Case in text.

Fig. 11.—Anterior aspect of right thigh. Effect of "mustard gas." Experimental chemist. Case in text. Allen model.

Fig. 12.—Right foot showing eczema papillaris. Baretta wax model 22. Army Med. Mus. No. 9794. Case in text.

In Figure 5 we have one of the finest pieces of work that Miss Allen has turned out since she came into this department, and it has received the unqualified praise of a great many experts who have seen it. It is a wax model of the right hand of a boy eleven years old, exhibiting a case of nævus unius lateris; he was treated by Dr. H. H. Hazen, of Washington, D. C. The disease is seen to extend below the thumb, and it lasted for seven years. This cut gives one but a very indifferent idea of the wonders of this model. Every detail of the skin and the disease is reproduced in the most minute manner, and the coloring is perfect. The nails so closely resemble the originals as to be distinguished with difficulty when the hand is covered with a cloth. It is truly a marvelous piece of work.

The hands of the baby shown in Figure 6 are also by Miss Allen, and they are quite equal to the one reproduced in Fig. 5. The subject was a male child, seven weeks old, and both hands are seen to be polydactylous. There are two complete thumbs on the right hand, with bones and nails. In the case of the left hand, the three thumbs present are all fused into one pollex. One of these thumbs is complete on its lateral aspect, and two medial thumbs are composed of one metacarpal bone and four phalanges. On March 23, 1918, Major R. Tunstall Taylor, M. C., Department of Orthopedics (Army Medical Museum), removed the supernumerary thumb at his clinic at the Kernan Hospital, Baltimore, Md. This beautiful model is now on exhibition at the Museum, where it was photographed.

The case of syndactylism seen in Figure 7 is another fine model in the collection. The patient, a male, was born in Indianapolis, Indiana, on July 13, 1881, and now resides at Washington, D. C. This model is likewise on exhibition at the Army Medical Museum.

An extraordinary case is shown in Fig. 8, it being that of a female child seven years of age. There is a congenital absence of all the thumb bones of the radius (Allen model), and the specimen is also in our collection. An *x*-ray has been made of it for the series in the Museum; and in the motion-picture room it may be thrown on the screen for the purpose of demonstrating the uses of this deformed member, which, curiously enough, are of very wide range.

An interesting case is shown in Figures 9 and 10, the limb having been faithfully modeled by Captain Wallis. In Figure 9 we have "eczema traumatica" following upon self-mutilation, incited by religious mania. Some of the marks are crosses, others the letters I. H. S., etc. Captain Wallis has kindly furnished me with the following abstract of this patient from the records of St. Elizabeth's Hospital for the Insane, at Washington, D. C. (Case 17,891), where it is recorded in even greater detail. (May 16, 1918.)

J. F., 53 years of age, an ex-soldier who has served three enlistments. Had paralysis of the legs in 1904 or 1905, after which symptoms pointing to mental disturbances appeared. He imagined everybody was after him and intended to injure or kill him. He was generally depressed and heard voices. Numerous old cutaneous scars and scratches all over his body, self-inflicted. Some of the scratches spell the words "Jesus" and "Wah Wah." There are also numerous scars on the body. Muscles of the lower extremities show slight wasting. When given a bible, he tears the leaves out and sticks them on his chest, or he chews them up and swallows them. Patient is fairly well informed in current events; oriented in all spheres, and takes a certain amount of interest in his surroundings. No explanation of the cause of this mutilation can be obtained from the patient; they are in all probability self-crucifixion symbols."*

An excellent example of "mustard gas poisoning" is shown in Figure 11 (Allen model); it is colored true to life, and has been studied by many military and civil surgeons visiting the museum. Captain Wallis furnishes me with the following history:

Civilian experimental chemist, 24 years old, March 9, 1918. During the course of experiments a container broke and scattered its contents over this man. He immediately washed the exposed surfaces of the body, but did not remove the clothing covering his leg. There was a lapse of two hours between time of accident and removal of clothes at bedtime. Local symptoms of burns, with development of large vesicles, appeared about 16 hours after onset. He was immediately removed to hospital, and has been in bed since. Treatment: 25 per cent. magnesium sulphate dressing. Hot fomentation and ambrine. Emergency Hospital, Washington, D. C.

Finally, I desire to present still another example of Baretta's marvelous work, it being a case of papillary eruptions, following upon an eczema on the dorsum of the right foot of a white patient. It is from the service of Doctor Bazin of Paris and one of the most conspicuous pieces in the collection of the Army Medical Museum. No better example could be produced presenting the sequelæ of an eczema papillaris in the advanced stages of the disease. The model is in an excellent state of preservation, and a very interesting one for the student of dermatology to consider.

As a matter of fact, the collection of wax models of skin disease and other dermal and topographical pathologies in the cases of the Army Medical Museum are well worthy of a day's study and examination on the part of any medical practitioner in whose practice occurs any of the diseases so graphically represented by the many models. Moreover, it is most gratifying to know that the collection is once more being augmented by additions made to it by such competent workers as those who have been named in this brief account of their very satisfactory achievements in this important department of medical museology.

*Captain Wallis in this model has introduced a new method of mounting. It does away, as will be seen in the cut, with the surrounding white muslin material, and so firmly fixes the model on its black stand or base that no amount of jarring or handling can possibly loosen it. This is effected by fastening linen strips in the wax on the under side, embedded so thoroughly that they cannot be pulled out. Then, opposite them, on the board base, are slits cut clean through, which allow these strips to be pulled through to the other or under side, and made taut, fastening them finally with big thumb-tacks of nickel or brass. These hold the model firmly to its wooden base—at the same time it can be readily removed at any time for repair or other purpose by simply pulling out the aforesaid tacks.

Diphtheria Antitoxin in Nondiphtheritic Anginas.—The fact that membranous sore throats proved not to be diphtheritic show remarkable improvement at times after injections of antitoxin has often been noted, but its use in such cases has never been encouraged. Two Spanish practitioners, however, have written a paper on the subject reporting a long series of favorable cases. The indications are any angina accompanied by adenopathy and a temperature of 38-39°.—*Brazil Médico.*

HISTOGENESIS AND PATHOLOGY OF SUBDURAL HEMORRHAGES.*

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A SUBDURAL hemorrhage or hematoma of the dura has been considered since Virchow's time as a form of "inflammation" of the dura, as an "internal hemorrhagic pachymeningitis." Virchow[1] looked upon the hemorrhage as the product of the inflamed dura in which first of all a pseudomembrane forms exceedingly rich in blood vessels, the rupture of the latter causing a hemorrhage which thus, according to Virchow, is always a secondary process. Since accumulation of blood in the subdural or subarachnoid spaces is frequently found after head injuries, obstetrical deliveries, surgical brain operations, where thus an inflammatory process of any kind can be excluded, it became customary to designate such subdural hemorrhages as traumatic or meningeal. The latter, according to some authors as Jores,[2] Van Vleuten,[3] Laurant,[4] have nothing to do with the hematoma of the dura differing from same histologically and pathologically, though Laurant admits that "cases do occur which show a correlation of both types."

As this is not the place for detailed discussions of various theories and types of hemorrhagic pachymeningitis, I shall merely point out the fact that some of the latest investigators, as Pierre Marie, Roussy, and Laroche,[5] differentiate as many as nine types, including several subtypes, of this morbid condition, and like Virchow they come to the conclusion that whatever the type there is always present an inflammation of the dura, the hemorrhage being its ultimate product.

As can be gathered from the recent statistics by Ciarla,[6] the most frequent type of hemorrhagic pachymeningitis is that of subdural hemorrhage, in the form of a blood clot covering usually the convexity of the brain, rarely the base. In some cases a hematoma is absent, being replaced by hemorrhagic small foci or thin, rusty membranes on the inner surface of the dura (Ford Robertson).[7] In other cases the blood is enclosed within a connective tissue sack when it is spoken of as a subarachnoid cyst, and again cases occur in which neither hematoma nor bloody cysts are found, but merely a thickened membrane consisting of several pseudomembranes. The dura in such cases may appear enormously thickened, consisting of as many as twenty pseudomembranes (Virchow). Such cases are referred to as idiopathic pachymeningitis,[8] and like the previous two forms are looked upon as a morbid condition of the dura, as the result of its inflammation.

From the histopathological studies of these principal types of pachymeningitis—hematoma of the dura, arachnoid cyst, and pachymeningitis proper—I came to the conclusion that *neither form has anything to do with the dura, that in none of them an inflammation of this membrane is to be found, and that the principal, the most striking, changes are confined to the pia-arachnoid.* The difference in the pathological findings, in some cases hemorrhages, in others cysts or mere thickening of the membranes, is due to the etiological factors which, in the form of acute infections or head injuries, are responsible for the subdural hemorrhages with or without cyst formation, or in the form of chronic infection, mostly syphilis, are productive of the third variety, pachymeningitis proper. As space would not permit of a detailed discussion of all my cases, I will confine myself in this contributon to the description of hematoma and subdural cyst only.

The third type will be taken up in a separate contribution.[16]

CASE I.—Man, apparently 35 yrs. old, of small stature, was brought June 26th, 1917, unconscious to the Cook County Hospital, the medical service of Dr. Post, with a police record of having been ill 24 hours. The respiration was of Cheyne-Stokes type, the temperature 99.4°, pulse 26. The patient's head was drawn slightly to the right and backwards, the eyes were turned to the

FIG. 1.—Case 1. The pia from a case of subdural hemorrhage. It fills up a sulcus between two cerebral convolutions (B). A, A, thrombosed arteries; c, c, c, distended meshes of pia connective tissue; d, infiltration cells, explained in text; VI, a vein; VII, a ruptured vein; Ar., arachnoid membrane. Van Gieson stain. Magnification, 40.

right, and the neck was rigid. The pupils were small, reacted to light and in accommodation. The tendon reflexes were quite lively, without a Babinski, but there was a positive Kernig, and also a positive abdominal reflex. The blood pressure was 140 systolic, 100 diastolic, the heart and lungs showed at the first examination no marked changes. The spinal puncture gave a clear fluid under increased pressure with 37 polynuclears, 13 lymphocytes, a negative Nonne and Wassermann. The latter was also negative in the blood. Subsequent spinal punctures revealed a slightly turbid fluid containing red cells, polynuclears, and lymphocytes, as well as intra- and extracellular diplococci. The urine contained pus cells, granular casts, and albumin. The next day, the lung examination showed bronchial breathing, rales, and effusion in the pleural cavity. Four ounces of clear fluid were withdrawn from the pleural cavity, containing polymorphonuclears and lymphocytes.

Seven days after his entrance to the hospital the patient died and the post mortem performed on the day of his death showed "a hemorrhagic internal pachymeningitis, a bilateral bronchopneumonia, mucopurulent tracheo-bronchitis, multiple disseminated petechial hemorrhages in the gastric mucosa, and cloudy swelling of the kidneys."

The right cerebral hemisphere was covered with a

*From the pathological laboratory of Cook County Hospital.

bloody clot which in its shape resembled the configuration of the hemisphere. The blood clot covered the frontoparietal region of the brain and was easily detachable from the dura, *i.e.* there were no adhesions present. The inner surface of the dura appeared very bloody, somewhat thickened, and the longitudinal sinus was totally thrombosed. The brain itself was apparently normal, while the pia-arachnoid, on the right, showed largely distended veins and appeared opaque on the left.

Sections (celloidin and frozen) were made from the coagulum, dura, the brain tissue including the pia-arachnoid, and stained with hematoxylin-eosin, methylblue eosin, Weigert's elastica stain, Van Gieson, and toluidin-blue.

The examination of the blood clot showed two thin, young connective-tissue membranes enclosing a coagulated mass that consisted of a great number of distended and hyperemic capillaries scattered over thick meshes of fibrin. The latter were very dense and contained numerous red cells mixed with fibroblasts, polyblasts, machrophags, and gitter cells. The fibroblasts and macrophags were packed with granules and globules of pigment which was also freely scattered among the above mentioned cellular elements. The walls of the coagulum mainly consisted of fibroblasts that contained large chromatin-rich nuclei.

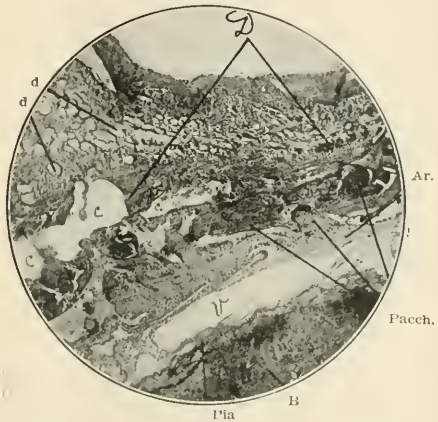

FIG. 2.—Case I. D, dura mater with numerous lacunæ (d) and distended interspaces (c). Ar., the arachnoid membrane with Pacchionian (Pacch.) bodies and small hemorrhages; the pia exhibits distended veins (v); B, brain tissue. Van Gieson stain. Magnification, 26.

In short, the coagulum appeared as a young connective-tissue membrane undergoing the process of organization. Any adhesions between the coagulum and the dura or pia were totally absent. The examination of the dura itself revealed the usual structure of this membrane, namely, collagen fibers forming bundles crossing and recrossing each other, depending upon the layer of the dura, and separated by free interspaces, or grooves, of various shapes and sizes. The middle layer of the dura usually showed a great many round and oval spaces, so-called lacunæ, which gave the membrane an areolar or cribriform appearance. The lacunæ like the interspaces were as a rule empty, *i.e.* free from any contents, as blood, pigment, or fibrin, though the interspaces sometimes showed the presence of some blood. Any cellular elements, except the so-called dura nuclei of large rod-like shape, were absent from the dura, but pigment in more or less large amount could be occasionally found even in the most superficial layers of this membrane. However, the inner layer adjacent to the effused blood was very rich in various cells, as red corpuscles, mast-cells, fibroblasts, and macrophags. The fibroblasts and the macrophags were packed with blood pigment, being in some sections the sole cellular element that could be found in the dura tissue.

Vessels and capillaries were richly represented all over the dura, were usually much distended and hyperemic, especially in the inner layer. Yet even here, in the inner layer, *inflammatory signs*, as fibrin exudation, plasma cells, polyblasts, perivascular cellular infiltrations, *were totally lacking*.

The pia-arachnoid showed changes much more striking. As the microphotograph shows (Fig. 1), these membranes exhibit greatly distended meshes of connective tissue, numerous cellular elements (*d*) and greatly hyperemic, distended vessels, especially veins and capillaries. At *V*, Fig. 1, a ruptured distended vein can be plainly seen, and the flooding of the surrounding regions by blood can be noted. In such places, of course, no other elements except red cells are present, but farther away various modified lymphocytes, as polyblasts, plasma cells, fibroblasts and macrophags are to be found in large numbers. All inflammatory phenomena are here, as in the dura, totally lacking while various vascular changes in the form of excessive hyperemia, hemorraghes, cellular infiltrations of the connective-tissue meshes, etc., are here very much in evidence. Comparing the conditions of the pia with that of the dura (Fig. 2), one can plainly see the difference in the histological structure. The dura shows a great number of lacunæ (d) free from any contents, a mass of bundles of collagen fibers with their interspaces, some of which, but very few, show the presence of blood, but a complete absence of vascular, infiltrative, or other changes that would indicate the presence of any inflammatory condition in this membrane.

On the same photomicrogram the arachnoid with its Pacchionian bodies is plainly shown without any pathological changes except a few points of hemorrhage. The pia and the adjacent brain tissue, however, are densely infiltrated and exhibit large hemorrhagic foci.

The findings in the dura and the pia-arachnoid can be interpreted as follows: A hemorrhage occurred in the pia from a ruptured vein that led to formation of a coagulum between the dura and the pia, *i.e.* in the subarachnoid space. The organization of the coagulum into a connective-tissue membrane was combined with the process of cleaning up of the bloody membrane of blood, pigment, etc. The cleaning process was especially active in the pia and in the blood clot, but was very little in evidence in the dura, and was carried on by the macrophags, fibroblasts, and gittercells. Had the patient lived long enough, the coagulum would have been totally organized, the damage caused by the hemorrhage would have been repaired, and a new membrane would have been formed attached to and completely resembling the dura. The histopathological findings in this case leave no doubt whatever that the blood clot originated from a ruptured pial vein, that an embryonic connective tissue membrane was in the process of development, with the possible ultimate formation of a pseudo membrane typical of socalled idiopathic pachymeningitis.

That such a histogenesis actually does take place was proven experimentally by Sperling[8] in Leyden's clinic.

Sperling injected rabbits between the dura and arachnoid over the brain vortex with fresh incoagulable rabbit blood. Eight days later the injected blood was found forming itself into a connective-tissue membrane which was completely organized two or three weeks later. By that time newly formed vessels could be demonstrated. The newly formed membranes wholly resembled those found in human hemorrhagic pachymeningitis. They were on the inner surface of the dura and not adherent to the brain tissue.

As defibrinated blood failed to produce a new membrane, Sperling concludes that the formation

of the new membrane was due to the fibrin. Injections of irritating fluids, such as acetic acid, iodine, sodium chlorate solution, did not lead to new membrane formation, but merely produced a thickening or edema of the dura or, when the material was too irritating, its suppuration.

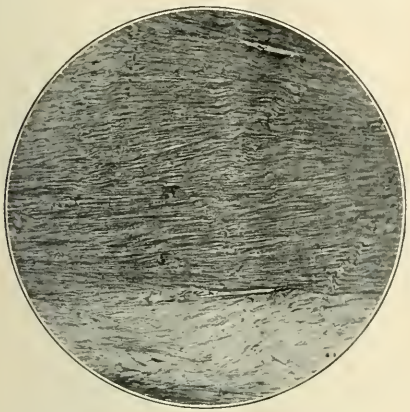

Fig. 3.—Horizontal (surface) section from the inner layer of dura; from a case of subarachnoid cyst. Total absence of hemorrhagic and inflammatory foci. Van Gieson stain. Magnification, 40.

In contrast to Sperling's findings, Marie, Roussy, and Laroche,[5] experimenting in a similar manner on dogs and rabbits, obtained negative results from subdural injections of blood, but when irritating substances were used, like fatty acids, sodium nucleinate, or staphylococci, they succeeded in producing a pachymeningitis. Aseptic blood, free from microbian or chemical irritants, failed to produce a pachymeningitis. Still more significant are the statements of Van Vleuten, who produced experimentally pachymeningitis by bleeding the pia (14 days after the injury of the latter) or by mere trephining.

Entirely contradictory findings are recorded by Boeckman.[10] He tried to determine whether a pachymeningitis is to be found in patients operated upon for various brain lesions, such as tumors. As such operations are invariably accompanied by subdural hemorrhages a pachymeningitis could be expected to form as the result of these hemorrhages. Yet in none of the 57 brains he examined for this purpose could Boeckman find any signs of pachymeningitis, notwithstanding the fact that plenty of time had elapsed between the operation and the death of the patients for a membrane to form. Hence he concludes that trauma causing a rupture of brain vessels cannot produce a pachymeningitis provided he adds that the patient is "constitutionally" healthy.

If this contention be correct, as well as that of Marie and his colaborators, namely that aseptic blood is not able to form a new membrane, we might admit this fact to be true for Sperling's experiments. As he experimented in 1871, in the pre-aseptic era, it is possible that the blood he injected was not wholly aseptic.

In my case the subdural blood clot was possibly rendered septic by the diplococcus infection of the patient's spinal fluid. The latter mixed with the blood furnished by the ruptured pial vessel was a favorable medium, as it were, for the organization of a pseudomembrane and formation of a pachymeningitis.

Equally significant and instructive are the findings in the second case, that of a subarachnoid cyst, a more advanced type of pachymeningitis than the one previously described.

Case II.—White woman, 63 years old, a tailoress by occupation, was admitted Sept. 29, 1917, to Cook County Hospital in the medical service of Dr. W. Butler. As the patient appeared mentally dull, disoriented as to time, place, and persons, a satisfactory history could not be obtained. The patient refused to talk, complaining of severe headache and vomiting. She had a fall on her head, "some time ago," swollen feet for 3 or 4 years, and a year previously some generalized skin eruption. The examination revealed rigidity of the upper and lower limbs, as well as of the abdomen that was covered with petechiæ. The left lower face was drooping, the tendon reflexes were markedly exaggerated with a right ankle clonus, a bilateral patellar clonus, negative Babinski, and normal pupillary reaction. The chest revealed a pulmonary emphysema, indistinct heart sounds, without murmurs. The blood pressure was 140 systolic, 80 diastolic. On spinal puncture the fluid was found to be under greatly increased pressure, contained about 20 cells per cubic millimeter, gave negative Nonne, Noguchi, and Wassermann reactions.

The patient became comatose, cyanotic, the respiration assumed the Cheyne-Stokes type, and a week after admittance to the hospital she died.

The post mortem records show: "Internal hemorrhagic pachymeningitis, free blood in the subdural space, marked compression of the right cerebral cortex, nodular syphilitic (?) aortitis, multiple subcapsular miliary gummata of the liver, slight diffuse chronic nephritis, passive hyperemia of the lungs, latent apical fibrous tuberculosis, focal adhesions of pleura, cholelithiasis."

Further examination of the dura showed its inner surface on both sides covered with bloody masses. On the right side the blood was enclosed within a sack of connective tissue; on the left the sack was torn leaving two bloody, rusty looking connective-tissue membranes.

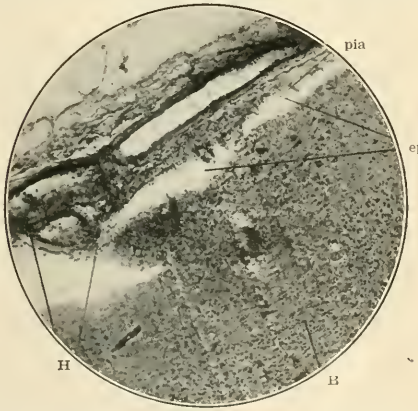

Fig. 4.—Pia and brain tissue in a case of a subarachnoid cyst. Pia, distended containing three veins; two of them are at H, surrounded by hemorrhages; ep, epicerebral space, between the pia and brain; B, brain tissue covered with numerous distended veins and capillaries. Magnification, 70 diameters. Hematoxylin-eosin stain.

The inner membrane adjacent to the cerebral surface was quite thick, loosely hanging on the dura which was covered by another membrane very thin and friable. It could be easily separated from the dura which revealed a clean shiny surface free from any blood clots. These two membranes evidently represent the walls of a cyst

that was torn during the removal of the brain from the skull cavity. On the right side, however, a distinct cyst could be plainly seen covering the inner surface of the dura corresponding to the frontoparietal region of the brain. Frozen surface sections were made from each pseudomembrane, from the inner and external layers of the dura, and stained with the previously mentioned methods. In addition, various portions of the brain, including the pia-arachnoid, were hardened in alcohol, imbedded in celloidin and stained with toluidin-blue. The inner pseudomembrane showed an enormous number of hemorrhages which in some sections covered the entire visual field. As a rule, however, they were intermingled with a great many capillaries, which were much congested, dilated, and surrounded by strands of connective-tissue fibers that sometimes formed a distinct adventitial layer. The spaces between the capillaries not obscured by hemorrhages were filled with various mononuclear elements in which macrophags and polyblasts predominated. The macrophags contained smaller or larger granules of pigment which was also abundantly present outside the cells. Some macrophags were so densely packed with the pigment that no nucleus could be discerned, and frequently they were of a tremendous size, with numerous vacuoles in their cytoplasm and an eccentrically located nucleus. In some macrophags pigment was found even within the nucleus or only around the latter, showing the rest of the cell body filled with red blood cells.

The polyblasts also presented unusually well developed cytoplasm, round or irregular in shape, often cystic, and never homogeneous. Their nucleus was mostly pale, eccentrically located, irregular in shape, in the form of a horseshoe or biscuit. Some polyblasts contained more than one nucleus and unlike the macrophags showed no pigment or any other contents.

In addition to macrophags and polyblasts there were numerous other cells, namely, fibroblasts and gitter cells. The fibroblasts were frequently filled with pigment granules or small fat globules, and the gitter cells always showed in specimens stained with scarlet red an enormous amount of fat.

These four types of cells—macrophags, polyblasts, fibroblasts and gitter cells—were the principal elements scattered among the numerous capillaries and the meshes of the surrounding connective tissue. Elastic fibers were totally absent. The capillaries, especially the larger ones, were often thrombosed, always congested, but *never infiltrated*. Lymphocytes and polynuclear leucocytes were uncommon.

The explanation of the findings can be summed up as follows: A hemorrhage took place as evidenced by the presence of red cells scattered here and there, hemorrhagic foci, and pigment. An effort was made by various elements to clean up the membrane from the bloody contents. This is shown by the presence of macrophags and gitter cells filled with blood cells, pigment, and fat globules—the product of transformation of the red cells and probably of the fibrin. While the white cells, namely the polyblasts, are engaged in the building up of a new connective tissue, the red cells break up giving their pigment to the macrophags, their protein being transformed into fat by the gitter cells. In other words we find here a gradually formed new membrane exceedingly rich in vessels, but without signs of inflammation.

Horizontal or surface sections from the external pseudomembrane showed a marked cribriform appearance caused by numerous empty spaces that resembled lacunæ. The latter appeared mostly round, or oval in shape, were often tortuous, resembling the contours of vessels. They, as a rule, showed no contents, seldom were filled with red cells, some of which were sticking to their inner wall. Still more numerous were small vessels and capillaries, always distended, hyperemic, and covered with delicate fibers of fibrin. Connective-tissue fibers in the form of strands or bundles, were much more numerous than in the previous membrane, the fibers being separated from each other by red cells, polyblasts, fibroblasts, and macrophags. The latter two varieties of cells were packed with minute globules of pigment which, as in the previous membrane, were also freely scattered over the entire visual field. Some places showed none of these cells, but instead were covered with foci of hemorrhage. Elastic fibers, inflammatory changes, as perivascular infiltrations, and plasma cells, were here, as in the previous membrane, totally absent. In short, the pathological picture greatly resembled that of the previous pseudomembrane which was like the former in the process of organization. The examination of the dura itself gave a totally different picture. Horizontal or surface sections (frozen) from the inner layer of the dura showed first of all a great wealth of elastic fibers intermingled with fibers of connective tissue which usually were very thin, forming bundles separated from each other by small interspaces, some of which contained vessels or capillaries (Fig. 3).

In some places the fibers were separated from each other by oblong, rod-like, seldom oval nuclei, slightly granular in appearance and provided with a distinct membrane and nucleolus. Very infrequently the meshes formed by intersection of the connective-tissue fibers were filled with minute hemorrhagic foci, and small fibrin films. Capillaries and vessels were considerably fewer than in the pseudomembranes, and often showed a thickened adventitial layer. Pigment globules, macrophags, polyblasts, distinct hemorrhages as seen in the pseudomembranes were here totally lacking. The small hemorrhagic foci occasionally found here cannot be looked upon as pathological, being frequently met with in a normal dura (Nose[1]). The external layer of the dura studied with numerous stains showed no changes either, and appeared perfectly normal. On the contrary, the pia showed a wealth of pathological findings which can be gathered from the accompanying microphotograph (Fig. 4). This membrane is very much thickened, the meshes are greatly separated, widened, and filled with hemorrhages and numerous vessels. Some of the latter are thrombosed, some are much distended and hyperemic, some are *ruptured*, and the surrounding tissue is packed with macrophags, polyblasts, etc., and the blood penetrating into the adjacent arachnoid membrane. The same changes could be found in the brain tissue itself where the frontal, parietal, and temporal regions, and in part the occipital lobe, exhibited a great number of distended and hyperemic vessels. Yet, no inflammatory phenomena either in the pia-arachnoid, or in the brain tissue could be found. They were also absent, as I showed, in the pseudo-membranes.

Like the previous case, this one shows absence of any changes in the dura, but their presence, in abundance, in the pia-arachnoid. As in the previous case these changes cannot and must not be looked for in the dura and as in the previous case no signs of inflammation could be demonstrated anywhere. It is therefore unreasonable to speak of a pachymeningitis, which term implies an inflammatory condition of the dura.

The etiology in this case was somewhat complicated. The history of trauma may have something to do with the hemorrhage, but most probably the constitutional diseases—tuberculosis and syphilis found on post-mortem examination — combined with the head injury were responsible for the pathological findings. At any rate, the latter in hematoma of the dura and the subarachnoid cyst have, as I said, absolutely nothing to do with the dura, originating as they do in the pia, a suggestion made long ago by Huguenin.[12] Bevan Lewis,[13] Ford Robertson[14] and Middlemass.[15] This is also true for the third variety of pachymeningitis where the dura *appears* to be (but is not) enormously thickened, but this problem will be taken up in a separate contribution.

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THE FOOT IN HEALTH AND DISEASE.*

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THIS paper is not intended to be a résumé of a subject that can easily be studied in any text book. My object in reading it is rather to call attention to certain conditions which are very frequently overlooked by the general practitioner, as well as by the orthopedic surgeon, and also to attempt to emphasize certain factors which may have an important bearing upon diagnosis, prognosis, and treatment.

In order to appreciate the subject it is well to understand what we mean by a normal foot. A foot is made up of a framework or skeleton, composed of twenty-six bones. Of these, nineteen are the so-called long bones, composed chiefly of hard, firm bony tissue, of smooth surfaces and various sizes, and joining with other bones at their ends only. They make up the five metatarsal and fourteen phalanges. The remaining seven bones of various sizes are composed of bone, loose and spongy in texture. They have the appearance of irregular pebbles and have many smooth facets forming surfaces for joining with adjacent bones by which each bone is in contact with from four to six others. These spongy bones form the basis of the foot, arch and heel, and together with the metatarsals form a dome-shaped foot, which we for convenience call transverse and longitudinal arches.

*Read before the Yorkville Medical Society, January 21, 1918.

The Arches of the Foot.—Robert Jones well pointed out that the foot as a base of support is a tripod resting on the heel, the head of the first metatarsal bone, and the heads of the fourth and fifth metatarsal bones. Each side of the triangle

FIG. 1.—Bones forming the arch of the foot, seen from the inner side; the astragalus is lifted up to show the bed in which it lies. (After Ellis.)

is arched. The outer side, formed by the os calcis, cuboid, and the fourth and fifth metatarsals, is so slightly arched that practically the whole length of it rests on the ground when standing.

The inner side of the triangle is strongly arched, the arch runs from the heel upward and forward to the neck of the astragalus, then downward, forward, and inward through the scaphoid, internal cuneiform, and first metatarsal bones, the ball of the great toe.

The third side of the triangle runs from the head of the first metatarsal bone to the heads of the fourth and fifth metatarsal bones and forms the first part of the transverse arch of the foot. This transverse arch extends backward throughout the whole of the fore part of the foot. The cuneiform bones and the cuboid bone are arranged in a transverse

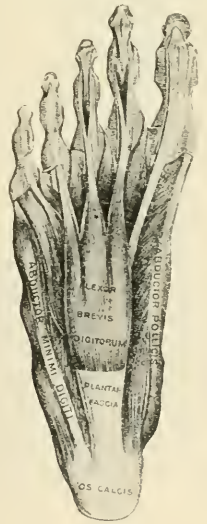

FIG. 2.—First layer of muscles of the plantar surface of the foot.

arch as well as the metatarsal bones.[1] The arches are supported by ligaments, muscles, and the plantar fascia, all of which help to keep the foot from spreading and help to support the body weight, and locomotion. (See Figs. 1 to 4.)

The Foot As a Passive Support.—"When the foot is actively used it is in great part supported by the muscles in addition to its ligaments and the strong plantar fascia, but when it serves as a passive support, as in standing, its normal elasticity allows the

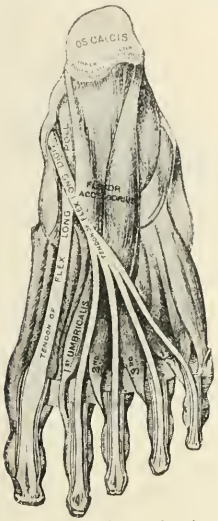

Fig. 3.—Second layer of muscles of the plantar surface of the foot.

bearing surface to expand as the arches are slightly depressed, the astragalus bearing the leg rotates inward and downward on the os calcis until it is checked by the resistance of the ligaments and by the interlocking of the bones. The head of the astragalus thus becomes slightly prominent, the inner border of the foot is depressed, and an attitude is attained in which the weight of the body is supported with the slightest muscular exertion. This is the attitude of rest. In order to enlarge the base of support for the body the feet turn outward during the passive attitude, and thus the muscles are relieved."

The Foot in Activity.—"In the function of locomotion the foot is a lever to raise and propel the body. The calf muscles supply the power, and the heads of the metatarsals serve as the fulcrum on which the weight is to be lifted. The foot must therefore be held in such relation to the leg that the line of weight, passing downward through the middle of the patella and ankle joint, is continued over the second toe, or practically the center of the foot."

The Normal Gait.—"The proper gait means that the feet are held parallel to one another, so that the line of the strain falls through the center of the foot. As one foot is advanced it first bears weight momentarily on the heel, then upon its outer border, the heel is then raised, and the body is lifted over the toes, the great toe giving the final impulse to the step, so that if the walker is looked at from behind he appears to be toeing in at the termination of each step. Hence during the walking the foot is under muscular control, and assumes the attitude most opposed to that of passive support."[2]

Abnormal Gait.—Whenever one assumes the persistent attitude of rest in walking, *i.e.* by turning one's toes out, abducting the feet, the strain falls upon the inner border of the foot, and in that way the normal functioning of his muscles of the foot is interfered with, and in due time the foot becomes a week foot.

Various Infections of the System and Their Effect Upon the Foot.—In my paper on diagnostic aids on diseases of bones and joints, after a thorough discussion of the various causative factors, I have concluded that "in order to make a proper diagnosis in diseases of bones and joints, it is necessary to ransack every accessible part of the body in order to locate the cause of the infection, tonsils, teeth, and gums, should be thoroughly inspected, the urine and feces should be analyzed carefully, and the organs of generation should be thoroughly examined. After we have germs which look suspicious, we should do our utmost to ascertain by scientific means whether or not this germ is the sole cause of the trouble or a contributing factor only."[3] Since the above was penned the brilliant work of Rosenow and Billings and others has proven conclusively how diligent one must be in finding the focus of lurking infection, no matter how insignificant or obscure, in order to be able to eradicate the bone and joint infection, coming on seemingly without cause.

Langroth, in his article on "Local Infection in Chronic Diseases,"[4] gives a summary of the cases treated in the clinic of the University of California Hospital, in which he shows that out of a series of eighty-six cases fifty-two were suffering from arthritis; of these 12 were acute or subacute, and

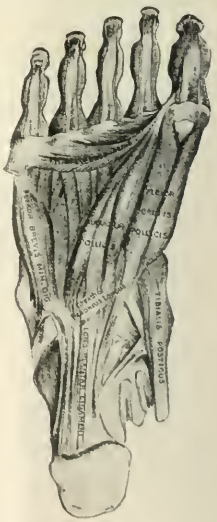

Fig. 4.—Third layer of muscles of the plantar surface of the foot.

66 per cent. of those had been associated with chronic focal infections, and responded well after removal of the foci even to the point of absolute cure, while 73 per cent. of chronic cases of arthritis were traced to a focal infection, and of those cases

able to be followed, many cases had less pain and no further progression of the disease after the removal of the focus.

The foot being composed of many joints, six synoviæ, and fourteen bursæ, and always exposed to

FIG. 5.—Shows the appearance of the tarsus in a child at age of 7 months; note the fulness and bulging of the soft parts surrounding the right ankle, caused by synovial effusion; compare this with the left side.

strains and exertions, one would expect it to be one of the first to bear the brunt of any systemic infection. Roland Hammond[5] in his study of infectious arthritis caused by nose and throat and accessory sinuses, reports a series of 61 cases, twelve of which showed positive nose and throat involvement after operation, and of these the ankles were involved five times and the feet without the ankles in one case. Eighteen cases had positive nose and throat evidence and were treated without an operation. Of those eighteen, thirteen had involvement of the ankles or feet or both.

In a series of 50 cases of gonorrheal arthritis that I had under my care in one clinic I found 30 had involvement of the ankles and most of them also involvement of the tarsal joints. Most of the feet were stiff and everted, and efforts had to be made to adduct and invert them, and in a good many it was impossible to do it without an anesthetic.

Benecke, quoted by Whitman,[2] has tabulated 78 cases of gonorrheal arthritis in 56 patients, of whom 18 were males, 38 females, with the ankle involvement in 9 and other joints of the foot in 6.

Influenza, typhoid, pneumonia, etc., may be the cause of foot infection.

Syphilis, in its later stages, supplies a good many cases of tarsal involvement. Pyorrhea, root abscesses of the teeth, and hypertrophied and suppurating tonsils, as the causative factor in arthritis, are every day occurrences in every clinic that deals with bones and joint diseases, a good many of these being involvements of the tarsal and ankle joints. Most of those patients will walk with their feet abducted in order to relieve the muscles from tension, just as one with an ordinary painful weak foot. There is, however, one important point of diagnostic significance which I wish to emphasize, namely, that whereas in ordinary painful weak foot the patient will be relieved of his pains after resting in bed for a while, and will not be disturbed in his sleep, the toxemic arthralgia will be aggravated toward morning, say at about 4 A. M. The reason for such aggravation may be the fact that, because of the sluggishness of circulation at night during sleep, the poison has no chance of being eliminated, and hence a greater accumulation, and aggravation of symptoms as a result. There is another important point which I wish to bring out in connection with the toxemic or infectious arthritis, and this remark is just as applicable to the ordinary painful weak foot, namely, that while the foot is painful and the arch tender, no metal supports should be applied. No dentist would ever dream of supplying bridge work to a patient when the latter's gums were inflamed. Rest, immobilization, or proper bandaging of the feet in adduction and inversion, with proper padding over the painful part, is the only feasible measure to take. Any other method is bound to aggravate the symptoms and prolong the suffering of the patient.

Circulatory Disturbances in Relation to the Foot.—In affections of the heart, such as myocarditis and stenotic diseases, we find that the sluggishness of the circulation will affect the lower extremities. The patient will feel cold in his feet, the toes will look bluish, and when pressure is made a white mark will remain for a while. Such disturbance may also be due to an abdominal tumor pressing

FIG. 6.—H. W. suffered from a painful ankle (left), diagnosed as sprain; *x*-ray revealed linear fracture of lower portion of fibula; note also the position of the os calcis in relation to the rest of the tarsus in a foot with normal arch.

upon the aorta or on one of the branches which supply either one or the other extremity. Because of the weakness of the muscles as a result of the sluggish circulation, the patient assumes a persistent attitude of rest while walking. Metal foot plates in

these cases will aggravate the condition, their pressure still further impeding the circulation of the plantar surface. One of the best aids in diagnosing this condition is the syphygmomanometer. The difference in the blood pressure between the upper and lower extremities in a healthy being is between 25 and 35. If, for instance, the upper systolic is 120 the lower is 145 to 155. The measurement in the lower extremity is taken at the bend of the knee posteriorly (about one inch lower) and to the outer side, at the exit of the anterior tibial. In myocarditis the blood pressure may be alike in the upper and lower extremities. Whenever there is some disturbance of circulation caused by pressure on one side there is disturbance of the above-mentioned ratio on that side only. In movable tumors of the abdomen causing pressure, there will be a differ-

FIG. 7.—Flat-foot and osteoarthritis of right tarsal joints; note abnormal relation of os calcis to the rest of the tarsus.

ence of the ratio depending upon the position the patients assume. In normal circulation the ratio of pulse pressure to systolic pressure in the lower extremities will equal that in the upper extremities, *i.e.* 3:1.

The Foot in Nervous Affections.—We all know that in various nervous affections the patient suffers from trophic disturbances which manifest themselves in a variety of ways, especially ulcerations of various parts, and the foot is one of the greatest sufferers. These, however, are fully described in text books, and we shall therefore pass them in silence. There is one important relationship existing between one known nervous disease and the feet, which although of great diagnostic importance, seems to have been overlooked by a good many writers, *i.e.* flat feet as one of the earliest signs of tabes dorsalis. Due to the loss of stability the patient unconsciously widens his legs—abducts his feet while walking; also on account of the loss of tonicity of the muscles of the feet the plantar muscles are relaxed, permitting a further spreading of the foot, with a yielding of the astragalus and a real flat foot as the result. The only difference being that whereas in flat feet, of such character, in an otherwise healthy being, it would be impossible to adduct the foot and invert it to the normal limit —18 degrees within a right angle to the leg—in tabetic patients, due to the hypotonicity of the muscles it is possible to invert it without any effort or pain to the patient. There are patients, however, who suffer from marked hyperesthesia of both lower extremities in early tabes.

One must always be on the lookout for such patients. A very prominent gastroenterologist referred a case of flat feet to me for treatment, and incidentally mentioned the fact that the patient had been under his care for two years, suffering from gastric catarrh. After thorough examination I found that the patient was suffering from tabes and that the gastric trouble was of a tabetic origin. The first thing that called my attention to it was the condition of his feet.

The Foot as an Indicator of a Joint Involvement.—"The heel is obviously intended by Nature, through both position and structure, to receive the shock of impact of the foot against the ground and support the greater part of the weight of the body and burden in standing, and at the beginning of a new step. The os calcis or heel bone is broad and strong, and articulates closely with the astragalus, which lies above and in front of it, and forms the keystone of the foot-arch. The rear prominence of the os calcis serves as the point of attachment of the tendo Achilles which lifts the heel and rear of the foot off the ground, and thus accomplishes the first movement in walking." (Munson.[6])

Whenever any joint of the spine or the lower extremity is diseased Nature tries to protect the diseased and painful joint from being jarred, by breaking the weight line and thus lessening the shock of impact. The patient will unconsciously flex his knee and walk on his toes, and avoid stepping on his heel. This is a very important sign. If after immobilization of the diseased joint the patient is able to step on his heels without pain, it indicates that the protection is complete, and we need no stilting as an additional protection, otherwise the patient must be kept off the limb if the trouble is in the lower extremity, and must be placed in a recumbent posture if the spine is involved.

X-Raying of a Foot.—Delitala[7] in his article on "The Normal and Pathological Anatomy of the Bony Framework of the Foot" shows that the most instructive exposures are the dorso plantar—the compressing tube parallel to the axis of the skeleton of the foot, and with the external margin of the foot lying on the sensitive plate—and the sole and compressing tube exactly perpendicular to the plate.

The rules that I laid down some years ago regarding the value of the *x*-ray in diseases of bones and joints will bear repetition.[8]

1. If the *x*-ray is negative and the clinical signs are positive, depend upon the clinical signs.

2. If the clinical signs are indefinite and the *x*-ray findings are definite, showing disease, bear the *x*-ray finding in mind, but make sure that the plate has been taken by an expert radiographer, that the part has received the proper exposure, and that the plate has been properly developed.

3. No surgeon should depend solely upon the radiologist for the interpretation of findings in the plate.

4. It is always advisable to take antero, posterior, an dlateral viefws in order to bring out all the features of the disease.

5. In order to recognize an injury or a disease around a joint, especially in young individuals, it is necessary to remember the time of development and ossification of the epiphyses. (Fig. 5.)

6. The plaster-of-Paris is permeable to the rays, while zinc oxide plaster usually mars the clearness of the shadow, and should never be applied to the part to be *x*-rayed.

7. The normal as well as the diseased or injured side should be taken for comparison. The slightest deviation from the normal can in that way be detected. In order, however, that such comparison should be of value it is necessary that both be taken in the same position and at the same angles.

8. In reading the *x*-ray plate it is necessary to read the soft parts as well as the osseous shadows, for the former may sometimes prove to be of greater importance. (Fig. 5.)

9. In painful feet without any particular cause do not fail to *x*-ray the teeth for a possible cause.

Method of Determining Degree of Flatness of the Arches.—The footprint method of determining the degree of flatfoot is misleading and should be discarded. Because a person has a flat plantar surface does not mean that he is in need of treatment. The plantar muscles may be so developed by constant exercise that they actually fill up and obscure the entire plantar arch contour. Such a foot, in spite of its flatness, is in perfect working order and should not be interfered with. Obese people may also have a flat plantar surface due to a thick fatty pad obscuring the normal outline.

On the other hand, a patient who has a high instep may suffer intensely from arch strain although the footprint will be perfect. It is therefore not the flatness of the arches but the attitude of the foot while walking that counts.

The Psychological Significance of Injuries and Diseases of Lower Extremities, Including the Foot.—Inanimate objects have certain inflexible physical laws by which they are governed, and the application of those laws is all that is necessary to get the same results. In dealing with human beings we must take into account the human and psychic element, and every individual is a law unto himself in that respect. Whenever a man has sustained an injury which will necessarily confine him to his home for a longer or shorter time the following facts must be faced: (1) He is deprived of his normal mode of living. (2) His suffering will impress itself upon his mind, and after the actual pains have ceased there will linger the impression of those pains in the subconsciousness which will tend to perpetuate the helplessness of the patient. It is therefore self-evident that the sooner the patient is restored to his normal environment the less chance there is for him to become obsessed with his helpless feeling.

The injuries of the lower extremities are therefore of more concern to the conscientious physician on account of the necessity of keeping the patient's weight off the injured limb, and hence the indoor confinement, with its accompanying dangers, enumerated above, must perforce be prolonged. If the patient should attempt to bear weight on the injured limb before it is restored to normal every step will enhance the suffering, and in that way induce a condition of "algophobia," even after the original cause has disappeared.

The following therapeutic measures in dealing with injuries of the lower extremities are therefore obvious:

1. Early and proper immobilization of the injured limb, in order to eliminate the pain due to motion. Plaster-of-Paris bandages, properly applied, seem to serve that purpose best.

2. The encouragement of the patient to leave the bed as soon as practicable and have him walk with the aid of crutches.

3. Removal of permanent support should be postponed until after the patient has been trained to walk without crutches and has regained his self-confidence. This prolonged immobilization has the effect of making the patient forget his previous incapacity and pain, and the early regaining of his sense of security usually results in the ability of the patient to support himself on the injured limb without any difficulty soon after the permanent removal of his immobilizing bandages.

4. In short, the necessity of bearing the old truism in mind that in dealing with ailments and injuries affecting human beings we are dealing with beings in possession of emotions, impressions, and a nervous system in control of the impaired machine, and not, as a good many seem to think, a simple, lifeless apparatus in need of repair.

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Eugenics in Brazil.—There is a Eugenic Society in the enterprising city of Sao Paulo, the first to be organized in that country. The object is frankly to improve the race and render it worthy of so grand a country. The subjects to be covered in this connection are the laws of heredity, the propagation of knowledge of eugenics and hygiene and the spread of education in general. This plan of instruction aims to inform the public as to the harm wrought by syphilis, alcoholism, tuberculosis, etc. Other activities are regulation of prostitution, prenuptial examination, and all steps which will diminish the birth rate of degenerates, idiots, etc. It is to be hoped that this patriotic movement will be taken up by other Brazilian states.—*Brazil-Medico.*

AN UNDEVELOPED OPPORTUNITY FOR THE STUDY OF THE PROGNOSIS OF CHRONIC DISEASES.

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THE most important and vital features of medical knowledge is a proper understanding of prognosis of diseases. The internist may make a brilliant diagnosis, the electrocardiographer may reveal previously but little understood anomalies of heart behavior, the laboratory worker may render an unexpected and significant opinion, the pathologist may make exhaustive analyses of post-mortem findings, all of which represent exceedingly important sources of information and give to present-day students of medicine opportunities for diagnosis not afforded to their predecessors of but a few years. And yet these varied accomplishments and armamentaria of increased efficiency fail to take into consideration the most vital feature of disease from the viewpoint of the patient and the progress of medical therapy, namely, prognosis.

The patient himself is interested in a brilliant diagnosis or the discovery of a formerly overlooked unique feature of his ailment only in so far as it concerns his future health and his life. He is interested in the diagnosis itself primarily only in so far as it throws light upon the possibilities of his future, and he is more interested in knowing to what the present findings point than in what the disease may be. It is the outcome rather than the diagnosis which interests the patient.

That a physician may understand the prognostic import of the conditions he finds and of the diagnosis which he attaches to the presenting clinical pictures implies a knowledge of the life history of the disease in question. This is particularly true in the chronic diseases which are becoming yearly of more importance and an increasing cause of mortality. With the knowledge of the entire course of a given disease, the development of abnormal signs or the progression of present signs carries a definite significance to a man so trained and forms the basis of an intelligent prognosis.

Such a training implies not only a knowledge of abnormal signs and their significance, but quite as well the normal variations which may carry no prognostic or even diagnostic import beyond that they may be recognized as deviations from the normal. This matter is well illustrated in the examinations of recruits and the return of men in active service to base hospitals, in both of which groups are found very considerable numbers of men possessing a supposedly valvular heart disease because of the presence of murmurs. The great frequency of blowing systolic murmurs or whiffs at the base or apex of the heart is a matter of general observation, but they are too frequently ascribed an importance to which they are not entitled. Another illustration is in the promptness with which a diagnosis of nephritis is made upon albumin being discovered in the urine or an elevated blood pressure found at examination. It is true, of course, that these features require investigation, but should be recognized only in their relation to the whole clinical picture.

The only method whereby the significance of various signs and symptoms in a given disease can be properly determined is by studying the disease from start to finish. One should see the disease at its very earlist manifestations, or, better still, study the individual before the disease has appeared. It should be followed step by step throughout its course and every sign, symptom or treatment recorded, and this method applied to a number of cases so one may secure a grasp of the variations and responses in a number of patients afflicted with the disease.

Since the problem of prognosis in chronic diseases is one of securing adequate study of these diseases from the very onset, it is well to inquire into the present methods of making such study. It is at once evident that the opportunities offered for the study of chronic diseases, from their very onset to termination, are indeed few, and this very paucity probably explains the incomplete knowledge we possess of their prognosis.

Our thoughts turn to the wards and laboratories of general hospitals where chronic diseases are studied and investigated, and where annually many patients suffering from them are treated. But it is apparent that the opportunities which these students and investigators have are not as great as one might expect, for they see but a cross section of the disease, and gain but little idea of its onset and evolution, and the short time the patient is kept in the hospital adds only fragmentary information.

It is true that after discharge from the house patients are followed in the out-patient departments, and further knowledge is acquired during the months or years that such patients are followed. But the records of these cases are inadequate, the difficulties of following cases are very great, and the infrequency of examination of the patient tends to discount the actual value of the efforts as a study of prognosis. The establishment of out-patient classes for diabetes, nephritis, tuberculosis, and other diseases is designed in large part for treatment, though valuable information relating to prognosis is gathered. The follow-up work of social service organizations is also contributing toward the sum total of our knowledge of diseases, but here again the possibilities are greatly restricted.

The frequent appearance in out-patient clinics of individuals showing early evidence of disease allows some study of the early progress of the process. But merely because the process is not well established and the actual evidence of disease is slight, these patients are not sent into the house for study, where more accurate and valuable data could be collected. On the other hand, the cases usually sent into the house are in stages when the signs are well established and treatment directed largely to palliative methods. Could the patients showing obscure indications be more thoroughly studied under the facilities found in the hospital wards, much valuable information could be obtained, and our knowledge of the early evidences of a disease process be greatly enhanced.

Granting that the present method of inquiry is inadequate in forming comprehensive understanding of the development and course of chronic diseases, it is well to ask as to other possibilities.

It must be borne in mind that only a small, though ever-increasing proportion of the sick enter hospitals or are cared for in the out-patient departments, the greater number seeking advice and treatment of the practitioner. To the practitioner, then, is offered an unusual opportunity for the very sort of study to which we must look for further contribution to our understanding of prognosis. It is he who sees the cases early in their development, who is called at the appearance of symptoms, and who has an opportunity to follow the disease throughout its course. A general realization of these opportunities, however, is wanting, for but little in the line of study and research is done by the general practitioner, though the remarkable contributions of Sir James MacKenzie to our knowledge of affections of the heart is a striking example of what can be done by a practitioner.

While the practitioner has the opportunity to see the process of disease as it is not seen in hospital practice, the ability to utilize such opportunities is limited. As a rule, the practitioner has not the equipment to carry on the accurate studies which should be made on patients under observation, and the remuneration for doing so would be out of proportion to the benefit evident to the patient. The majority of practitioners have not the time to do this kind of work, granted that they may have the necessary laboratory and other equipment. And to provide technical assistants who can do the work entails an expense which most practitioners feel unwilling or unable to assume themselves. And though endowments and funds are available for similar work in established institutions, it is to be deplored that no provision is made for study of the courses of diseases where they can better be observed.

We look also to life insurance statistics for information relative to the potential significance of various evidences of disease, but our hope is futile. One obtains but little knowledge of the prognostic value of signs and symptoms of disease from these records, and the infrequency of examinations of policyholders to ascertain new features makes the value of the records but slight.

The possibilities in community medicine, contract medicine, and various organizations designed to build up better health and longer lives, are as yet imperfectly developed, though from them we should gain some information.

The opportunities offered by State institutions for the study of prognosis in disease are little recognized, and developed less, and yet these hospitals offer provision for a better study of the problem than any other means. It is here that the patients are under observation for years in many instances, and, unlike the patients under the care of practitioners, they are seen regularly, at any time, and as frequently as desired. The development of laboratory and other facilities for accurate study of these patients in State hospitals insures that sufficiently comprehensive examinations can be made so that the value of various manifestations of disease may be appraised with accuracy. New developments in disease can be recognized early, and their prognostic import, or possible relations to other features of the disease, determined. The considerable proportion of patients dying in State hospitals upon whom post-mortem studies are done allows for further corroboration of diagnosis and study of the disease upon which considerable data had been collected during life. By such a correlation of clinico-pathological data, with supplementary study of the necropsy findings, the recognition of a not inconsiderable and unimportant group of relationships could be expected. The value of such a study, if sufficiently comprehensive, is obvious.

That the opportunity for studying the prognosis of diseases with which internal medicine is primarily concerned does carry some promise seems apparent. For example, in the State of Massachusetts a very considerable proportion of the cases of pellagra reported to the State Board of Health is found in the State institutions. Here such patients are living under an environment and on a diet along with many other individuals, most of whom do not suffer from nor later develop the disease. The large number of controls, the ease with which dietary changes can be made, and the facility with which frequent observations can be made, are evident, and the likelihood of knowing the ultimate outcome is great. And it is somewhat this very sort of study to which pellagra has been subjected by numerous investigators.

The early enthusiasm of workers in neurosyphilis, which allowed them to predict by the goldsol test the seat of the syphilitic process, whether of the parenchyma, vessels and meninges, or interstitial tissue and other localizations, to which predictions could be attached prognostic importance, has been replaced by a more conservative attitude. For the subsequent development of these same cases has not borne out the earlier predictions in their entirety, and as the number of carefully and completely studied cases increases, our valuation of this particular test in delineating the principal seat of the process becomes adjusted.

The prognosis of various diseases of the kidneys and the signs or symptoms developing during the course of such diseases is still a matter of much uncertainty because of our incomplete knowledge of the course of chronic interstitial nephritis, for instance. This particular problem has been of special interest to us, and a start on the study of the disease, humble in its proportions, to be sure, has been begun, having in mind to gain early recognition of the disease and to follow it through in as many instances as possible. Since 70 per cent. of the patients dying here are studied postmorten, it is to be hoped that some value may be attached to the ante-mortem study. The studies have thus far been confined largely to blood nitrogen, chloride and sugar determinations, urine and blood-pressure examinations, the determination of phenolsulphonephthalein excretion, etc., in their interrelations and their possible relationship to the structural changes found on later study of the kidneys themselves. Only a small beginning has been made, but the attempt has yielded some encouragement, at least. The various chronic diseases of liver, heart, pancreas, endocrine glands, neuromuscular system, and other organs, require much study, the scope of possibilities is great, and the intensive study of them over long periods is sure to yield results.

The importance of focal infections in chronic diseases is being much emphasized, and the literature pertaining thereto is rapidly becoming voluminous. The frequent relief of troublesome symptoms and

the more favorable progress of treatment, in many instances, upon the removal of a septic focus, need no emphasis. The exact mechanism of such improvement is not always clear, and careful clinico-pathological studies in greater numbers should give us further understanding of the great importance of focal infection. The recent development of dental hygiene, the training courses for dental hygienists, and the utilization of these individuals in our State institutions, permit us to study this very important feature, the role of suppurative oral foci in chronic diseases, under well-controlled conditions.

That the spirit of such studies can be misconstrued seems unlikely. An increasing appreciation of our duties to the patients in State hospitals requires that we devote our best efforts toward their proper care and treatment. That we should understand their condition and the diseases from which they suffer is requisite to that intelligent care and treatment. The insignificant discomfort to which they might be subject by examination is only the experience of every patient in general hospitals at large. On the whole, the cooperation of the patients is very good, almost as good as it is with people in general.

The greater development of pathological and clinico-pathological laboratories, the introduction of the new methods of blood analysis, and various other features of diagnosis and investigation, and an awakening responsibility to the patients themselves, stimulate us in an endeavor to study the diseases which are found so commonly among the patients, and in so doing further our knowledge of the diseases themselves. It is by availing ourselves of this as yet but little developed opportunity of studying disease where we have both facilities and the patients under prolonged and constant observation, where we have an opportunity to follow diseases throughout their entire life history, that we may hope to obtain more complete and reliable information relating to prognosis than by the other less satisfactory methods.

A NEW TEST OF HEART FUNCTION.

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THE writer believes that, in his "Diagnostic Therapeutics,"[1] the first systematic attempt was made to execute the diagnosis of visceral insufficiency. From the work in question the following citation is excerpted: "While the scientific diagnostician strives to make the clinical correspond with the anatomic findings, or, in other words, pictures to his mind the pathologic conditions prevailing in disease, the less radical physician is often content, and reasonably so, with a functional diagnosis. The latter takes cognizance of anomalies in the physiologic functions of the viscera. Thus a functional takes precedence over a pathologic diagnosis, for the reason that physiologic fluctuations may be resident in an organ even before a pathologico-anatomic substractum is assumed to exist." It was Wunderlich who declared that, "Pathology is the physiology of the sick."

At one time in the evolution of cardiopathology, the dominant fetish of the cardiologist was the anatomic lesion and functional capacity of the heart was practically disregarded. The condition of the cardiac muscle and the recognition of its frontier signs of insufficiency constitutes the new prevailing viewpoint of the clinician.

Various tests have been suggested to determine the functional integrity of the heart and they may be grouped as follows:[2] (1) Reaction of the heart muscle to active and passive exertion; (2) Behavior of the heart to reflex stimulation (reflexes of Abrams and Livierato); (3) Estimation of sodium chloride elimination; (4) Use of clinical and instrumental methods. The use of these methods predicates skill and the possession of intricate and expensive apparatus.

The following practical method based on the "cardiosplanchnic phenomenon of Abrams" is at the ready command of any physician.

Cardiosplanchnic Phenomenon.—Many cases of cardiac insufficiency, according to Sir James Barr,[3] owe their symptoms to a gravitation of blood into the abdominal cavity and "these phenomena have been aptly termed cardiosplanchnic paresis by Albert Abrams." The phenomenon[4] in question refers to the increased area of dullness of the right ventricle when pressure upon the abdomen squeezes the blood from the splanchnic veins into the right heart.

In the norm, the quantity of blood thus expressed from the abdomen is small, but in cardiac insufficiency it is increased. A normal cardiac muscle is able to cope with this sudden augmented influx of blood as expressed by an increase of blood pressure, while the contrary effect ensues with enfeebled cardiac musculature.

Technique.—The sphygmomanometer is applied in the conventional way.* After estimating the systolic pressure, maintain the mercurial column at a point showing the least oscillations. The latter maneuver is best attained by a stopcock on the rubber tube leading from the source of air supply. Next, direct the patient to compress the abdomen forcibly as in the act of defecation.

When the integrity of the heart muscle is not compromised the blood pressure will rise from 1 to 40 mm. of mercury, or it will sink from 1 to 20 mm. in the converse condition. The rise or fall will be in direct ratio to the condition of the cardiac muscle. It is evident that several factors will influence the degree of the rise and fall, notably the pressure exerted by the ventral musculature. Despite this fact, however, this simple and rapid test has yielded the writer the most efficient practical service.

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4. Abrams: *American Journal of the Medical Sciences*, January, 1904; Spondylotherapy, 1918.
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*The writer invariably estimates blood pressure with the patient facing the geographical west. He has found that such pressure will vary (however slight) according to whether the patient faces east, north, south, or west. The visceral tone of the heart, as he has shown elsewhere, is influenced by cosmic energy and every living being is a transformer of energy.

2135 SACRAMENTO STREET.

Military Medicine.

The Physiology of the Aviator.—It is patent that to be successful in flying the machine must be good and the aviator himself must be physically and mentally well qualified for the work. The successful flier is in many respects a man apart, that is, he possesses certain inborn traits that peculiarly mark him out as an aviator. There is in fact the aviator type of man. The problem of selecting men for the flying corps at the present time is extremely difficult. It seems that upon the flying corps the issue of the war very largely depends. The nation or army which has the largest number of efficient aviators will win the war. Therefore every effort is being made to train pilots and observers as quickly as possible. This being so, as Dr. J. C. McWalter points out in the *Medical Press*, August 21, 1918, officers in charge of training squadrons have no time to waste on pupils who are slow to learn, who are lacking in enterprise, who are unlucky with their machines, or who seem to exhibit any lack of keenness for their work. Learners of this stamp are forthwith rejected as unlikely to develop into efficient airmen.

While in existing circumstances, this is perhaps, inevitable, McWalters says that those who, like himself, have served as medical officers to the flying corps, know that many of these men, rejected as inefficient, are really the victims of various physical ailments, as diseases of the ear, nose, throat, spinal cord, or heart, or are the subjects of transient trouble such as hay fever, coryza, or influenza. Moreover, it must be taken into consideration that the physical qualifications of a flying officer become higher every day. Men are now required as a matter of course to fly at 15,000 to 20,000 feet or more, and putting on one side the troubles due to extreme cold or to atmospheric rarefaction at great heights, which may be overcome by artificial means, a person has to possess a remarkably elastic vascular mechanism before he can descend with impunity and in a few minutes, from a height of 20,000 feet. Not only must the cardiac muscle be in a healthy state and the heart generally be in a robust condition, but the lungs and bronchial membranes must be sound and must also be proof against the irritation engendered by the heat and smoke of the engine or by the varying moisture of the air. In short, a man to be passed medically for the flying corps must be in the first instance young and must be in addition strong constitutionally and fit and sound in every respect. A man may have all these absolutely essential qualifications and yet not be competent as a flier. Defects existing in the nervous system or in the ear and nose, less often the eyes or throat, are sufficient to disqualify.

According to McWalter the most usual and, at the same time, the most dangerous defect, is some disease of the labyrinth. In examination this defect is often overlooked, being unlikely in its milder forms, to cause any acute trouble until the patient has mounted some thousands of feet, when it then gives rise not only to vertigo and dizziness, but to a lack of that sense of equilibration and location which is the very essence of the successful flying man. Also it has been found that those aviators who experience most difficulty in judging of the distance from the ground when approaching a landing place, are frequently the subjects of this defect. In the opinion of McWalter the entire series of rhinological ailments, stenosis, sinusitis, hypertrophy of the turbinated bones, Eustachian tube troubles, even pharyngitis and tonsillitis, all render in a greater or lesser degree a man unfit to fly.

It is then obscure defects and those which in other circumstances might be regarded as minor defects which constitute, perhaps, the chief disabilities of the would-be flying man. As long as flying was done at relatively low heights these defects were of not much account, but now that a good deal of the flying is done at 15,000 or 20,000 feet their significance is grave.

The French authorities have a method whereby they submit the aviator neophyte to a series of nerve shocks to test the integrity and stability of his nervous system. However, it is asserted that this system fails in its object to a large extent, because the phlegmatic individual of good physique and of excellent constitution may pass with ease and yet be found wanting. He lacks the higher qualities of initiative, enterprise, resource, ingenuity, and readiness which go to make the ideal aeronaut and which the frail, highly strung man of delicate nervous organization often does possess. In proof of this it may be said that some of the best fliers have been men of this type. Prompt reflexes, intact cerebellar sense, perfect sense of projection, are among the most important tests for an aviator. All catarrhs, especially nasal and bronchial, are constant sources of danger. Even a tendency to wax in the ears seems to produce a dangerous giddiness and vertigo. The pulmonary apparatus must be in first class condition, and the tests to prove this must be severe. The color tests should also be stringent, as it is through this sense that judgment as to the exact distance of the ground when about to land, is rendered accurate. Correct judgment in this respect involves an intact color sense because the various greens and browns of the landing place are often refracted through a bluish mist which obscures the true distance. Finally McWalters states that an accurate sense of projection in space, such as is elicited when a candidate can touch with closed eyes an object which he has once seen, is one of the surest tests of a man for aviation.

Examination of candidates for the aviation corps places now greater responsibility upon the medical man than does any other form of military examination. It requires on the part of the medical examiner a thorough conception of the problem from the point of view of the physiology, psychology, and pathology of the aviator. It must be borne in mind that comparatively little is known regarding the medical aspects of aviation. The literature is scanty and experts are naturally few. However, some salient points stand out. The candidate must be young and physically and constitutionally sound. Especially must the ear apparatus of the flying man be

practically perfect. Therefore it is incumbent on the medical examiner to look carefully for such defects. Likewise the whole series of rhinological disorders must be eyed askance in examining an aeronautical candidate. The tests should be in every instance severe and searching, as the fate of liberty may depend on the efficiency of the flying man.

Pulmonary Tuberculosis in the Military Service.—Professor Stahelin recently delivered an address on this subject before the Basle Medical Society (*Correspondenz-Blatt für Schweizer Aerzte*, June 1). The first case shown was a man of the landwehr who on January 28, 1918, had to take up his military duties. He was 37 years old and had been employed in an institution. For the first two weeks all went well, then he seemed suddenly to lose desire for food. He felt a heaviness after eatitng and his bowels did not act. He waked depressed, with backache. On February 26 he reported ill. The stomach contents after trial breakfast were almost neutral, no free HCl. After a time he rallied and took on weight. He had doubtless passed through an acute gastritis. The author, bearing in mind that the latter often masks tuberculosis, had the patient x-rayed and the shadow showed evidences of old febroid phthisis. The alternative diagnosis was pneumonoconiosis and this was excluded by a positive tuberculin reaction, râles appearing over the right apex. There was a history of attacks of acute influenza every winter since 1905. The case, therefore, typical of chronic febroid phthisis of the benign type with good prognosis. In every case of gastric failure we must investigate for tuberculosis. The next case was of an electrician aged 21, who was seized with vomiting while in military service. As a little blood was present the diagnosis was ulcer. He was evacuated to a sanitarium for treatment, where he complained of severe epigastric pain and pressure pain. With marked loss of weight and subfebrile temperature the case suggested tuberculosis, but looked more like pernicious anemia. The man was sent to the author's clinic, where his blood and stomach contents were found normal. The only find was enteroptosis. The tuberculin reaction was negative. A stomach support relieved all his symptoms; the x-ray showed in a beautiful manner how the support held up the stomach. Such a result is not common. The patient was discharged in December, about three months after his first days of illness. The following May he was back with a different picture—cough, fatigue, chilliness, and night sweats. There were râles over both apices and a remittent fever. The progress of the affection was rapid and tuberculosis appeared in the larynx and intestine. Death resulted within the first year of the disease.

This case showed that the gastric symptom was a prodrome or mask of incipient tubercle. The subfebrile temperature at that period tended to show that the disease was already present, but in a stage in which diagnosis was impossible as shown by the negative tuberculin test. Had the latter been repeated in a larger dose, however, the results might have been different. In another case after 1 mg. of tuberculin had given a negative result 2 mgs. caused a local reaction in the lung and unmasked a tuberculosis which had appeared as a laryngobronchitis with slight friction sound on the left side. Such cases are common, but we are still ignorant as to the connection between these dry pleurisies and tuberculosis; the latter may set in soon afterward or not for a long time or not at all. The author has followed up fourteen military cases of dry pleurisy for several years. In 4 recovery took place, 2 were in doubt, and 8 had not recovered. The four recovered cases might develop the disease in time. During the same period there were also 14 cases of exudative pleurisy, of which 6 had recovered, 3 were in doubt, 4 had not recovered and one was dead. Of the 28 pleurisy patients 10 returned to military service. The author is not sure that this course is wise, certainly the regiment surgeon should keep an eye on such soldiers. From the standpoint of military insurance it would be a heavy load if the third or so of recovered pleuritics who had returned to duty should develop tuberculosis.

Morbidity in a Military Hospital for Neuroses.—A neurological center in a certain Italian army comprises a so-called Neurocomio for functional maladies of the nervous system, a division of a general hospital for organic nervous affections, and similar provisions for deaf mutes and insane. The first named is described by Tamburini and Fabrizi in the *Giornale Italiano di Medicina Militare* for July 31. It was originated in 1916 and went into effect at the beginning of the following year. Its scope comprised reeducation as well as the cure of neuropathics. The term "functionally mutilated" was employed to distinguish these unfortunates from structurally mutilated soldiers. The capacity of the neurocomio was 60 beds, of which 4 were for officers, and there were also 20 beds for military auxiliaries. During the first 18 months the number of patients treated was 427, of whom 21 were officers. During the first twelve months 101 men were discharged cured and 95 improved, while only 30 were unimproved. The largest contingent were the hypotonics, numbering nearly a hundred. About as many were the victims of hysterical deafness and deaf mutism. Ten had the diagnosis of simple hysteria, 21 of neurasthenia, and 5 of psychasthenia. Other types of hysteria represented were hysterical stammering with 19, hemiparesis 14, blepharospasm 2, amaurosis 3. There were 9 cases of myoclonus or similar clonic spasms or tremor and 7 of astasia-abasia. Five were diagnosed as cyclothymia. There were a few cases of organic affections, despite the restricted character of the material, which were doubtless postorganic and quasi-functional in character.

Few Drug Addicts Among Drafted Men.—The greatly exaggerated reports as to the number of drafted men rejected because of drug addiction have led the War Department to publish the actual figures. Of 990,592 men examined in the draft up to January 1, 1918, only 403 were rejected for drug addiction and only 76 discharged for this reason. The ratio of rejections in the draft for drug addiction is only one man in each 2,500.

Red Cross Calls for More Hospitals.—Mr. Harvey D. Gibson, now managing the National American Red Cross in France, has cabled to the Ameriman Women's Hospitals for six more hospitals to care for the American sick and wounded in France. Two hospital units are needed immediately. Each of these units should have ten women physicians, ten nurses's aids, and the hospital equipment and tentage of the standard United States Army 100-bed camp hospital, with a truck, camionette, touring car, and chauffeur. The American Women's Hospitals already have three hospitals in France, which are conducted under arrangements with the French Service de Santé.

Home for Red Cross Nurses Opened.—With more than 1,000 Red Cross nurses always quartered in New York on their way to or from the front the need of a homelike place where they may find rest and recreation has been felt for some time. This has been met by a new nurse home which was opened with appropriate exercises at 11 West Tenth Street, on October 10.

Deaths in the Service.—Major Clarence Fahnstock of New York died of pneumonia in France on October 9, aged 43 years. He was a graduate of New York University Medical College, in 1900, and chief surgeon of the 301st Infantry of the Camp Devens Division before going to France. He was a member of the New York Academy of Medicine and well known as a big game hunter, having made trips to the African wilds and to Alaska.

Lieut. Karl E. Schmid, M. C., U. S. Navy, of San Jose, Cal., died at the Pelham Bay Naval Hospital, on October 9.

Capt. Warren T. Walker, M. C., U. S. Army, of Syracuse, N. Y., lost his life during a fire in the officers' quarters of the United States Army Base Hospital No. 3, Colonia, N. J., on October 10.

Lieut. Austin Latting Hobbs, M. C., U. S. Army, of East Orange, N. J., died of pneumonia at Meuil la Tour, France, on September 26, aged 34 years.

Army Tuberculosis Bill Well Supported.—The indications are that Congress will take a favorable view of the recommendations of the public health officials that a chain of great hospitals or sanatoriums be established in this country for the treatment and care of discharged soldiers and sailors who are suffering from tuberculosis. The Clark bill, now before the House Public Buildings Committee, calls for $10,500,000 for the establishment of a chain of fourteen sanatoriums. The bill provides for the expenditure of most of this sum in enlarging existing hospitals.

Chicago Museum Becomes Hospital.—The Field Museum of Natural History in Grant Park, Chicago, which is nearing completion, and has cost $7,000,000, has been turned over to the Government for use as a hospital. The interior will be rearranged so that 4,300 patients can be accommodated and a number of smaller buildings will be erected around the main structure for the accommodation of 1,000 nurses. The museum building covers six acres and has more than twenty-five acres floor space.

No Abatement of Influenza in the Army Camps.—The number of new cases of influenza reported from the army camps for the week ending October 11 have been averaging over 12,000 daily. The total number of influenza cases at the camps on the above date since the beginning of the epidemic has reached 223,000; pneumonia cases 27,000, and deaths 8,333.

Red Cross Work in England.—The latest instalment of the report of the American Red Cross deals with work and expenditures in behalf of American fighting men passing through England. Expenditures in this work from October, 1917, to June 30, 1918, including contributions to the British Red Cross and British Ambulance Committee, total $4,313,568. For the work in the United Kingdom for the last half of this year an appropriation of $4,483,800 has been made. Work is well advanced on three new Red Cross Hospitals in England. One of these is near completion and has been opened. It is for naval men and is located in London. One is at Sarisbury, near Southampton. This will be the largest military hospital in Great Britain when completed and will be equipped to care for 3,000 wounded. A second military hospital is located at Windsor Great Park.

New Naval Hospital in Brooklyn.—A four-story, reinforced concrete building is being constructed on Flushing Avenue, near Emerson Street, Brooklyn, which is to be used as a naval hospital. The building has a floor space of 280 by 200 feet and is to have six wings. The contract calls for the completion of the building within 129 days. Accommodation will be afforded for 1,200 patients and 250 nurses. The estimated cost of the hospital is $950,000.

Philadelphia Home for Naval Hospital.—Mrs. Arthur Brock has given the use of her residence on Spruce Street, Philadelphia, for use as an emergency fleet hospital.

Major-General William C. Gorgas, recently retired for age, has been reinstated on the active list and assigned to the same rank of the Medical Corps. It is announced that he will complete his inspection of medical facilities in France and will then return to the United States to report. It is rumored that his next appointment may take him to Italy.

Lieutenant Robert O. Blood of the Medical Corps of the 103rd Infantry has received the Distinguished Service Cross for extraordinary heroism in action near Bouresches, France, on July 20-23, 1918, where he worked constantly in the most exposed positions, establishing a dressing station in an advanced position that was continually under shell fire.

Proposed Reconstruction Hospitals in New York.—North Brother Island is to be the site of a huge reconstruction hospital for the War Department, if the recommendation of the joint commission, which has recently been sitting in Washington, is adopted. The hospital would have from two to three thousand beds. The commission also recommends the acquisition of the newly completed Westchester Infirmary, at White Plains, which would have, under the commission's plans, between 1,000 and 2,000 beds.

MEDICAL RECORD.

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BRONCHOPNEUMONIA COMPLICATING SCARLET FEVER.

THE diagnosis of bronchopneumonia occurring as a complication in scarlet fever is, *per se*, in the majority of cases, easy, but, as has been pointed out by Hutinel, there are in the state of the nose, throat, ears, and lymph nodes, sometimes even in that of the joints, heart, or kidneys, so many reasons for explaining the high temperature and the serious manifestations of the disease, that not infrequently an examination of the lungs is overlooked. However, the physician's attention should be on the alert, given the high temperature, the dyspnea, and occasionally the cough; but although the functional signs are constant and manifest, the same cannot be said of the stethoscopic evidence. The disseminated, deep-seated small foci cannot be detected by percussion, while the numerous loud râles of bronchitis may conceal the fine, scarce, subcrepitant râles deep in the midst of the pulmonary parenchyma.

The differential diagnosis from lobar pneumonia complicating scarlet fever is likewise delicate. If the case is one of pneumonia-scarlet fever, the commencement is that of a general infection with chills, fever, vomiting, and diarrhea, with dyspnea and occasionally cough, soon followed by the characteristic signs of pneumonia. If the case assumes the torpid type described by Teissier, the striking fact is the absence of functional symptoms, with subdullness at one base with some crepitant râles fine in character, with or without a pneumonic souffle. Finally, during convalescence a sudden rise in temperature, with a painful spot in the thorax, will usually indicate the commencement of a focus of pneumonia. A pleural empyema at its beginning may assume certain clinical aspects of bronchopneumonia, and it must not be forgotten that it may follow a bronchopneumonia; but whether primary or secondary, the diagnosis is not always an easy matter.

Once the diagnosis of bronchopneumonia has been made, the question immediately comes up as to whether the process is tuberculous or not. The problem is difficult to solve; but in favor of tuberculosis are the great thermic oscillations, the presence of only fine subcrepitant râles and souffle, and, above all, perhaps, the long evolution and personal antecedents of the little patient.

The prognosis of bronchopneumonia of scarlet fever is serious, and the mortality may be placed at between 60 and 75 per cent. The factors of this prognosis are the malignancy of the scarlet fever, the presence of an ulceronecrotic angina, purulent rhinitis, and suppurating otitis. The younger the subject the more frequent will be the lethal complications. The prognosis is still more unfavorable when a purulent pleurisy is present, for the operation for empyema, even when resorted to early in the process, is successful in less than 50 per cent. of the cases.

As to treatment, the scarlet fever must be attended to in the first place, but, as in the bronchopneumonia of measles, the cold pack and tepid baths of eight to ten minutes are indicated. Hutinel is a warm advocate of adrenalin in the malignant forms of scarlet fever. It raises the arterial tension, but its exhibition should be continued until convalescence is assured, after which the dose is progressively decreased.

SYPHILIS AND CANCER.

IT has been asserted that a relationship exists between syphilis and cancer, the former being said to prepare the way for cancer, to render the soil favorable to neoplastic invasion. Dr. Casalis de Pury, writing in the *Paris Medical*, some time ago, concerning syphilis and cancer among the Basutos, upholds this view. The author is qualified by experience to write with authority regarding the Basutos. His grandfather, who was a contemporary of Livingstone, was the first missionary among them, and was followed twenty-five years later by his father, a medical missionary, and after a similar interval by himself. The history of this African tribe during the period in which these French missionaries worked in their midst is interesting, and bears closely on the subject matter of this article. In the time of the grandfather of Dr. Pury, the tribe practised communism, and flourished; prostitution was regarded as a deadly sin, was severely punished, and almost unknown. When the diamond mines of Kimberley were opened the Basutos flocked to them, and brought back syphilis to their own country, a malady up to that time unknown among them. The disease is stated to have produced extensive lesions of the bones and ulceration, with rapid cachexia, but chronic syphilis affecting connective tissue was not observed. When Pury himself arrived communism had passed away and given place to European particularism. Civilization had also brought its special vices and diseases; prostitution was common, and syphilis was general, the stigmata of hereditary syphilis being seen on every side. Cancer also had not been observed up to then. Pury was informed by his father that although he had been on the lookout for it for twenty-five years he had never seen a case. However, after this time cases

began to crop up—carcinoma of the liver, breast, uterus, and cervical glands, and osteosarcoma, all attacking young subjects and especially syphilitics. Epithelioma, common enough among the Boers, had never been observed among the Basutos, and the author recognizes the relation of cause and effect between the syphilis affecting bones and glands and the cancer of the same tissues, both in young subjects and in a soil previously free from neoplasms.

At the Cape, Pury found cancer very frequent among the Dutch, not so frequent among the Anglo-Saxons, but rife among the Dutch-Hottentot halfbreeds, who were also the most syphilitic. On visiting the Basutos after the Boer war, he found syphilis diminishing in intensity, but cancer becoming more and more prevalent. It attacked persons between 30 and 40. Cancer of the tongue and lip, despite much smoking, was to all intents and purposes unknown. From his experience in Africa the author is of the opinion that syphilis prepares the ground for cancer, and says that he holds the view that there is an incontestable hereditary syphilitic cancerous diathesis.

Statistics should be of great service in assisting to throw further light on this matter. If it can be shown that cancer is more prevalent where syphilis is common an *a priori* argument will be supplied in support of the theory that syphilis prepares the soil for cancer. It has been noted before that cancer comes with civilization and with the increased prosperity of a people. Whether the determining factor in such cases is syphilis, or increased consumption of meat, or constipation due to changed habits of living, or even other disturbances of metabolism, is yet to be ascertained.

INSANITY IN PERU.

Delgado and Bambaren, internes in the Lima Insane Asylum, contribute a statistical paper on insanity to the *Anales de la Facultad de Medicina* for January-February. The institution contains all the insane in Peru who require custodial care. The number of inmates in 1916 was 522, a notable increase over 1906, when the number was 377. During the period 1896-1906 the increase was much less. The augmentation for the past decade was due almost entirely to increase in the number of female insane, who from 172 in 1896 and 170 in 1906 increased to 267 in 1916. The increase in males was marked for the 20-year period but not for the decade just expired. It appears as if the increase first showed itself in males, and a decade later in females. The general increase in twenty years is not peculiar to Peru, for the same behavior is noted in most other countries. The causes for such increase have been freely discussed by alienists of note—Maudsley, for example.

A survey of the forms of insanity which obtain in Peru yield some surprises. Paranoia tops the list with 22.6 per cent. This can hardly be the paranoia of Kraepelin, but probably includes all insanities with paranoid symptoms. That most of these cases must conform to Kraepelin's paranoid dementia appears from the very low percentage (4.02) with the diagnosis of dementia precox. One is impressed with the great infrequency of general paresis, which is represented by only four cases—less than 1 per cent.

Next in frequency to paranoia is psychosis of degeneracy with 12.06 per cent. Mania comes next with 9.38, epilepsy 7.85, alcoholic insanity 7.85, and melancholia 6.13. There are in the institution 21 idiots and 3 imbeciles. The authors attempt an etiological classification, which falls short because in nearly a third no one causal factor can be assigned. The leading factor specifically mentioned is organic disease, and next in order come moral, toxic, and hereditary causes, in the order named. No attempt is made to analyze the material under each grouping, but it is only too apparent that two or more of these factors could readily be discovered in the average patient.

The authors make no attempt to explain the increase of male insanity for 1896-1906, nor that of female insanity for 1906-1916. One hardly feels like criticising this omission, for it is obvious that in a decade the viewpoint undergoes such changes that the diagnoses of one epoch are not those of the successive one. The remarkably small number of imbeciles in Peru can only be explained by the universal tendency to keep weak-minded women debiles shielded at home. We recall that in one of the minor novels of the late Henry James the young Peruvian lady whom the American immigrant weds was clearly of this type. The amount of alcoholic insanity seems large for a Latin race, but this form shows no increase, and the authors neglect to state whether Europeans are represented. The authors neglect to state also whether the increase of insanity was absolute or relative, as they give no ratios of incidence to population.

HOW MUCH RISK SHOULD BE TAKEN IN ADVISING PATIENTS?

The public sometimes inveigh against the "play safe" advice of the physician, and claim that he is always endeavoring to save his status at their expense. Like the man who was seeking a lawyer who would tell him what he could do, instead of what he must not do, they sometimes wish a medical adviser to give them counsel which in the abstract would be adjudged foolhardy, yet which meets the situation in a special case. No one can read anecdotal history and biography without realizing that a vast amount of theoretically bad advice has been given with the best results by the leaders of the profession when confronted with peculiar exigencies of practice, and especially when clients of great importance to the community are concerned. No doubt can exist as to the fact that the leader of the profession shows his qualities of leadership in no more striking way than when he is forced to substitute for conservative advice some recommendation which makes him liable to suffer in reputation should fate go against him. But the sole question is not that the advice may react against

the physician, for the moral element is sure to enter into the hazard in many of these cases.

Let us give a concrete example of a case without moral hazard: A gentleman who was slated for a most important administrative position in a great corporation chanced to be suffering at the time from a protracted neurasthenia consecutive to a severe attack of influenza. On account of the strain which this position would entail he was advised to refuse it until at least a year had elapsed. The most expert as well as the most disinterested advice was concurrent on this point. However, he took some advice (which he clearly wanted) from two comparatively humble friends, one a physician and the other a psychologist. It was argued by these men that opportunity would never knock at this man's door again, at least so strongly. It was also argued that if he allowed himself that year's leeway he would surely overvalue the material factor in his case and look upon himself as a potential neurasthenic who might break down at the first stress of his new position. He took this advice, and in assuming his duties at once he assumed them as an invalid who could work only on part time. It was severe for him at first, but he adjusted himself to his duties, which in time proved to be a veritable occupation cure for his nervousness. This was over twenty years ago, and the patient has never had a breakdown during that period.

Interrelation of the Ovaries and the Thyroid.

In an article dealing with the results of radium therapy in hyperthyroidism (*International Journal of Surgery*, July, 1918), Dr. W. H. B. Aikins notes that in several of the cases so treated it was stated that exophthalmic goiter followed the removal of the ovaries. This naturally gives rise to speculation, he says, with respect to the relationship which exists between the organs of internal secretion. Aikins deals with this subject at some length, and draws attention to the fact that statistics show that exophthalmic and other forms of goiter are more frequent in women, thus suggesting a connection between the thyroid and gonad secretions. That there is such a relationship, he says, appears to be proved by other physiological facts, and also accepted by many. The practical deductions that Aikins draws from the assumption that the relationship between the ovaries and the rest of the ductless glands is intimate, is that it would be advisable to take the correlation into consideration before deciding to perform double oophorectomy, seeing that it is not only the effect of the operation upon the genital system that must be considered, but the effect also upon the other ductless glands. If the functions of one of the endocrine organs are injured or interrupted a severe strain is put upon the others, the machinery of the body is thrown out of gear, and serious pathological results may ensue. A smooth and harmonious working of all the internal secretions is essential to the maintenance of good health, and therefore the relationship between the ovaries and other ductless glands should always be taken into account when dealing with abnormal gynecological conditions.

Movement of Epidemics in 1918.

From the bulletin of epidemiology of the *Office International d'Hygiène Publique* for July it appears that cholera has prevailed extensively during the first half of the present year in but one country, the Province of Bengal, in which nearly 20,000 deaths occurred during the three first months of the year. The number of cases in the Philippines up to April 20 was nearly 2,000, and about 1,400 of these cases were fatal. The disease is known to exist in European Russia, but no data are obtainable. No country contiguous to Russia is mentioned, the nearest being Syria. Here also statistics are wanting. The reportable area comprises southern and southeastern Asia and the outlying islands. The bubonic plague occurred only sporadically in northern Africa, Peru, and Brazil. In Senegal, however, about 1,500 cases have occurred, with a mortality of 1,200. In Guayaquil alone 154 cases have occurred, with 97 deaths. In Asia the disease has occurred sporadically in China, the Dutch East Indies, Indo-China, Siam, the Straits Settlements, Arabia, and Ceylon, and the great toll, as usual, is in British India, with 611,337 cases for the first six months of the year and 493,074 fatalities. The provinces to suffer most were the United Provinces, Bombay and Sind. Punjab and Rajputana. Yellow fever had an off year; cases occurred in Brazil, Ecuador, Guatemala, Honduras, and Mexico, but the aggregate was very slight.

News of the Week.

The Influenza Pandemic.—The reports of the past week show that the influenza continues to spread throughout the world, having reached even to South Africa. According to medical testimony the worst plague that ever visited that quarter of the globe was nothing in comparison with the present epidemic. There have been as many as 20,000 cases of influenza in the hospitals of the mining district of Natal. Some of the mines have been closed and the local railroad service is curtailed. An increasing number of cases of influenza are being reported from all sections of the United States and according to a statement made by the Public Health Service a still further increase is to be expected, since 30 to 40 per cent. of the population are usually affected by the disease. Reliable detailed reports as to the extent of the epidemic in various localities are not available as yet. From September 18 to October 11 25,082 cases were reported in New York City, with 394 cases of pneumonia, 183 deaths from influenza, and 210 deaths from pneumonia. The most serious phase of the situation in New York City is the shortage of nurses. To meet this a Nurses' Emergency Council has been formed, and through this organization the Red Cross is making a house to house canvass for women with any knowledge of nursing. The various medical colleges of the city have released their fourth year medical men who are acting as nurses under the direction of graduate nurses and physicians. The Board of Estimate has appropriated $55.000 for the use of the Health Department in combating the epidemic, and the Health Commissioner has taken the un-

usual method of asking the political district leaders to use their party machinery to hunt up influenza cases. Instructions have been sent out from the headquarters of the Red Cross in Washington to all Red Cross chapters in reference to mobilization in an effort to combat the influenza epidemic. The Red Cross will work in cooperation with the Public Health Service and the State Boards of Health. It will enroll nurses for the campaign and will use freely its accumulated hospital supplies. Surgeon General Blue has suggested that all places of amusement be closed and all public meetings be discontinued in all places where the malady has become prevalent.

STATEMENT OF THE PUBLIC HEALTH COMMITTEE OF THE ACADEMY OF MEDICINE.

The Public Health Committee of the New York Academy of Medicine, after conferring with representatives of the Health Department, hospital authorities, bacteriologists, and others in close touch with the situation regarding influenza, are of the opinion that, while there is no occasion for undue alarm on the part of the public, further vigorous measures should be taken by the Department of Health to prevent the spread of the disease, and, in collaboration with every available public and private agency, to ameliorate the condition of patients and of their dependents.

In the communities in which the disease has thus far appeared in epidemic form the rate of sickness has been high and the death rate not inconsiderable. In this city the unusually heavy demands upon private physicians, hospitals, dispensaries, and district nursing organizations indicate of themselves the presence of an epidemic which should be vigorously combated. Many individual physicians in general practice report seeing from thirty to fifty cases a day, and declare that they are so busy as to be unable to make prompt reports of influenza cases to the Department of Health. The pressure upon certain hospitals for the admission of influenza cases has been so great as to necessitate the temporary conversion of wards ordinarily used for surgical and other purposes to emergency wards for influenza and its sequelæ. A number of the municipal hospitals have been overcrowded, either by placing mattresses on the floor or, in the case of one hospital, by placing two or even three children in one bed. Some physicians and district nurses engaged in work among the poor report that in numerous instances, upon visiting patients to whom they have been called, they have learned of other cases in the same houses which were unattended and necessarily unreported. Reports are by no means exceptional of whole families which have come down with the disease; where this has happened among the poor there has been not only a lack of medical care, but suffering from loss of income and lack of food. A block census made on October 9 of a typical upper East Side tenement block showed that among 340 families, numbering 1,445 persons, there were 160 cases diagnosed by physicians as influenza, of which only nine had had hospital treatment. This means that in this block, up to October 9, 11 per cent. of the population has been affected. If anything approximating this rate holds for the entire city, Greater New York has already had several hundred thousand cases of influenza; and the epidemic is apparently still on the increase.

Further evidence of widespread illness among the population has been obtained by inquiries variously directed. In a group of offices in one of the largest buildings in the financial district more than a third of the office force was reported to be absent on account of illness on October 9. Isolated factories in the Borough of Manhattan report from 12 to 20 per cent. of illness. The disease is prevalent today in all or nearly all of the military and naval centers in and around New York.

Returns from a group of more than fifteen large public hospitals show that from 12 to 40 per cent. of the medical and lay workers in such institutions have been affected during the past two weeks. One hospital in Brooklyn reports 56 nurses down with influenza or pneumonia out of a staff of 120. Another in Manhattan reports 50 cases out of 300; another 40 out of 200. These reports are similar to reports received from the military hospitals. In one cantonment hospital 100 out of 200 nurses have been ill. There is no reason for supposing that the epidemic will run a different course in New York City from that which it has pursued elsewhere.

The disease is of germ origin and probably is spread most commonly through germ-laden droplets of mucus thrown into the air in unguarded coughing, sneezing, and spitting. The Public Health Committee therefore strongly endorses the educational propaganda which has been carried on by the Health Department of New York City and other health authorities throughout the country, warning the public against the dangers of overcrowding and lack of sunlight and ventilation, as well as those arising from ignorance or careless habits.

Experience both abroad and in this country seems to indicate that the epidemic runs its course in any given community in from four to six weeks. Occurring at this season, the epidemic in New York City will probably begin to decline in from two to four weeks. During this period the situation will continue to be critical and should be dealt with as effectively as possible.

The following measures are recommended:

1. That the public should be sharply warned of the danger of close contact with unrecognized cases of influenza in crowded public places.

2. The community should stand squarely behind the Department of Health in its efforts to minimize overcrowding in public conveyances by conscientiously observing the prescribed hours for the opening and closing of various classes of mercantile establishments.

3. The daily inspection of children on their arrival at school, as practised by the Department of Health, represents a principle which should find wider application. There should be a daily inspection of workers employed in all large establishments as they report for work, with a view to the prompt exclusion and, so far as possible, the segregation of all suspects.

4. During the epidemic employers should voluntarily report all employees who are absent on account of illness. Such reports will help the Department of Health to locate many neglected cases.

5. Gauze masks should be used by all physicians, nurses, and others in attendance upon or in close contact with the patients suffering from influenza.

6. Measures should be taken to secure more complete and uniform reports of cases of influenza. The cooperation of physicians will be the readier if it is made clear that the reports are desired as a basis for helpful action.

7. Nurses, social service workers, and others having cognizance of neglected cases should report them, and centers at which such reports can be readily made in person should be established.

8. The city authorities should strengthen their forces by arranging promptly for the close cooperation and, if necessary, the financial support of the United States Public Health Service, the Department of Civilian Relief of the American Red Cross, and of all agencies which are able to offer useful service in the emergency. A specific task should be assigned to each cooperating agency and its subdivisions.

9. Every report of a case, especially in the poorer districts, should be made the basis of action either by the Department of Health or by a cooperating agency, with the following objects in view:

a. Removal to hospital where necessary and possible.

b. Medical care at home. In the block canvass referred to above it was ascertained that while a majority of the patients had been seen by a physician once, few had had subsequent medical attention.

c. Nursing care at home. The nursing program should include the use not only of graduate nurses, but of all women who have had sufficient nursing experience to be of service.

d. The provision of food for the needy cases and for the neglected children of sick mothers.

e. Temporary shelter for children whose mothers are sick at home.

f. Inquiry into conditions among the close neigh-

bors of stricken families, with a view to the prompt recognition of unreported cases.

10. Hospitals should be urged to obey the injunction of the Department of Health to discontinue all non-urgent medical and surgical work in order to afford partial segregation and medical and nursing care for influenza and pneumonia patients.

11. The overcrowding of hospital wards with cases of influenza and pneumonia should be discouraged. Where hospitals command sufficient personnel to care for larger numbers of patients than under normal conditions, such patients should not be crowded into existing wards, but should be placed in adjacent spaces, such as day rooms and corridors. It is essential to hospitals caring for influenza patient to maintain a proper system of bed spacing and screening.

12. Owners of apartment and tenement houses should provide heat for such buildings during morning and evening hours. The proper ventilation of apartments may thus be secured without undue exposure to cold. The prevalent idea that the Fuel Administration has forbidden the heating of apartment houses before November 1 is erroneous. The committee is advised by the Fuel Administration that reasonable discretion is all that is desired or expected.

Unidentified Epidemic in Argentina.—The National Medical Department of Argentina is alarmed over the spread of an unidentified epidemic among the children of the Province of Catamarca. In the course of a month 100 children have died out of a population of 10,000. The disease resembles dysentery and is highly contagious. All vessels from France, Portugal, Spain, and Italy are now carefully quarantined.

Cholera Spreads in Berlin.—According to a despatch from Basel, cholera is spreading in Berlin despite rigorous preventive measures. Seventeen cases were reported on October 8 and fifteen deaths are reported to have occurred from the disease on this date.

The Fourth National Exposition of Chemical Industries, which was held in the Grand Central Palace, New York, during the last week in September, was a success far beyond the most sanguine expectations of those interested in its promotion. Practically every branch of chemistry and allied lines was represented. It was particularly significant in that it demonstrated that America has within a few years freed itself from the domination of German Chemistry and showed what has been accomplished by this country in taking the enormous chemical, glass, and dye industries away from Germany. Particularly during the last year have great strides been made in the industries based on chemistry and in synthetic medicinal preparations. The Fifth National Exposition of Chemical Industries will be held at the Coliseum in Chicago during the week of September 22, 1919.

New Maternity Center for New York.—A new branch of the Maternity Center Association was opened on October 11, at 412 West Forty-seventh Street, in Health Zone No. 5, between Twenty-sixth and 105th Streets. In this zone there have been reported in one year 7,643 births and 931 deaths of infants under one year of age.

Dr. Walter B. Swift of Boston has been appointed consultation expert for speech defects to the Division of Medical Inspection of the Public Schools of Cleveland, Ohio.

Dr. Frederick Tilney, professor of neurology, delivered the address before the College of Physicians and Surgeons at the opening exercises of Columbia University on September 25.

Clinical Congress Abandoned.—Dr. Franklin Martin, Secretary-General, announces that the Clinical Congress of the American College of Surgeons will not meet in New York during the week of October 20. Because of the epidemic of influenza this action was taken with the approval of Dr. Charles H. Mayo, the president, and the authorities of the Army, Navy, and Public Health Service.

Public Health Meeting Postponed.—Owing to the prevalence of influenza in all parts of the United States, the executive committee of the American Public Health Association postponed the annual meeting of the association which was to have been held in Chicago during the week of October 14.

The Harvey Society.—The first lecture of the series will be delivered at the N. Y. Academy of Medicine on Saturday evening, October 19, 1918, at 8.30, by Dr. E. K. Dunham. Subject: "Certain Aspects of the Application of Antiseptics in Military Practice."

Gifts to Columbia University.—Gifts totalling nearly $37,000 were announced at the meeting of the trustees of Columbia University on October 7. They included $9,000 from the trustees of the East River Homes Foundation to be applied toward the work in tuberculosis at the medical school and $5,000 from an anonymous donor to be used in surgical research. Contributions of $1,000 each were made to the fund to provide for the admission of women to the medical school by William H. Moore, Arthur Curtiss James, Elizabeth Waterbury, Forrest F. Dryden, J. M. Wallace, D. G. Reif, and F. L. Hine.

Heavy Fines for Spitters.—The New York City Health Department, in its effort to combat the spread of influenza, is carrying on an energetic campaign against spitters. At one of the police courts fifteen men were fined $20 each for spitting on subway platforms. In other courts the fines ranged from $1 to $5. One magistrate announces his intention of handing out a sentence of five days in the workhouse without an option of a fine.

Obituary Notes.—Dr. WALTER WILLIAM LOWELL, a graduate of Cornell Medical College in 1911, and a member of the New York State and Kings County Medical Societies, died of pneumonia at his home in Brooklyn, on October 10, aged 28 years.

Dr. JOHN RICHARD PERKINS, a graduate of the College of Physicians and Surgeons of Columbia University in 1915, and an interne in the Presbyterian Hospital, New York, died of pneumonia in that institution on October 9, aged 26 years.

Dr. JACOB CHASAN, a graduate of the Long Island College Hospital in 1911, died of pneumonia at his home in the Bronx on October 9.

Dr. HERMAN GROSS died at his home in Metuchen, N. J., on October 6, aged 38 years. He was a graduate of the College of Physicians and Surgeons, New York, in 1903, and head of the Metuchen Board of Health.

Dr. CLINTON E. STARK died of heart disease at his home in Norwich, Conn., on September 26, aged 62 years. He was a graduate of the New York

Homeopathic Medical College, in 1878, a member of the American Institute of Homeopathy, and a former president of the Connecticut State Homeopathic Society. Dr. Stark was largely instrumental in securing the establishment of the Norwich State Hospital.

Dr. FRANK T. MARA of Boston, a graduate of the Harvard University Medical School in 1887, died at St. Elizabeth's Hospital of pneumonia on October 3, aged 52 years.

Dr. JOHN GEORGE FREDERICK HOLSTON of Zanesville, Ohio, a graduate of Jefferson Medical College, Philadelphia, Pa., in 1867, died at his home on September 26, after a prolonged illness, at the age of 73 years. He had recently celebrated his fiftieth anniversary as a practitioner of medicine.

Dr. OMAR BADGER of Skowhegan, Me., a recent graduate of Harvard University Medical School, and first assistant physician in the Boston City Hospital, died of pneumonia in that institution on September 25.

Dr. JOHN W. PARKHILL of Colliers, W. Va., a graduate of the American Medical College of St. Louis in 1876, died in a hospital in Steubensville, Ohio, from injuries sustained in a railroad accident on September 25, aged 65 years.

Dr. G. ROY HEATON, a graduate of the Atlanta School of Medicine in 1911, died at his home in Rockmart about September 22, aged 31 years.

Dr. THOMAS WOLFF, a Confederate veteran, and for some years a practitioner of medicine in Washington, D. C., died following a stroke of apoplexy, on September 26, aged 74 years.

Dr. A. A. FIELDING, a practitioner of medicine of Knoxville, Tenn., died September 26, at an advanced age.

Dr. ALBERT CARL RICE died of pneumonia at his home in Babylon, L. I., on October 11, aged 32 years. He was a graduate of the University and Bellevue Hospital Medical College in 1910, and visiting surgeon to the South Side Hospital, Babylon.

Correspondence.

INSUFFLATION OF OXYGEN IN PNEUMONIA.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—About a year ago I published an article (*Jour. A. M. A.*, October 6, 1917, pp. 1150-56) on "The Therapeutic Value of Oral Rhythmic Insufflation of Oxygen," in which I gave the description of a simple apparatus for its execution. I am old and experienced enough to know that at best it takes a long time before such publications reach the minds of practitioners and are the means of practical application. The present epidemic, however, induces me to ask you for space to call attention to my previous statements and to urge the use of oxygen by this method in respiratory and cardiac diseases. The administration of oxygen in respiratory disease is certainly not new. There is hardly a physician who will permit a patient to die without having recourse to the administration of oxygen. On the other hand, there is hardly a physician who is not skeptical of the value of its use. There are two reasons for this attitude. In the first place, physicians were influenced by the opinion of physiologists that the air has sufficient oxygen for the need of the body and that the hemoglobin cannot take up any more of the oxygen even when administered under high pressures. Furthermore, physicians have actually not seen any favorable effect from the administration of oxygen. As to the first reason, physiologists and clinicians failed, and still fail, to see that a distinction must be made between the effects on physiological and that on pathological conditions. The great surpluses of tissue and functional activities possessed by the normal body are factors of safety to be used just in pathological conditions. Recently, however, some physiologists and clinicians changed their views regarding the value of oxygen in disease. Haldane, an authority on the respiratory gases, and who belonged to the group of physiologists who were more than skeptical as to the value of oxygen inhalation by normal persons (athletes, for instance), came out strongly in favor of administration of oxygen in inflammatory conditions of the lungs. The following statement deserves to be quoted. He says, for instance:

> It may be argued that such measures as the administration of oxygen are at the best only palliative and of no use, since they do not remove the cause of the pathological conditions. As a physiologist, I cannot for a moment agree with this reasoning. The living body is no machine, but constantly tending to maintain or to revert to the normal, and the respite afforded by such measures as the temporary administration of oxygen is not wasted, but utilized for recuperation.

As to the second reason it is probably an actual fact that practitioners rarely see any favorable effect from the administration of oxygen. The reason for this failure, however, is due in the first place to the faulty method of administration. It is usually given through a paper or glass funnel kept at some distance from the patient. By this method the inspired air is hardly enriched with oxygen. Another vicious factor is the lateness of the period of the disease when oxygen is begun to be administered; it is done in the terminal stage. This part of the procedure is so well known to the lay public that a conscious patient who receives oxygen will ask whether he is so desperately ill that he needs oxygen. In the above mentioned article I described a simple apparatus for the administration of oxygen and by testing it on normal individuals it was found that after a short period of administration by this method the tracheal air consisted practically of pure oxygen. I cannot repeat here the description of the apparatus; I must refer the reader to the above mentioned article (and also to my article in the MEDICAL RECORD for July 7, 1917). The essential parts of the apparatus consist in a flat hollow, tongue depressor-like tube and a "respiratory valve" by means of which inspiration and expiration are accomplished. The apparatus is, of course, not patented and consequently comparatively inexpensive.* The flat tube should be inserted into the mouth to about the middle of the tongue. It gives no inconvenience to the patient who should be asked to keep his lips closed over the instrument.

There has been at least one instance of a patient in a dying state from pneumonia (Type II) whose life undoubtedly was saved by the administration

*George Tieman & Co., 107 Park Row, New York City, are the makers of it.

of oxygen. It relieves the agonies from air hunger and it most favorably affects the cyanosis, sometimes in less than one minute. The treatment should begin at an early period; it should be administered every two or three hours for five to ten minutes at a time. Care should be taken that at the start the oxygen insufflation should begin with low pressure; a sudden blast will frighten the patient who may refuse to take it again. The following little details are not superfluous. The ring of the respiratory valve which is moved by the inserted thumb should move easily. The waste of force leads to a premature fatigue of the thumb and also to the breaking off or to a dislodging of the ring.

A well known clinician obtained this instrument soon after my description of it. Several months later he was taken ill with a fatal pneumonia. It was the patient's wish that the apparatus should be used on him. A friend from the Rockefeller Institute who went over to assist in caring for the patient found that the ring of the respiratory valve was broken off and the apparatus altogether in disorder. It is simple common sense that an apparatus, if it should serve its purpose, should be handled with proper care and be often overhauled before there is an emergency for its use. The metal hollow "tongue depressor" should of course be pulled out from the rubber tubing after being used and should be disinfected.

The present epidemic form of pneumonia is characterized by an early appearance of cyanosis. Oxygen administration should therefore be begun very early. It is a matter of common sense that it will not help in 100 per cent. of the cases. But there is no remedy which helps 100 per cent. and the patient should receive the benefit of the doubt even if the rendered assistance may not exceed the value of 5 per cent. Physicians must free themselves from the idea that treatment is only of value when it can make a claim to specificity.

S. J. Meltzer, M. D.

Rockefeller Institute.

THE VALUE OF SODIUM BICARBONATE FOR COMMON COLDS.

To the Editor of the Medical Record:

Sir:—Having just experienced again personally the remarkable power of bicarbonate of soda in arresting a "common cold" I cannot refrain from mentioning it for the benefit of those who are not familiar with its value, about which I wrote long ago.

For a day or two I felt the "cold" coming on, and yesterday it was about at its height, with repeated sneezings, some coughing, and the use of many handkerchiefs. Last evening it was almost unbearable as I sat writing, when I bethought myself of soda, which I had given to scores of patients for many years. At 10.30 I took about half a teaspoonful in one-third of a tumbler of water, and repeated it each half hour to 12 o'clock—four doses. It had not then given much relief, and I went to bed with a handkerchief, though hardly expecting great trouble. I dropped to sleep almost at once, and slept perfectly till called at 7.30, and awoke minus the cold. By about 10 I felt a slight return and began the soda, taking three or four doses, which cleared all up, and the handkerchief has been a superfluity to-day.

My usual directions are to take four doses at half-hour intervals and a fifth one hour after the last. Then to wait about the same length of time and repeat the dosage if it seems necessary, and even a third series of doses if the cold is not checked, which is very rarely the case. Often the first series of doses is quite sufficient. Since I first suggested this treatment some years ago, many physicians have corroborated its value, speaking or writing to me about it.

When there is a grip element I have for many years given ten grains of phenacetin with twenty of soda, every two hours, with hot water, with equally remarkable results, as very many patients will testify. If heart depression is feared, a trifle of whiskey may be taken in the hot water, but I rarely find this necessary. In past years I have taken these powders myself very many times, and given them to my office associates and family, with invariably good results, and rarely, if ever, do we have any prolonged illness.

With the modern skepticism as to the value of drugs in general, it is encouraging to know something positive which has borne the test of long experience. L. Duncan Bulkley, M.D.

531 Madison Avenue, New York.

INFLUENZA PRECAUTIONS.

To the Editor of the Medical Record:

Sir:—The best combination as a protective and curative remedy against influenza is the following:

℞ Ammonii salicylatis.....grs. lxxii
Caffeine .....gr. vi
Essence of pepsin.....5i
Aquam ad.....5vi
Sig.: A dessertspoonful every hour.

The perforated zinc inhaler is the best protective mask. A little oil of eucalyptus, pine-needle oil, or preferably creosote, alcohol, and spirit of chloroform, equal parts, poured on the sponge of the inhaler, and breathed quietly, will prevent contagion being carried from a sufferer to a well person, even through unprotected sneezing or coughing.

Beverley Robinson, M.D.

42 West Thirty-seventh Street, New York.

OUR LONDON LETTER.

(From Our Own Correspondent.)

VICISSITUDES OF THE MINISTRY OF HEALTH—THE DANGER OF DRUG INFLUENCE—RABIES IN ENGLAND —SHUTTLE-KISSING.

London, Sept. 19, 1918.

Until now it has been believed that some sort of general agreement existed between the Friendly Societies—that being the generic title for all the organizations whereby the working classes club together to obtain medical benefits—and the official committees of the National Insurance Commission as to the provisions of the bill which promises to erect in the immediate future a ministry of health. It has now been definitely stated by chairmen of insurance committees that however far such an agreement may have existed in the more preliminary stages, the bill in the present form of its draft is quite unacceptable to the Friendly Societies of the country. A ministry of health erected on provisions that recognized all the claims of the Friendly

Societies would certainly be quite antagonistic to medical views, and so far as the medical profession is concerned the fact that the Friendly Societies do not like the bill as it stands is far from proving that the measure is other than a perfectly good one. But none the less it is very important, when legislation of such scope as the creation of a first-class state department is in question that the preliminary debates in the House of Commons should take place in an atmosphere of general agreement among the important parties concerned. A bill which begins its career in a welter of dissension in respect to basic principles does not often get on the statute book in any useful form. The bill should be a short one, protracted debates should be avoided, and the whole subject of a ministry of health should be regarded by legislators an urgent war measure; as a method, in short, by which the country can be enabled to deal in a comprehensive and safe manner with the burdens which will be laid on the health of the nation by the colossal war. The Friendly Societies come into the picture as the representatives of large groups of persons who are entitled in return for payments made by themselves to medical benefits under the act, and the policy of the Friendly Societies, some of which are wealthy bodies with considerable powers of political organization, is to secure as far as possible the conduct of the machinery by which medical benefits are administered. There has long been a feeling among medical men that the aims of Friendly Societies are dictated rather by official desire for influence than by particularly acute sympathy with the pathological conditions of their subscribers. Medical men, therefore, remain unmoved at the information that alterations have been made in the draft measure which make it distasteful to the Friendly Societies, except that opposition to the bill, stage-managed by the Friendly Societies, might contrive to delay the introduction of a much-needed measure, or at any rate prolong the early stages of legislation.

At the Central Criminal Court a nurse has recently been found guilty of murdering an infant placed under her care at the Welfare Center, Lower Sydenham. This center is a well-managed institution, and has received grants both from the Local Government Board and from the Borough Council of Lewisham, and the nurse in question was employed at the institution upon written references from a woman who personally knew her and was acquainted with the character of her work. The knowledge of this referee, seems, however, to have been very partial. The nurse was engaged at the end of May and was almost immediately put on night duty, remaining for the next ten days alone in discharge of her work from 8 o'clock in the evening until 7.30 the next morning. During that period three of the children under her care developed symptoms of meningitis, and in the case of the particular infant who died the post mortem examination revealed fracture of the skull. The nurse was suspended from duty when the proper investigation of her antecedents revealed that for ten years she had been a drug taker, unbalanced in her mental attitude, subject to fits, and even suicidal on occasion. The only defense possible was made, namely, that the injuries to the particular infant whose death was the origin of the indictment for murder were caused by the prisoner in a moment of mental irresponsibility, and upon that defense to the charge of murder the jury found the nurse insane, and Mr. Justice Darling directed that she should be detained as a criminal lunatic. Two morals can be drawn from a story of particular horror. One is so obvious that it requires no emphasis in a medical paper, namely, that the position to which persons addicted to drug taking can be reduced by their habits renders them a terrible source of danger to society. The other lesson is that the person who gives a good-natured certificate may be as dangerous as any criminal lunatic. As medical men know well at the present time, this is an age of certificates. A great deal of employment is taking place of persons who have not recently done much work, or whose industry has been in no sense continuous. The majority of these people require a character for honesty and efficiency, and the temptation to reproduce their own account of themselves in the signed certificate is very strong to all good-natured people; and so is the temptation to take narcotics for all the drug-addicted. If the person who takes the drug is a danger to society, what about the person whose amiable certificate places the drug-addicted in a position where particular danger to society can be inflicted?

The occurrence of canine rabies has been reported this week both in Devonshire and the Isle of Man, and the lesson for the population of England is the necessity for maintaining with the utmost regard the regulations with respect to quarantine of dogs arriving from abroad before they are admitted to the country; for the disease must have been imported, as it is many years since any cases occurred in Great Britain, Ireland, or the surrounding islands. The matter has importance when it is remembered how serious the incidence of rabies was some twenty years ago, when the authorities took a very strong line both as to the admission of animals from abroad and the muzzling of dogs at home. The public did not receive the muzzling orders with good temper, and their irritation was fanned by ignorant sentimentalists who took the line either that rabies existed only in the tortuous imagination of vivisectionists or that in no circumstances has man a right to be so cruel as to inconvenience his four-footed friend. A strong minister, Mr. Walter Long, was president of the Board of Agriculture at the time, having previously been Parliamentary Secretary to the Local Government Board. The muzzling orders introduced by him were stringently carried out, with the result, for example, that the number of cases in 1895 were 672, whereas by 1903 the disease was extinct. Since that date no case has occurred until the two that are now reported from Devonshire and the Isle of Man, and both localities are in close connection with the sites of war. The outbreak in the Plymouth district of Devonshire is surely connected with the transport work of this great port, and points to an infection from France, where canine rabies has existed for the last two years; indeed, during 1917 upward of fifty cases occurred in Paris alone. There are, of course, in the north and northeast of France large numbers of homeless, wandering dogs, and among these infection easily spreads. Now, there is among all soldiers and sailors, and

apparently air men, especially those of British origin, an almost superstitious regard for the affection of a dog. Officers on board ships frequently keep dogs when official status permits them to do so; the dog is the common friend in many regimental mess rooms, and is generally regarded by the men as a mascot; and not a few airmen take dogs with them when the nature of their work implies no risk to themselves or the animal. This means that a very large number of British dogs have a chance of obtaining rabies in France, and there seems no doubt that the English cases have been due to smuggling through quarantine of pet animals, one of which had become infectious. Smuggling of dogs is being guarded against by the authorities, and when detected the offenders will be severely punished.

It is rather an anachronism that in the twentieth century such a process as that known in the Lancashire, Glasgow, and Belfast weaving sheds as "shuttle-kissing" should exist. "Shuttle-kissing" is the act by which the weaver puts the side of the shuttle to his mouth and uses an inspiratory suction to draw the thread through the eye, and it is impossible to believe that an action so dangerous from a sanitary point of view could not be dispensed with either by the mechanical use of some crochet hook or by some alteration in the design of the shuttle enabling the weaver to push the thread through with his fingers. Old customs, however, die hard, and although an official report has been made to the Home Office and to the Local Government Board as long ago as 1912, the transmission of disease from person to person in weaving sheds is still possible, and still attributed to shuttle-kissing. The matter affects workers in both the cotton and the linen industries, and at the present moment the rapid spread of an influenza epidemic in Blackburn is alleged to have occurred through the prevalence of this habit. The local weaving association has turned to the medical profession for assistance, and has asked the medical officer of health for Blackburn to listen to a deputation on the subject, when no doubt the representations of the weavers will be brought through the medical officer of health to the attention of the Local Government Board. It must be allowed that in the official report of 1912, although the evidence was taken in a number of towns in Lancashire, in Belfast, and the North of Ireland and in Glasgow, there was no support forthcoming to the allegations that in certain particular instances the transmission of disease had ever taken place by "shuttle-kissing"; but the committee unanimously denounced the practice as objectionable, apart from the medical or public health aspect, on the ground of cleanliness of habit. It is unfortunate that the report did not go further, because no medical man can possibly believe that such an action as "shuttle-kissing," executed many times an hour in the environment of a weaving shed, can possibly be otherwise than dangerous. The action is not one of mouth suction, but is a sudden and forcible inspiration designed to carry the thread through the eye of the shuttle into the mouth of the operator, and in this way particles of dust, dye, fluff, and size, are carried through the mouth, the trachea, and bronchi, into the lungs. Whether concrete evidence is forthcoming or not, it is impossible to doubt that in this way disease germs have been disseminated. A single weaver may perform the act as many as 500 times in a day, while the working arrangements of the weaving shed may lead to the same shuttle being repeatedly "kissed" by different persons. Every medical man will hope that, whether the Blackburn weavers are able or unable to prove any connection between "shuttle-kissing" and an epidemic of influenza, their representations will lead to the disappearance of an unnecessary and unsanitary practice.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

ARRIVAL IN PARIS OF JAPANESE RED CROSS MISSION—DINNER TO DR. SCHURMAN OF CORNELL—ARRIVAL OF LELAND STANFORD UNIVERSITY UNIT—AMERICAN FUND FOR FRENCH WOUNDED OPENS NEW DEPÔT—AMERICAN JAZZ BAND ARRIVES IN FRANCE—CONGRESSIONAL COMMITTEE VISITS PARIS HOSPITALS—"RATHER FIGHT THAN EAT."

PARIS, September 3, 1918

THE arrival of a Japanese Mission in Paris in connection with the Red Cross is a noteworthy event. This mission is composed of Prince Tokugâwa, Dr. Ninajawa, jurist; Dr. Sawamura, chief surgeon; Mr. Yoshida, secretary of the mission; Mr. Flurusawa, secretary of the mission. Prince Tokugawa is a remarkable man. He is a Senator or Member of the Japanese House of Peers. He is of a family which dates back 250 years. An American treaty with Japan was made by his grandfather, an eminent Shogun acting as Viceroy of the Emperor. After visiting the French hospitals, the mission will accept the invitation of the American Red Cross to visit its hospitals.

One further step was taken last Wednesday evening in the development of the cordial relations which have ever characterized the Entente Franco-Americaine. This took the form of a dinner at the Cercle Volney, tendered to Dr. Jacob Gould Schurman, president of Cornell University, by the group of university men associated with M. Tardieu in the furtherance of Franco-American interests. In the absence of M. Tardieu the rôle of host fell to M. Piaux, the director of the Sixth Service of the Commissariat Général. The honor of welcoming the guest of the evening was assigned to M. Painlevé, Président du Conseil at the moment America entered the war, and a representative of the highest traditions of French scholarship. He dwelt eloquently upon the possibilities which the future presents of a rapprochement between France and America, not only in arms, but also in the intellectual world. In replying, Dr. Schurman paid tribute to the debt which the world owes both to French clarity of thought and to the achievements of French scholarship. The world, he said, still needs to go to school to France. Among those present were representatives of the faculties of the University of Paris, the American University Union, the American press, and the Commissariat Général.

The members of the Leland Stanford University Women's Unit, which has been sent to France for civilian relief work, has arrived in Paris. The unit has been temporarily assigned to the department of

military affairs, and some of the members are already busied as canteen workers, recreation hut workers, or hospital searchers. The unit, which is under the leadership of Miss Edith R. Mirrieless, will number fourteen when the other four members, now en route, reach Paris.

The committee of the American Fund for French Wounded is opening a big depôt at Clermont Ferrand, which has become such an extensive hospital center owing to its fine climate and central situation. The American organization is opening the depôt at the request of the French Service de Santé, with which it works in close cooperation. Materials and supplies of all kinds have already been sent to the new depôt, where a competent staff of A. F. F. W. workers has been installed. A temporary depôt was opened some time ago in that vicinity at Châtel-Guyon, but the fine premises which have been leased in Clermont-Ferrand will serve every purpose of the work, and the Châtel-Guyon work will be taken over by the new depôt. One of the new automobiles which has just arrived from America will be put into service at Clermond-Ferrand, and the new off-shoot of the Alcazar promises to be a success in every way.

Bringing gladness and joy to the hearts of many American wounded soldiers, the —th Artillery C. A. C. band and the Jazz band traveled over to Base Hospital No. 3 recently, and they truly succeeded in a worthy mission. Commencing at three o'clock, the artillery band, under the direction of the leader, Manuel Comulda, presented its program in one of the spacious courtyards of the hospital. Immediately after supper, occupying a portable stage in what was formerly the chapel of a huge monastery built in the year 1330, the jazz band, under the able management of Buck (Steve) Brodie, master of drums, bells, and traps, presented a ten-act vaudeville show that would easily get fifty-two weeks' booking on United States time. An odd and distinctive feature of this jazz band is that the individual members of the band are capable entertainers, each one doing a turn, culminating in an hour and a half of American vaudeville. The jazz band was fully costumed, and it was a picturesque setting they presented, against the color scheme and stained windows of the old French monastery.

It has been such a long time since any of the boys at the hospital had heard Broadway's favorite music that some of them were a bit impatient and anxious before the first number was given. From that time on, however, it was all cheers and whistles. Those boys who could not use their hands for applause, due to the "tilt" at the front, as some of them termed it, still had their lungs to fall back on.

Accompanied by Major J. H. Perkins, commissioner of the American Red Cross for Europe, thirteen members of Congress now in Paris visited American Red Cross hospitals Nos. 1, 2, and 5 yesterday afternoon. Many of the Representatives, who are from all parts of the country, found men from their districts and in several cases greeted by name wounded men from their home cities. The Representatives will go to the front before returning home by way of England. They reached France on July 17, and went to Italy from the port of arrival.

In recognition of the aid given by the American Red Cross to enable the completion of a tuberculosis sanatorium at Bligny, where 300 French officers and patients are now being cared for, a large tablet has just been placed in the entrance of the building. The hospital, which was opened on March 18, for the care of French officers and soldiers suffering from tuberculosis, was left unfinished when the war began in 1914. The Red Cross made a gift of 408,600 francs to enable its completion by the Service de Santé. At the end of the war it will be used for the care of tuberculous civilians. The tablet which has been placed in the hospital entrance reads: "In the fourth year of the great war, on March 18, this hospital was opened for French officers and soldiers through the friendly and generous cooperation of the American Red Cross."

Three American Red Cross men were wounded by German shells in the Franco-American counter-drive. They are Lieutenant J. L. Butterfield of New York City, who was leading an ambulance section; W. A. Fox of Buffalo, ambulance driver, who also was gassed, and Captain George B. Karr, representative of the Home Communication and Home Service Department with the —— Division. All the men will recover.

"To-day on the Ourcq, an American Division beat the First Division of the Prussian Guard." With these words M. André Tardieu, Commissioner General for Franco-American War Affairs, brought tremendous applause from the 150 officers and men of the American forces in France, who attended a dinner given in M. Tardieu's honor at the American University Union. The implied appreciation of the fighting ability of the American soldier voiced in the opening words of the French High Commissioner, is the opinion universal throughout France, and not to be wondered at, gauged by incidents like the following one, which is a live illustration of the time-old exclamation—"rather fight than eat."

The company cook of a front line regiment stood stirring a kettle of savory mixture as a Y. M. C. A. secretary came upon the scene. "This is a —— of a job for a grown man," he growled, as the secretary inquired if he could get a bite to eat. "My whole company is fighting up that road and I have to stay behind and wrestle a lot of pots and pans." The secretary remarked that some one had to do the job, for "an army moves on its stomach" and "the finger in the stew has as much to do with winning battle as the finger on the trigger." "That is all right for talk," replied the cook, banging the company dog with the dish towel, "but you know it ain't right for me to have to stay and assemble these here eats when all my pals are up there in the wheatfield running them Boches ragged."

Just then a company went by on the double, bound toward the thick of the battle. Two wounded men limped past in the opposite direction, going to the field hospital. "It is a great fight, boys," they said as the cook handed them a drink of water. "Best fight I ever saw," declared the one with the bandage on his head. "I would not have missed it for a farm. Just my luck to get a piece of shrapnel on the bean when we had the Huns going." The company cook could stand it no longer. He grabbed his rifle and tin hat and

started up the road toward the place whence came the chattering of machine-guns and rifle fire. "Hey, you," he called back to the Y. M. C. A. man, "just stick around and watch that —— slum for me, will you? The boys may want some dinner after they chase them Heinies back over the river." And the Y. M. C. A. man stuck and saved the "slum."

146, Avenue des Champs Elysées.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

October 3, 1918.

1. The Kidney Function in 100 Cases of Hypertension. W. C. Rappleye.
2. The "Instinct-Distortion" or "War Neurosis." Donald E. Corr.

1. The Kidney Function in 100 Cases of Hypertension.—W. C. Rappleye has made a study of the blood urea nitrogen, elimination of phenolsulphonephthalein, and a urine analysis on 100 cases of elevated blood pressure, using the figure of 150-155 mm. systolic pressure as the low value for selection. With but four or five exceptions, the patients were in apparently good physical condition and active; none showed any edema, dyspnea, fever or other compromising conditions. In this group of patients 70 per cent. showed blood urea nitrogen values below 16.0 mgm. per 100 c.c., 66 per cent. showed a dye excretion of 40 per cent. or higher, and 16 per cent. showed a value of 40 per cent. A slightly lower percentage was found in patients showing a higher blood pressure (systolic of 170 mm. or over, diastolic of 100 mm. or over). Twenty-eight per cent. showed both a urea nitrogen of 16.0 mgm. or over, and a dye excretion of 40 per cent. or less. Ninety per cent. of cases showing urea nitrogen of 16.0 mgm. or over had a dye excretion of 40 per cent. or less. Twenty-four of the cases showed a blood pressure over 160 mm., a urea nitrogen below 15.0 mgm. and a phthalein over 50 per cent. Rappleye points out that these findings do not seem to indicate that an elevated blood pressure, either systolic or diastolic, allows of a prediction that the kidney function is depressed, although in the series a considerable number do show evidences of such a depression in function, judging from the blood urea, phenolsulphonephthalein elimination and urine analysis. In the cases studied no relation was noted between a nephritic process and an elevated diastolic blood pressure. The author remarks that a discussion of the causal relationship of renal insufficiency and high blood pressure is beyond the scope of his paper, and adds that the opinion that hypertension results from impaired renal excretion raises the question whether or not the reverse may not frequently be true, that the impaired kidney function results from the hypertension with its concomitant vascular and perivascular changes, which tend to impair the nutrition and function of the kidney parenchyma. It may be that hypertension, while not signifying a nephritis, may denote that chronic nephritis will supervene.

New York Medical Journal.

October 5, 1918.

1. The General Diagnostic Study by the Internist Cooperating with Groups of Medical and Surgical Specialists. Lewellys F. Barker.
2. Recurrent Teratomatous Growth of the Trachea. Wolff Freudenthal.
3. Ten Thousand Wassermann Tests Made in the Philadelphia General Hospital During 1916 and 1917. Randle C. Rosenberger.
4. Acidosis, Its Cause and Treatment. Claude D. Waltz.
5. Sarcoma of the Brain. H. M. Fisher and A. G. Ellis.
6. Pilocarpine in Chronic Deafness. C. M. Sautter.
7. Asphyxiation—Respiration—Circulation. P. A. Kane.

4. Acidosis, Its Cause and Treatment.—Claude D. Waltz points out that acidosis is not in itself a disease but, like a fever, an incidence of disease. It is a symptom complex, complicating or resulting from certain diseased conditions, and the term is incorrectly applied to one single symptom. Where there is no symptom other than acetone in the urine, the term ketonuria or acetonuria should be employed. Van Slyke has defined acidosis as a condition in which the concentration of bicarbonate in the blood is reduced below the normal level, and Henderson describes it as any disturbance of the acid basic equilibrium whereby the power to resist acids in the body is lost. Acidosis exists in numerous diseases, but all tests may not be present. Acetone may be found in diabetes and in certain diseases of children, but not in chronic nephritis. All of these conditions may show an increased soda tolerance, etc. Therefore acidosis is not due to the same abnormal factor in each case. Arterial blood must be kept neutral or slightly alkaline. This is normally maintained by the removal of surplus acid radicals by the kidneys, and by the neutralization of the excess of acids, by body bases, and by ammonia, which, if not used, would be excreted as urea. When for any reason this balance mechanism breaks down, the alkali reserve of the body is lost, alkali starvation results, all nutritive functions become disordered, and coma or even death may follow. Waltz points out that whereas alkali therapy is certainly beneficial, like the treatment of fever with ice, it is merely symptomatic. Sodium bicarbonate may be given by mouth, by rectum, subcutaneously, or intravenously, the amount depending upon how quickly the symptoms of acidosis subside. A two per cent. solution is used subcutaneously and may be combined with potassium citrate or infusion of digitalis. A four per cent. solution is used intravenously. Transfusion by the syringe method of prealkalinized serum from a healthy donor has been used with success. Dyspnea and diuresis may thus be relieved, and occasionally there is mental improvement. The employment of carbohydrates is of decided benefit, either in the diet or in the form of glucose. In children especially, the regulation and control of the diet is important. The diet should be kept simple and the amount of fats reduced. The alimentary tract should be emptied with castor oil or calomel; one observer—Williamson—however, warns against calomel or mercurial douches because mercurial poisoning causes lesions such as are present in acidosis. In children when the periodic vomiting has ceased a low but not fat-free diet should be given. The prolonged use of alkali tends to produce acidity, either by stimulating acid secretion or by decreasing the alkaline output and, therefore, massive doses should not be given continuously. In some cases, after the administration of alkali, small, well diluted doses of acids may stimulate the body to produce its own alkali. In the acidosis of diabetes the diet should have three objects: (1) limitation of the acid products of metabolism; (2) conservation of the store of alkaline bases in the tissues and blood; (3) maintenance of the balance at normal level. It must be remembered that even though diabetic coma is due to acidosis, it is possible to correct the acidosis and return the blood to normal alkalinity and the patient still die in coma, due to the inability to correct the acidosis in the tissues as well as the blood.

Journal of the American Medical Association.

October 5, 1918.

1. Infantilism and Other Hypoplastic Conditions of the Uterus. Emil Novak.
2. Visceroptosis: A New Operation for Its Relief. J. Riddle Goffe.
3. The Use of Sodium Bromide in Roentgenography. E. H. Weld.
4. An Efficient Support for Sarco-Iliac Relaxation. W. Barnett Owen.
5. Dermatitis Lycopersicum Esculentum (Tomato Plant). Everett S. Lain.
6. The Use and Abuse of Pituitary Extract. George W. Kosmak.
7. Avoidable Traumatic Abdomen. John B. Deaver
8. Treatment of Prematurity. Root Taylor.
9. A Further Consideration of Complement Fixation in Tuberculosis. V. H. Moon.
10. Anthrax at Camp Hancock, Ga. John B. Ludy and Eugene C. Rice.

1. Infantilism and Other Hypoplastic Conditions of the Uterus.—Emil Novak. (See Medical Record, August 10, 1918, p. 361.)

2. Visceroptosis: A New Operation for Its Relief.—J. Riddle Goffe. (See Medical Record, June 22, 1918, p. 1111.)

6. The Use and Abuse of Pituitary Extract.—George W. Kosmak. (See Medical Record, June 22, 1918, p. 1112.)

7. **Avoidable Traumatic Abdomen.**—John B. Deaver. (See MEDICAL RECORD, August 10, 1918, p. 259.)

8. **Treatment of Prematurity.**—Root Taylor. (See MEDICAL RECORD, August 3, 1918, p. 214.)

The Lancet.

September 14, 1918.

1. A Lecture on the Prevention and Arrest of Lice-borne Diseases by New Methods of Disinfection. Delivered Before the Royal Society of Medicine on July 17, 1918. Colonel William Hunter, C.B.
2. The Rôle of the Scapula in Thoracoplasty. Captain Joseph E. Adams.
3. Gunshot Wounds of the Knee-joint wtih Septic Arthritis. Major Arthur Neve.
4. Three Plastic Facial Operations. R. Lake.
5. A Note on the Treatment of Malaria by Disodo-luargol. Captain W. A. Murray and R. W. Harold Row.
6. Breast Feeding: Faradisation of the Mammary Glands. Elizabeth Sloan Chesser.
7. Natural Science in Education. Notes on the Report of the Committee on the Position of Natural Science in the Educational System of Great Britain. Ernest H. Starling.
8. Recovery After Compound Fracture of Skull with Extravasation of Brain. T. E. Coulson.
9. Radical Cure of a Very Large Inguinal Hernia. C. P. G. Wakeley.
10. A Case of Strangulated Inguinal Hernia with External Rupture of the Sac. Harold F. Renton.

3. Gunshot Wounds of the Knee-Joint with Septic Arthritis.—Major Arthur Neve points out that while most knee-joints which have been perforated by bullets or severely wounded by shell fragments, with injuries of the bones, may be saved by timely measures, it is the critical and threatening cases, which arrive in convoys from seven to fourteen days after being wounded, with well marked signs of infective arthritis, that tax the judgment of the surgeon as to the compatibility of conservation of the limb with safety to life. Infective cases with septic arthritis, especially when associated with bony damage, are infinitely more dangerous than the others. Whereas on a total of 845 cases of knee-joints of all kinds operated upon, of which many may have been free from septic arthritis, the amputations were 19 and the deaths 8.5 per cent., Max Page on a total of 70 cases gives 25 as infected, amputations 10, and deaths 5, or a mortality of 20 per cent. Neve's observations during 1916 and 1917 have led him to conclude: (1) That in the earliest stage of infective traumatic arthritis an attempt should be made by tapping and distending the joint with some antiseptic, such as flavine or iodoform emulsion, to abort the sepsis. (He points out that this is being successfully done in France and that good fixation of the limb is essential.) (2) That when sepsis is established *thorough* drainage is essential; anterior lateral incisions do not suffice; the Peck method is not successful. Suprapatellar, antero-lateral and postero-lateral incisions should be used in combination. (3) That if there is bone damage excision is desirable in most cases, and the bone surfaces may be kept apart. (4) That Carrel's method offers the only effective way of introducing an antiseptic fluid into the recesses of the injured joint. (5) That with other methods burrowing of pus very frequently occurs, with abscesses tracking up and down the limb and septic absorption; and amputation is apt to be performed too late, when the vital powers have succumbed to the prolonged strain and sepsis has become generalized with perhaps a fatal result.

British Medical Journal.

September 14, 1918.

1. The Differential Diagnosis Between Functional and Organic Paraplegia. R. T. Williamson.
2. An "In Vitro" Method of Demonstrating the "Return Immigration" of Leucocytes in Blood Clots and in Wound Tissues. Colonel C. J. Bond.
3. Musculo-spiral Nerve Disabilities. Colonel Astley V. Clarke and Captain N. I. Spriggs.
4. An Epidemic of Fifty Cases of Influenza Among the Personnel of a Base Hospital. Lieutenant Colonel C. J. Martin.
5. Three Cases in Which Laminectomy for the Removal of Shell Fragments from the Spinal Canal Was Performed. Major Charles F. M. Saint.
6. The Value of Flavine. A Clinical Appreciation. H. Mearns Savery.
7. Extension Apparatus for Fracture of the Femur. Captain Dennis W. Crile.
8. Some Observations on Six Cases of Ruptured Spleen. Captain R. Jamison.
9. Some Points Concerning the Operation for Varicose Veins. F. J. Steward.

1. The Differential Diagnosis Between Functional and Organic Paraplegia.—R. T. Williamson refers to the importance of differentiating between cases of malingering or functional paraplegia and those of organic disease. Certain reflexes are of the greatest service in the differential diagnosis and early recognition of organic disease. Especially valuable in early cases are the Babinski or Oppenheim reflex, and in many cases the loss of the tendo Achillis reflex. The chief difficulty occurs when the knee joints are not lost, and when ankle clonus, rectus clonus, and clasp knife rigidity are not obtained. In many cases the Babinski or Oppenheim reflex is diagnostic of organic disease; in others the plantar reflex is not of the Babinski type, and it may be lost or feeble, in which case the loss of the tendo Achillis reflex would be diagnostic of organic disease. The following are combinations of diagnostic importance, especially at the onset of a number of organic affections: Paresis with loss of the tendo Achillis reflex, as in early anterior poliomyelitis —chronic, subacute, or acute; Paresis with loss of the plantar reflex and loss of the tendo Achillis reflex (in many organic diseases); Paresis with double sciatica, and loss of the tendo Achillis reflexes, as in early cauda equina lesions; Paresis with loss of the tendo Achillis reflex, loss of vibrating sensation, and pains in the legs, as in early peripheral neuritis; Loss of the vibrating sensation with very slight incoordination and very slight paresis, with or without a Babinski reflex, as in early combined postero-lateral degeneration of the cord; Paresis, with Babinski reflex (in many organic affections); Paresis with loss of the vibrating sensation and Babinski reflex (in the early stages of several organic diseases of the cord); Root pains, or root symptoms, followed after a period of weeks or months by paresis, as in meningeal spinal tumour. In all these early combinations, Williamson points out that the knee-jerks may be obtained. In difficult cases, he has found the Babinski or Oppenheim reflex, the loss of the tendo Achillis, and the loss of the vibrating sensation whilst other forms of sensation are unaffected, of the most value in reaching a diagnosis.

6. The Value of Flavine. A Clinical Appreciation.—H. Mearns Savery is of opinion that many cases of failure are due to the improper use of flavine as an antiseptic. He draws attention to the following essential facts: (1) In the first place it is imperative that all affected parts should be reached as far as possible, and in order to carry this out thoroughly he always endeavors to introduce flavine solution by means of a hypodermic or dental syringe; (2) The flavine-soaked gauze should always be applied as wet as possible and any cavities filled up with the solution immediately before, and the part covered with a piece of mackintosh and wool; (3) A third important feature is the duration of the use of flavine—if applied continuously, a yellowish "pedicle" will appear on the surface of the wound in the course of a few days. This pedicle appears to be composed of leucocytes and fibrin. He notes that in several cases in which he has employed double saline solution (that is, 1.7 per cent NaCl) instead of the usual normal saline, this pedicle has failed to appear, and points out that the solution should not be used over prolonged periods as it seems to predispose to irritation of the skin and the appearance of a rash. Savery concludes that the best results from flavine are obtained from its early application and that the appearance of the pedicle is an indication that a change to eusol, brilliant green, magnesium sulphate, or other antiseptic should be made about the fourth day, after which flavine should be given once in every three days. In his experience this method has given great satisfaction. He emphasizes the point that it should be more generally recognized that it is the *early* effect of flavine, which follows within several days after its application, which is the most important feature, and that proper advantage should be taken of this fact.

Berliner klinische Wochenschrift.

August 5, 1918.

The Treatment of the So-called Surgical Tuberculoses in Special Establishments and Hospitals.—A. Bier maintains that hospitals situated in the plains are quite as

effective for the treatment of these cases as when situated in high altitudes. It is now known that the sun at an altitude is not essential, as very satisfactory results from heliotherapy can be obtained in the plains, particularly when combined with radiotherapy, quartz lamp, etc.

The Genesis of Gastric and Duodenal Ulcer.—R. Ehrmann points out that the site of predilection of gastric ulcer is in the areas poor in folds. Other factors of a mechanical order undoubtedly play a large part in the etiology. Thus chronic trauma such as shocks, hemorrhage, external compression, too hot or too cold food, etc., may be the cause of erosions which transform into chronic ulcers from the action of the gastric juice. Radiographs of stomachs filled with barium or deformed by external factors (corsets) illustrate the conception of the writer. As to pain, Ehrmann rejects the usual explanation of dragging on the celic plexus and the irradiations and Head's areas. He admits a local sensitiveness of the ulcerated area, exaggerated by the gastric juice or peristaltism.

Circulation of Extracardiac Origin.—H. Kohn rejects certain arguments brought forward to back up the theory that the blood not only circulates by the propulsive action of the heart, but also from a sort of vascular peristaltism (Bier, Hasenbrock, and others). The study of a case of aneurysm with probable thrombosis of the vessels of the base of the neck showed that the pressure is distributed, according to all probability, exclusively by the cardiac propulsive action. However, the writer does not deny the possibility of a vascular peristaltism, and he simply limits himself to criticize the arguments of certain writers who defend this new theory.

Münchener medizinische Wochenschrift.

July 30, 1918.

The Treatment of Acute and Chronic Empyema, Particularly Empyema Following Wounds of Warfare.—Hartert first offers the following statistics from the viewpoint of the transformation of pulmonary wounds into empyema:

Bullet wounds	51 cases, with 15 empyemas, =	30 per cent.
Shell wounds	33 cases, with 18 empyemas, =	55 per cent.
Shrapnel wounds	7 cases, with 4 empyemas, =	57 per cent.
Stab wounds	2 cases, with 2 empyemas, =	100 per cent.

The writer treats all acute empyemata by rib resection in preference to simple incision, because the drainage is better. The drainage tubes are sutured to the borders of the cutaneous incision and in the wound so as to make it hermetic. By so doing a continual aspiration results which maintains the physiological negative pressure in the pleural cavity. Chronic empyema should be treated in the same way. The writer was able to obtain a complete occlusion of 20 cavities out of 23 treated. The three which did not completely obliterate closed down appreciably. The writer gives the following general rules of treatment: (1) Measure regularly the secreting cavity by filling it with fluid, in order to follow its decrease in capacity; (2) the hermetic fixation and introduction of the drainage tube, which should be a rigid one. When dealing with a fistula it is to be first dilated, and after the tube is inserted it will contract and hold the tube tightly or nearly so. Irrigations with oxygen water. Aspiration is assured by a vacuum bottle. Hartert thinks that an aspiration which realizes 5 liters in 24 hours is sufficient. This treatment reduces considerably the number of cases with fistula as an ultimate result of operative treatment. [The writer gives no credit to Prof. Revilliod of Geneva, who first introduced continued aspiration of empyema in 1885 and employed it successfully in a very large number of cases. The method is well known to non-German physicians, but the writer would lead one to suppose that the method originated with him.]

The Treatment of Hemorrhoids by Adrenalin Injections.—H. Krukenberg obtains a rapid retraction of hemorrhoidal tumors by giving a single injection of 0.5 cc. This dose will reduce a hemorrhoid the size of a walnut within a week's time. A hemorrhoid the size of an apple was greatly reduced by fifteen injections given during seven weeks. The drug is injected under the mucosa, as is done for anesthesia of the mucous membrane.

Deutsche medizinische Wochenschrift.

August 1, 1918.

On Regeneration of the Joints.—E. Payr describes in this installment of his article continued from the issue of July 25 the process of neoformation which, in cases of unreduced dislocation, finally ends in the formation of a glenoide cavity as a result of periosteal proliferation. In the case of dislocation of the femoral head a neoformed ligamentum teres arises, first composed of granulation tissue and at length becoming tendon. The negative pressure developed during movement is the efficient cause of the development of the new joint. Excision of joints for surgical reasons have been replaced by most astonishing transplantations. Thus the upper end of a femur removed from a cadaver has been successfully grafted. The muscles then become spontaneously fixed on the bone at their proper points of insertion. The portion of grafted bone already played an important mechanical part long before it was possible for it to have been replaced by living tissues. Payr also studies the process of repair in various forms of arthropathies and arthritides. He compares the data obtained between pseudoarthrosis and neoarthrosis; the formation of the tendon-sheaths is compared to that of the serous bursæ and then he gives a general review of the results obtained by animal experimentation.

The Doctrine of Constitutional Conditions and Its Application to the Problem of Chlorosis.—Naegeli again reverts to his conception of chlorosis considered as an endocrine disturbance. After a critical review of the opinion that this affection is a constitutional hypoplasia, the writer emits that of the influence of the ovarian function and more particularly of the interstitial gland. The correlated disturbances of the suprarenal apparatus may support this point of view (suprarenal hyperfunction). The critical review of the subject given by the writer is the most convincing part of his contribution, as the portion given up to the writer's theory is not founded on sufficiently well developed arguments.

Wiener medizinische Wochenschrift.

August 3, 1918.

A Case of Sympathetic Ophthalmia Following a Wound of Warfare.—J. Meller reports the case history of a soldier in whom a shell shot produced a wound of the eye with the presence of fragments in the organ. These were removed and the favorable evolution of the wound led the surgeon to give up the idea of doing an enucleation. Then the vision did not improve, and four weeks after the receipt of the injury enucleation was done. Twenty-five days later an iridocyclitis developed in the fellow eye which had been quite normal. The evolution of the process was, however, benign The writer particularly insists on the following peculiarities of the case: (1) The traumatized eye was not infected and lost its function from cicatricial contraction resulting from the tracts made by the bits of missile and organized blood clot; (2) enucleation undertaken at a time when the fellow eye was in perfect condition did not prevent the occurrence of sympathetic ophthalmia. He concludes that the sympathetic ophthalmia was in no way connected with an infection, it being the result of a change in the iris and ciliary body of the injured eye. Finnally, Meller advises against a too conservative treatment of ocular wounds.

Ether and the Present War.—In a discussion before the Société de Chirurgie, Paris, in April, Thiery stated that from 20 to 25 deaths annually in Paris hospitals are due to chloroform narcosis. He had been one of the first in Paris to change to ether, in 1890. Tuffier has long been a partisan of ether. Ed. Schwartz always uses it save in certain contraindications. The society as a body protested against some remarks by Regnier to the effect that chloroform could be made perfectly safe.—*La Presse Médicale.*

Book Reviews.

STUDIES IN THE ANATOMY AND SURGERY OF THE NOSE AND EAR. By ADAM E. SMITH, M.D., Past Chief Medical and Sanitary Officer, Nile Reserve Works, Assuan, Egypt; Past Instructor in Operative Surgery, Columbia University Medical College; Past Attending Surgeon, German Hospital, O.P.D., New York City. Price, cloth, $4 net. New York: Paul B. Hoeber, 1918.

THIS book, dedicated to the late Dr. Frank Hartley, deals with the anatomy of the nose and ear from the surgical standpoint and is divided into six sections, covering distinct but correlated phases of the subject. The captions are: I, The Importance of Nasal Breathing; II, Some Suggestions on the Treatment of Intra-Nasal Conditions; III, A Contribution to the Anatomy and Surgery of the Nose and Its Sinuses; IV, Anatomical and Surgical Desiderata in the Exposure and Removal of the Pituitary Gland; V, Postural Treatment of Otitis Media and Mastoiditis; and VI, A Contribution to the Anatomy and Surgery of the Temporal Bone. These studies form a valuable addition to the literature of nose and ear surgery. The author displays considerable originality together with a profound knowledge of his subject and is, in addition, an adept at descriptive writing. The book is remarkably well illustrated, the illustrations having been made directly from dissections prepared by the author, and drawn under his supervision by Mr. Martin Peterson. When to these excellent illustrations, which are often accompanied by diagrams emphasizing the salient features, is added the author's unusually terse and lucid descriptions, it is evident that the book should be of great value to the student of this complicated and confusing region. The specialist also will find in the text much that is new and well worthy of his attention.

THE TREATMENT OF WAR WOUNDS. By W. W. KEEN, M.D., LL.D., Major, Medical Reserve Corps, U. S. Army; Emeritus Professor of Surgery, Jefferson Medical College, Philadelphia. Second edition. Reset. 12mo of 276 pages, with 53 illustrations. Price, $2 net. Philadelphia and London: W. B. Saunders Co., 1918.

IN our review of the first edition of this book we said that it should be of considerable value to surgeons about to have their first experience in war surgery, though it was far from being as exhaustive as might be desired. In this edition many of the defects which we had in mind have been remedied. The book has been largely rewritten and entirely reset, while more than 100 pages of new material have been added, so that it is almost a new book. More space has been given to such subjects as shock, the Carrel-Dakin and other methods of treatment, to fractures, tetanus, wounds of the head, chest and joints, and to gas gangrene. The lessons that have been learned during the past year are constantly brought out. This applies especially to the surgery of the chest, where wounds of the lungs are now operated upon with as little concern and with much more chance of success than are those of the abdomen; to the surgery of the joints; and the treatment of wounds of the soft parts. The first edition contained reprints of a number of personal letters giving the results of experience of prominent surgeons in various methods of treatment and other matters. About 25 pages are devoted to reprinting personal letters in this volume; some of these, particularly that of Sir Anthony Bowlby, being especially instructive. As the book now stands it certainly cannot fail to be of great value not only to those entering the Service but also to any surgeon in civil practice who has to do with traumatic cases.

FARMERS' CLEAN MILK BOOK. By CHARLES EDWARD NORTH, M.D., Director North Public Health Bureau; Secretary, Commission on Milk Standards of the New York Milk Committee, etc. New York: John Wiley & Sons, 1918.

THIS little book comprises an account of the methods of handling and marketing milk, milk inspection, dairy inspection, popular beliefs and their foundation in fact, etc. Special chapters are given on the udder, barn dust, installation for the milk industry, milking, cooling and sterilization, high grade products, the dairyman as an individual, dairy inspection cards, dairy arithmetic, etc. Nothing is omitted in the way of illustrations, statistics and documents used in exhibits. The work is naturally of the greatest value to one in any way interested in milk problems.

EMERGENCIES OF A GENERAL PRACTICE. By NATHAN CLARK MORSE, A.B., M.D., F.A.C.S., Surgeon to Emergency Hospital, Eldora, Iowa; District Surgeon Chicago Northwestern Railway, Minneapolis & St. Louis Railway; Ex-President Iowa State Association of Railway Surgeons; Ex-Vice-President Pan-American Congress; Fellow American Medical Association; Member of the Society of Clinical Surgeons of North America; Author of "Post-operative Treatment." With 251 illustrations. Price, $4.50. St. Louis: C. V. Mosby Company, 1918.

THE author has collected within a comparatively small compass a large amount of information on practically all the emergencies met with in the course of a general, and, in some instances, a special practice. The data have evidently been gleaned from an extensive experience in work of this character, and are presented in a readily assimilated form. The book is divided into twelve chapters, covering 441 pages. The first chapter is devoted to general topics, such as emergency instruments and outfits, principles of asepsis, closure of wounds, use of adhesive plaster, and kindred procedures. Chapter II takes up the removal of foreign bodies from the nasal passage, pharynx, larynx and trachea, ears, eyes, urethra and bladder, rectum and stomach. In connection with the removal of bodies from the trachea and bronchi no reference is made to the pioneer work done in this country by Chevalier Jackson on bronchoscopy. In Chapter III the author considers the treatment of asphyxiation from drowning, smoke, gas, and electric shock, with a description of mechanical devices for artificial respiration and methods of using the same. In speaking of the treatment of various kinds of gas poisoning, the advisability of blood transfusion as a *dernier resort* is referred to, and considerable space is given up to a description of Crile's direct method, now long obsolete, but no mention is made of the simpler and now universally used syringe-cannula method, or the use of citrated blood with the gravity apparatus. Chapters IV and V are concerned with surgical emergencies. A long list of injuries and wounds of all kinds is given, with their appropriate treatment, including some acute conditions as appendicitis, peritonitis, tubal rupture, strangulated hernia, intestinal obstruction, etc. Next follows a short chapter on the commoner medical emergencies, viz., hemoptysis, diabetic coma, cerebral hemorrhage, angina pectoris, acute indigestion, intestinal, renal and biliary colic, laryngitis stridulosa, ophthalmia neonatorum and hiccough. Chapter VII contains a miscellaneous collection of accidents, diseases, and abnormal states such as ptomaine poisoning, burns and scalds from various agencies, paraffin method of treating burns, thermic fever, trichiniasis, rabies, tetanus, convulsions of children, frost bites, snake bites, and bites from insects and animals, retention of urine, and finally the extraction of teeth. The author here displays a versatility in the handling of these subjects which does credit to his wide experience. Fractures, dislocations, and amputations are considered in Chapters VIII and IV in some detail. Chapter X, on obstetric emergencies, takes up abortion, retention of placenta, Cæsarean section, placenta previa, forceps delivery, inversion of the uterus, puerperal eclampsia, prolapse or presentation of umbilical cord, uterine hemorrhage in young girls. The last two chapters are devoted to poisoning from drugs used as medicines, acids and alkalies, and ordinary poisons. The list covers practically all of the commoner substances, but fails to include the newer chemicals employed in the manufacture of explosives and dyestuffs, as, for instance, trinitrotoluol, nitrogen oxide, mustard gas, and aniline.

On the whole, this book is a good one. A few typographical errors are met with here and there. The volume is profusely illustrated and is printed on high-grade paper in clear, legible type. Topics are grouped under leading captions and a detailed index makes quick reference an easy matter. We can recommend this book to anyone interested in this particular line of work.

Society Reports.

AMERICAN GYNECOLOGICAL SOCIETY.

Forty-Third Annual Meeting, Held at Philadelphia, May 16, 17 and 18, 1918.

THE PRESIDENT, DR. JOHN G. CLARK OF PHILADELPHIA, IN THE CHAIR.

(*Concluded from page 658.*)

Elusive Ulcer of the Bladder; Further Notes on a Rare Type of Bladder Ulcer, with a Report of Twenty-five Cases.—Dr. GUY L. HUNNER of Baltimore stated that this type of ulcer was first described by him in 1914. The lesion consisted of a chronic inflammatory infiltration of all coats of the bladder wall. The areas of active ulceration discovered by cystoscopy were always superficial and usually minute, and an area of congestion seen on one examination might be absent at the next, but would be found later if repeated examinations were made; hence the name elusive ulcer. The symptoms were usually of the most extreme type characterizing bladder ulcer in general. The errors in diagnosis in the past had been due to the elusive and minute character of the mucosa lesion, to the examination of the urine, or to the failure to place proper emphasis on the finding of a few leucocytes or erythrocytes in the urine, and to the misleading character of some of the referred extravesical pains.

Systematic treatment with strong silver nitrate solutions, or stick silver, or actual cautery, would give comparative relief to many of these patients, but the only cure thus far discovered was the complete excision of the involved area.

Dr. JOHN G. CLARK of Philadelphia said that one of his patients, who had gone the rounds and had been treated by several doctors without permanent relief, fell into the hands of Dr. Hunner. He was present at the operation performed by Dr. Hunner, the ulcer was demonstrated to him, and its excision was followed by a remarkable cure. Since that time he had seen three cases of ulcer of the bladder, in all of which the diagnosis was easily made with the cystoscope, and excision of the ulcer bearing area was followed by splendid results.

Dr. PHILANDER A. HARRIS of Paterson, N. J., recalled the case of a girl, thirteen or fourteen years of age, who had not begun to menstruate. Her hymen was untorn and she showed no signs of any infection. Examination of the bladder was difficult by the direct method because she was unable to retain more than three ounces of urine. Night or day the bladder had to be emptied. She had a great deal of pain and, not being satisfied with the nature of the pathology, he resorted to distensions of the bladder with salt solution, as advised by Dr. Kelly in years past. After about twelve applications he lost sight of the patient, but subsequently learned that she was able to pass urine in eight or twelve ounce quantities for about two years, then she reappeared. She was now twenty-four years of age and married. He did everything he could to cure her, but she was so far from cured that she was only able to retain two or three ounces of urine at a time. He asked Dr. Hunner whether he had had experience with distention of the bladder according to the practice of Dr. Kelly.

Dr. CHARLES A. L. REED of Cincinnati asked Dr. Hunner to discuss the question of etiology in closing, which was especially important in view of his failure to find bacteria in the urine following operation. He also asked Dr. Hunner whether or not there had been any recurrence following excision of the ulcer.

Dr. LEWIS S. MCMURTRY of Louisville asked Dr. Hunner if he had tried other and more conservative methods of treatment than excision. Excision seemed a severe operation for a benign ulcer.

Dr. EDWARD H. RICHARDSON of Baltimore said that a striking thing in one case of ulcer of the bladder he saw, and this obtained in other cases, was that the clinical picture and the bladder pathology were out of all proportion to what one saw on cystoscopic examination. In this particular instance, when he looked into the bladder, although he searched the bladder many times with the utmost care, he failed to discover any lesion. The patient was not one to suggest a neurotic individual. He finally called Dr. Hunner in consultation and operation was decided on. When the bladder was opened it was found that fully two-thirds of the bladder wall was involved in the pathological change. Not only was the mucous membrane edematous, but the musculature of the bladder was thickened to the extent of fully three times that of normal. The woman made a splendid recovery and now voided urine normally.

Dr. EDWARD P. DAVIS of Philadelphia said it was his fortune to have under his care during pregnancy and labor one of Dr. Hunner's most successful cases. The history was that the patient became infected by catheterization after a previous operation. He attempted nothing whatever concerning the bladder. He did not examine it, but watched the case with very great interest. Ordinary microscopic examination of the urine showed but a few red and a few white cells, but this was so commonly seen among pregnant women that it gave rise to no suspicion. The patient passed through a more or less miserable pregnancy, went into labor, the normal course of dilatation took place, she was delivered by forceps, passed through a condition of comparative neurasthenia and shock for which no adequate cause could be found. Her disability was out of all proportion to any vesical symptoms connected with the parturition. Her cure by Dr. Hunner of the bladder ulcer was certainly one of the most satisfactory he had ever known. It might interest the members of the Society in this connection to know that so far as this one observation of pregnancy and parturition went, there was neither an increased severity of the lesion nor did it in the slightest degree tend to make it better.

Dr. CATHERINE MACFARLANE of Philadelphia stated that her experience with ulcer of the bladder was limited to three cases which occurred during the past year. The lack of proportion between the severity of the patient's symptoms and the insignificant bladder lesion and trifling urinary findings had been emphasized. A diagnosis was much better made by the clinical history than by the laboratory findings or physical examination. Complete relief followed the operation of excision in these three cases.

Dr. W. F. SHALLENBERGER of Atlanta, Georgia, stated about two months ago he saw his first Hunner ulcer. He saw the patient some years before and at that time the urinary findings were negative. Cultures were also negative. He overlooked ulcer of the bladder at that examination. The patient then gave a history of bladder distress of some ten years' duration. She had been treated by a dozen different men from time to time, and had been operated on by one of them for a pelvic condition without any marked relief. Occasionally treatment would afford temporary relief. In this particular case there were three ulcers of the bladder, one 2 mm. in diameter and two smaller ones near by, situated about 3 cm. above the internal urethral orifice back of the symphysis. Wide excision of the ulcer bearing area had given the patient complete relief from her symptoms.

Dr. HUNNER, in closing, said he had tried conservative methods of treatment in these cases. He had used the high frequency current in a few of them, but it caused them so much afterpain that they absolutely refused to have it continued. Strange to say, the actual cautery wire gave fairly good temporary results. He depended mostly upon silver nitrate in one form or another in treating these bladder ulcers, and they could be kept reasonably comfortable by one or the other method. Excision of the ulcer bearing area was the only thing that afforded permanent relief, but this excision must be complete. In the case of a girl there was a recurrence shortly after she returned to her home in Birmingham. Quite recently three cases had come to him that he was inclined to think had recurrences. In two of them a less extensive excision of the ulcer bearing area was done than usual. As to the etiology, there was one case described by Dr. Davis of bladder infection after catheterization after an Alexander operation. It was the only case where he had anything to point to the etiology. Most of the patients he had had were unmarried women and showed no evidence of gonorrhea. We were still at a loss to know the etiologic factors.

The Bladder of Women After Operation.—Dr.

Arthur H. Curtis of Chicago reviewed briefly the work reported two years ago, which he believed demonstrated that postoperative catheter cystitis was really urinary tract infection caused by residual vesical urine. An essential feature in the treatment of postoperative cases had been the prevention of urine stagnation in the bladder. Four hundred and sixty-five consecutively operated patients had been managed as follows: all who complained of vesical distress were catheterized. Also even when the power to void urine was present, catheterization was performed if residual urine was suspected. Furthermore, those patients who had required catheterization were thereafter catherized once daily immediately after urination, as long as residual urine was obtained. At the time of catheterization 15 c.c. of ⅛ per cent. silver nitrate was instilled before the catheter was withdrawn. Medication consisted of hexamethylenamin in amounts sufficient to maintain a positive formalin test. In the presence of alkaline urine, acid sodium phosphate was added. Those who showed idiosyncrasy to hexamethylenamin, or whose urine yielded no formalin, were treated with alkalies. In the presence of urinary tract infection, meats were permitted but twice weekly. Seasonings of all sorts were forbidden, salt excepted. Sugar, sweets, and pastry were limited. Before this method of treatment was instituted many operated patients returned with urinary tract distress and infection. Under the present plan postoperative bladder troubles had disappeared. He had found that many pregnant women failed to empty the bladder completely. He believed that retention of vesical urine was a factor of the utmost importance in the etiology of pregnancy pyelitis. It was therefore urged that obstetrical patients be tested for residual urine whenever carefully collected specimens revealed pus and bacteria. Through judicious cauterization, immediately after urination, it was believed that these patients could often be saved from the danger of pyelitis. The plan of catheterization for residual urine had likewise been extended to tabetic cases. A patient with well advanced disease, afflicted with intense vesical disturbances, had apparently been permanently relieved. It was thought that the failing bladder of tabes might be reeducated through the use of the catheter combined with intensive antisyphilitic therapy, provided treatment was undertaken at a time when moderate function still remained.

Dr. John A. Sampson of Albany stated that he found after a radical operation for carcinoma of the cervix that severe cystitis was a common complication, and he attributed the bladder disturbance to interference with the blood supply and with its function. Some of these patients in whom there was incidentally a vesico-vaginal fistula were not troubled with cystitis, and he even went so far as to suggest that possibly in these severe cases the formation of a vesico-vaginal fistula temporarily would obviate the cystitis. One of the most important ways of treating a severe cystitis was that carried out by Dr. Kelly in his clinic, namely, establishing free drainage and rest.

Dr. Guy L. Hunner of Baltimore agreed with the essayist that retention of urine was perhaps the chief factor, and this was most often due to postoperative overdistention of the bladder. It would seem to him that interference with the circulation and traumatism to the bladder itself did not have an important bearing on the question of postoperative cystitis; but if these patients were allowed to go on after operation with overdistention of the bladder we might get a partial paresis, which might last for several days or weeks, creating a most favorable condition for infection to take place.

Dr. J. Riddle Goffe of New York City asked Dr. Watkins about the treatment after washing out the bladder.

Dr. Watkins, in closing for Dr. Curtis, stated in reply to Dr. Goffe he always passed a catheter as soon as the patient had any distress. He never allowed a patient to have distress in the bladder on account of the presence of urine. After a patient had been catheterized every two or three days, he also catheterized once a day after that until he was sure she was not carrying an excess of residual urine. Daily catheterization was stopped as soon as he was convinced that the patient was not carrying a large amount of stagnant urine.

Dr. Leroy Broun of New York City asked to what extent residual urine was found and in what quantity.

Dr. Watkins replied that almost invariably a crippled bladder was found in women who had to be catheterized every two or three days. The case that required catheterization very seldom carried stagnant urine.

Tubal and Ovarian Hemorrhage; Its Etiological Relation to Pelvic Hematocele and Extrauterine Pregnancy. Dr. J. Wesley Bovee of Washington, D. C., said that trauma played a part in producing these hemorrhages, as in cases reported by Freeman, Primrose and many others. Hemorrhage from the Fallopian tube might occur from general conditions that similarly affected other tissues. Venous stasis from circulatory disturbances or pressure from tumors might be reasonably included in a list of its causes. Ovarian hemorrhage might be confined within the ovary, constituting one or more hematomata, or it might take place into the peritoneal cavity, producing, if abundant, a hematocele. No other organ of the body was so frequently the seat of hemorrhage as was the ovary, and a large amount of literature had been written on the pathology of the ovary in ovarian hemorrhage. Stromal hemorrhage was commonly preceded by infection of the ovary. In but few cases had correct diagnoses been made before operation or autopsy. As to treatment, in the milder forms of the condition rest and anodynes might meet all indications. In the severer forms the same rules applied as were employed in the treatment of ectopic pregnancy.

Further Study as to the End Results of the Conserved Ovary.—Dr. John O. Polak of Brooklyn, New York, from a study of seventy-three reoperations on patients in whom one or both ovaries were conserved, drew the following conclusions: "(1) Routine conservation without due consideration of the ovarian and contiguous pathology as it exists in the individual case is not good teaching. (2) Regeneration of the conserved ovary depends largely on the type and duration of the existing infection and the condition of the tunica of the individual ovary. (3) Even where the most detailed technique is observed the ovarian circulation is impaired. (4) The retained ovary without the uterus is always a focus for possible trouble. (5) The life history of the retained ovary is of short duration and the trophic influence of the diseased ovary has been overestimated. Finally, a cured patient has few nervous symptoms."

The Effect of Hysterectomy Upon Ovarian Function.—Dr. Edward H. Richardson of Baltimore drew the following conclusions: "(1) The ovary is a glandular organ of complex function, our knowledge of which is at present far from complete. (2) The uterus is not essential to a continuation of ovarian function, except as regards menstruation and reproduction. (3) The advocates of total ablation have not furnished convincing evidence of the correctness of their contention. (4) The disturbances of ovarian function attributed to hysterectomy are partly those associated with normal menstruation and partly those arising from damage to the ovary through operative trauma or disease. (5) The weight of evidence furnished by anatomical experimental and clinical investigations is overwhelmingly in favor of retention of sound ovaries both before and after the menopause age."

Dr. Howard A. Kelly of Baltimore believed in practice it was best to conserve the ovaries or as much of healthy structures as might be retained in women who were under forty, and in women of forty or forty-two it was best not to be so conservative. In the past we had decidedly overdone conservatism. We had done entirely too much. If we could conserve either ovary and a portion of the uterus and keep up menstruation, if only for a year or two, it was a great advantage.

Dr. Walter W. Chipman of Montreal said that every effort should be made to care for the circulation of the ovary that was left behind. Within the past he pleaded guilty of not being sufficiently careful in this respect. He certainly was conservative in the matter of the ovary. If we could tell a woman after an operation that her sexual organs were preserved it was a great psychological comfort to her. It went without saying that where the ovaries were diseased they should be removed. He no longer resected diseased ovaries.

Dr. Henry T. Byford of Chicago stated that one important thing was not to pay so much attention to the symptoms of the menopause. It was well not to enumerate these symptoms to patients, but give them ovarian substance or extract, and when they knew they were getting it the psychological condition would be kept up, which was so necessary in these cases, and there would be less operating. With a little treatment and advice along the line of Christian Science he did not think we would have to do quite so much surgery.

Prolapsus Uteri.—Dr. Walter W. Chipman of Montreal gave a short description of the true pelvic floor, in order to identify the essential supports of the uterus and to get a correct understanding of the treatment of its prolapse. In the treatment of prolapsus uteri, he stated that in selected cases, especially during the child bearing period, vaginal pessaries, properly fitted and cared for, had a distinct use. It was, however, the surgical treatment of this condition of which he desired to speak. In all essentials, cystocele, prolapsus uteri, and rectocele was a hernia. The diaphragm of the true pelvic floor had yielded. Its two halves had been pushed aside or torn asunder, and between them the bladder, the uterus, and anterior rectal wall were dislocated and descended. These organs slid downward and in their descent gradually inverted the vagina. This surgical treatment, as in all hernias, aimed at a radical cure, and here he urged that the terms anterior and posterior colporrhaphy be definitely discarded, since these names no longer accurately expressed the surgical measures that were undertaken. A much more adequate and expressive term was a radical cure of the cystocele or rectocele. He then described at length and in detail the operation that he performed.

A Vaginal Hysterectomy Technique for the Cure of Prolapse of the Uterus When the Removal of the Uterus Is Necessitated, with Special Reference to Lapping of the Vaginal Fascia in All Forms of Vaginal Prolapse.—Dr. Dougal Bissell of New York City stated that the usual curved incisions were made about the cervix at the vaginal mucosa junction and the mucosa freed. Anteriorly the bladder was completely freed from the vaginal wall and the cervix, the peritoneal cavity opened, the corpus delivered anteriorly, and the uterus removed from above down. Throughout the operation the posterior tissues formed a barrier and prevented the intestines from protruding into the vagina and the blood from entering the peritoneal cavity. They were cut last. The two anterior vaginal wall flaps were trimmed longitudinally to the extent required, and that to the left of the operator was completely denuded of its mucous membrane. The free cut margin of the denuded flap was now anchored under the undenuded flap by four mattress sutures to the stable portion of the vagina on the opposite side. The undenuded flap was anchored by three or more interrupted and continuous sutures to the stable portion of the vagina along the opposite sulcus. A chromic gut suture No. 2 penetrated and was tied about each cut cardinal ligament, leaving two free strands. One strand of each suture was utilized as a running stitch along the cut surface of the posterior vaginal wall, and the other tied to approximate the cut ends of the cardinal ligaments. The latter sutures were again made to penetrate the lower margin of the newly constructed anterior vaginal wall and tied to the sutures penetrating the posterior vaginal wall. When in cases of procidentia uteri it was found advisable to retain the uterine body and amputate the cervix, the initial technique was identical to the above, also the lapping of the fascia. The sutures anchoring the mucosa over the cervical stump were placed so as to make the mucous edges approach each other in a vertical direction, instead of a horizontal direction according to Emmet.

To correct a rectocele, a transverse incision was made through the rectovaginal fascia into the cellular area between the rectum and the vagina. The tissues were freed laterally and longitudinally, and as the freeing was continued longitudinally a median incision was made through the fascia and mucosa, extending to within a short distance of the cervix. The vaginal flaps were prepared for lapping and were anchored in practically the same way as described above in lapping the flaps of the anterior vaginal wall. One of the great advantages of the fascial lapping technique here described, whether dealing with a cystocele or rectocele, was that the finding and following of only one line of fascial cleavage was necessary. When this line of cleavage only was followed a minimum amount of bleeding resulted, but when both lines of fascial cleavage were followed a maximum amount of bleeding occurred, which under certain conditions might terminate seriously. Another important advantage in thus utilizing the fascia without disturbing its continuity was that a minimum amount of disturbance in its circulation was occasioned and when the flaps were anchored the circulation in them remained practically unimpaired. Too much emphasis could not be laid on the desirability of trimming the vaginal flaps to apparently an excessive degree. Failure would occur if the effect produced after the completion of the operation was not that of overcorrection.

Cystocele; a Review of the Literature with a Further Preliminary Report of an Operation.—Dr. Reginald M. Rawls of New York City said that from the time of the Egyptians (1550 B. C.) to the Arabian school, the ancients possessed a considerable knowledge of the mechanical and local medicinal treatment of prolapsus uteri. However, Hippocrates and Soranus referred to successful vaginal hysterectomies when the uterus could not be replaced or had become gangrenous. The treatment in early modern gynecology, up to the first quarter of the last century, was also principally medicinal and orthopedic, until 1828, when Diffenbach performed anterior colporrhaphy for prolapsus. He was followed in 1833 by Fricke and in 1849 by Hugier. In 1853 Baker Brown utilized, in addition for his denudation, the vulva and perineum. In 1856 Sims devised an improved method of anterior colporrhaphy by his oval, V—, and trowel denudations. Emmet in 1862 made the V into a triangle and in 1869 devised his prolapse operations by utilizing the fascia to support the uterus and bladder. In 1874 Simon and Hegar simultaneously devised an operation on the posterior wall, claiming this would not only support the uterus, but also the anterior wall and bladder. They were followed by other operators, some of whom also utilized both anterior and posterior wall and LeFort made a longitudinal septum in the vagina.

In 1887 Hadra made a decided advance when he used flap splitting and elevation of bladder. Saenger in 1888 used a similar method and was followed in 1892 by Mackenrodt and Duhrssen, who devised vaginal fixation. In 1895 Freund first delivered the uterus into the vagina and was followed in 1899 by Watkins, Wretheim, and Schauta, who reported the operation of transposition of uterus and bladder. Various other vaginal operations had been devised by Doleris, Reynolds, Hirst, Alexandroff, Tweedy, Dudley, Jelett and others, and among abdominal operations for cystocele might be mentioned those of Byford, Stone, Lawson, Dickinson, Polk, and DuBose. In 1902 Goffe devised a vaginal operation for mobilizing the bladder and elevating and supporting the bladder by suturing it to the uterus and broad ligaments. In the early part of the present century various operations had been reported based on anatomical studies. Operators who attempted to restore the fascial sling of the anterior wall were Kreutzmann, Sippel, Petersom, Violet, Martin, and Frank. Martin demonstrated by his recent anatomical investigation that cystocele was due to a lack of fascia and connective tissue at the base of the bladder and showed that by dissection of the anterior wall the fascia could be demonstrated, and by suturing the edges in the mid-line the cystocele would be obliterated. In the March, 1918, number of the *American Journal of Obstetrics* the author reported a technique devised independently by him of overlapping the fascia and reattaching it to the uterus by transverse mattress sutures, which were so applied as to carry the underlapped fascia smoothly under the overlapped fascia. His first operation was performed June 5, 1917, and it was therefore too early to make a final report. However, in nineteen operations done by this method he had always been able to demonstrate a strong fascia that could be overlapped and the primary results had been most satisfactory.

The Most Effective Methods of Preventing Venereal Diseases.—Dr. J. Montgomery Baldy of Philadelphia stated that legislation in the line of prohibition had

proven a failure. All methods, single and combined, used in the past had driven victims of the diseases to drug store clerks and quacks. Education of the type so far carried out had proven a failure. The "holier than thou" attitude of the community had been most disastrous. The methods of control which gave any promise whatever of success were the open treatment of the whole subject on the basis of sanitation dealing with these venereal diseases as any other class of diseases. The community must be taught that their old attitude in regard to these matters was erroneous. Hospitals must be forced to the position of repealing any rules that they might have prohibiting the admission of these cases freely to their wards. Superintendents assuming the attitude of fear of these diseases must be taught to change their attitude in these matters, or to be driven out of the business. Hospital staffs must have full liberty of admission of such patients who in their judgment needed hospital treatment. Hospitals running dispensaries must open special dispensaries for the treatment of these diseases. All advertisements in public places of a quack nature must be abolished and in their places proper types of notices of legitimate clinics at which such sufferers might apply must be substituted. This class of patients must be taught that their confidences would be kept just as secretly as would their confidence in any other class of disease, and they were perfectly safe in applying to hospitals for treatment. Hospitals must gradually provide free treatment for those suffering with these diseases who were unable to pay for the same. The question of registration by physicians of patients at public boards of health, excepting in an extremely limited way, the name of the patient being not involved, was to say the least indiscreet if results were to be obtained.

Shall We Cut and Reconstruct the Perineum for Every Primipara?—Dr. RALPH H. POMEROY of Brooklyn, N. Y., said that rending an orifice to enlarge its caliber was strictly unsurgical. He had condemned such a procedure in conditions calling for prompt and large approach to the uterine cavity through the cervix; he cut in the median line and reconstructed. The typical perineal laceration associated with spontaneous first time expulsion of a fully rotated occiput anterior position was median in principle, crudely attained in fact. A median perinectomy, preceded by thorough stretching of the sphincter ani and executed with definite technique, shortened the second stage more fortunately than pituitrin or forceps. Even though the median incision by intent or error extended through the relaxed sphincter, symmetrical repair was so simple that failure of reconstruction was not to be expected. Repair of median perinectomy might be easily done with buried and subcuticular catgut stitching so effectively as to reproduce conditions suggesting a nullipara. Such conditions, while cosmetically commendable, did not presage the conversion of the patient into a competent multipara, potentially capable of spontaneous rapid delivery without fresh wounds. He described a tentative technique for an expanding perineorrhaphy.

The Obstetrician's Responsibility for the Conservation of Infant Life.—Dr. COLLIN FOULKROD of Philadelphia stated that the investigations of the Children's Bureau of the Department of Labor of Wisconsin, of Massachusetts, of New York and of Newark had been productive of no definite program to make this question a national one, to propose laws fitted to our country and the needs. Such investigations had so far stopped short of basic causes. We must pay, as a nation, our families for producing effectives, and guarantee them the right to develop by a system of government which would be truly democratic. We must insure our mothers. We must awaken our women to their responsibility. Advanced prenatal work would in time eliminate preventable diseases and would bring the application of modern methods to non-preventable diseases. In France the pregnant woman was becoming a state care and ward. In time we should have enough hospitals in each district to scientifically care for all children born.

Why the Midwife?—Dr. J. CLIFTON EDGAR of New York City said that hospital records bore out the fact that foreign-born women, after their first confinement under the care of the midwife, subsequently turned to the maternity hospital or a physician for obstetric aid. After a short residence in this country, the foreign-born woman did not usually persist in the employment of a midwife. Her ambition was eventually to be in a financial position enabling her to employ the services of a regular practitioner. During the existence of the Bellevue Midwife School, 235 midwives had been graduated; 5,125 confinements had been conducted by the pupils, 1,755 in the school, and 3,370 in the patients' homes, with a maternal mortality of 0.7 per cent. Three cases only died in the school itself, a mortality of 0.05 per cent. Six others died after being transferred to Bellevue for operation. The 5,125 cases cared for by the midwives at the Midwife School and at the patients' homes were practically all normal labor cases, as the cases of fetal and maternal dystocia, bleeding, severe toxemia, and other abnormalities were sent to the Bellevue Obstetric Service for treatment. So far as the handling of strictly normal labor cases by the midwives went, the results had been excellent. The records indicated that little septic infection had resulted. A plan for better and safer obstetrics in the outlying rural districts must recognize two main problems: (1) The best practical care of normal cases, and (2) the detection of abnormal cases and their care. By education and supervision the midwife might be rendered reasonably safe for strictly normal labor, safe even for a minimum of sepsis, or for the prevention of ophthalmia neonatorum, but she was not safe, and no amount of education could fit the material which physicians had been brought in contact with for the early care of prenatal complications and maternal and fetal dystocia, which caused most of the infant and maternal mortality. Who should determine what was a strictly normal labor? The midwife? Never! She was incompetent to do so, and only the trained obstetrician could do so. The midwife could never stand upon her own responsibility. For safe obstetrics the obstetrician must ever perform the prenatal examination and care. He must ever be at hand for the maternal and fetal dystocia of labor and the complications of the postnatal period.

Pernicious Anemia Complicating Pregnancy.—Dr. PALMER FINDLEY of Omaha, Neb., said that while pernicious anemia was not a disease peculiar to pregnancy, it was nevertheless true that the disease occurred with unusual frequency in the course of pregnancy and the puerperium. Eichhorst in a series of 50 cases of pernicious anemia in women found 29 were associated with pregnancy and labor. Clinio, Caruso and Bertino found 0.15 per cent. pernicious anemia in all pregnancies, while Lebert and Myerrugg estimated the frequency at 0.22 per cent. We were told that pernicious anemia was more common in women than in men, but excluding all cases arising in the period of gestation the percentage of frequency was higher in men. Just what the predisposing factors were in pregnancy was not known. Prolonged lactation, frequent child bearing, the toxemias of pregnancy and unfavorable hygienic surroundings were factors to be reckoned, but were not conclusive. Neither postpartum hemorrhages nor puerperal infection tended to develop pernicious anemia if we were to judge from case records. With few exceptions, pernicious anemia rarely developed in a primipara, and was more frequently observed in a pregnancy which had been preceded by the birth of several children in rapid succession. The blood findings in the mother were characteristic. The red cells were decreased in number, even to 250,000. The blood did not show a proportionate decrease in its hemoglobin content, but there was a marked alteration in the shape, size and staining of the individual cells. Macrocytes and microcytes abounded and megaloblasts were occasionally present. Nucleated red cells did not as a rule appear until the disease was well advanced; they tended to appear in showers, and in some cases had failed to appear or at least had not been found even in the last stages of the disease. Poikilocytosis was a marked feature; fibrin and blood platelets were diminished and the leucocytes were lessened in number. In every frank case of pernicious anemia complicating pregnancy the maternal mortality was practically 100 per cent., although in exceptional cases death might be deferred for a period of weeks, months and even a year or more following

childbirth. There might be periods in which improvement might be great, but the end result was always the same. The earlier in pregnancy the disease appeared, the more rapid its course and the graver the prognosis. The management of these cases might be said to be in the interest of the mother in the early stages of the disease and of the child in the late stages of the disease. Where the disease was well advanced, the child living and approaching the period of viability, pregnancy should be allowed to proceed to term, if possible, in the hope of delivering a healthy child. The case of the mother was hopeless and no good could come from sacrificing the child by the interruption of pregnancy. Two cases of pernicious anemia complicating pregnancy were reported, with one death.

Treatment of Puerperal Blood Stream Infection by Means of Arsenobenzol, with Report of Cases.—Drs. H. A. MILLER and S. A. CHALFANT of Pittsburgh said that no form of intravenous medication up to the present time had been entirely satisfactory, although many had been tried. Puerperal bacteriemia had always been a very serious condition with a high mortality. The treatment as used in these cases was followed up by experimental work by Allison. He found that arsenobenzol, together with similar preparations, could be given frequently in large doses without injury to the animals, that the mortality was less in treated than in untreated animals and that the injection of arsenobenzol would usually rid the blood stream of streptococci in 24 hours. He also showed that there was a fall in the leukocyte count before the blood culture again became positive. The authors had treated eleven cases of puerperal infection by means of arsenobenzol given intravenously usually in 6 gm. doses as frequently as three or four day intervals, giving from one to four doses. There were no toxic effects other than a mild albuminuria. Seven patients had a streptococcus in the blood stream with two deaths, two a Gram negative bacillus, with no deaths, and two had a negative blood culture, but were both clinically bacteriemias and both died. Two patients had intrauterine irrigations at two hour intervals with Dakin's solution, of which one recovered and one died. In the fatal case autopsy showed the uterus free from infection. Death was due to multiple abscesses of both kidneys. The following were the authors' conclusions: "(1) With the use of intravenous injections of arsenobenzol we have been able in every instance to rid the blood stream of its invading organism. (2) All varieties of organisms so far encountered seem to be equally influenced. (3) Cultures from localized abscesses are usually identical with cultures from the blood stream. Cultures from the uterus, although this organism predominates, are rarely pure cultures. (4) Reinfections from focal infections may and do occur, but are as readily influenced by arsenobenzol as the original infections. (5) The leukocyte count is usually low in comparison with the temperature and pulse. After arsenobenzol has been given there is a marked increase in the count. If, after this time, there is a decided decrease in the leukocytes with a corresponding improvement in the patient, including the pulse and temperature, it is very possible that the patient has reinfected herself, and arsenobenzol should be given without waiting for confirmation of this culture report. (6) The blood stream is usually found to be sterile in 24 hours, always in 48 hours, except in one case where but 4 gm. of arsenobenzol was given. (7) Rabbit experiments made by Dr. C. S. Allison would indicate that a dose of 6 mgs. is necessary to secure prompt results. (8) In suspected blood stream infections arsenobenzol may be given immediately after a culture has been taken in order to avoid the delay incident to waiting for a laboratory report."

Coincident Pathological Conditions Associated with 1500 Consecutive Myomata Uteri.—Dr. LEROY BROUN of New York City said that he had reviewed all of the myomata operated on at the Woman's Hospital during the past eight years, ending with September, 1917. There were 1,500 such cases. All of these had some form of hysterectomy or myomectomy. As a result of the operations, 28 patients died. Of these, 7 died from embolus, chiefly between the eighth and twentieth day. Seven died from peritonitis, and the remainder from various causes. The percentage rate of 1.86 could be taken as a fair estimate of the mortality of operations for this condition, since it represented the results of the combined operative work of a large attending and junior attending staff, together with that of a liberal corps of surgeons, who were given the privilege of sending their patients to the private rooms of the hospital. This compared favorably with 1.73 per cent. reported by Deaver in 759 cases covering a period of 11 years and with 1.75 per cent. reported by Frank in 400 cases operated on by Brettauer and himself. Associated with the total number of cases (1,500) 66 malignant conditions were found, 29 of which could be unquestionably determined before operation. It was doubtful whether all of the 7 cases of sarcoma could have been determined, and it was certain that the nature of the remaining 21 cases of malignancy, ovarian carcinoma, 4, and papillomatous cyst, 17, could not have been previously diagnosed before opening the abdomen. Of the ovarian pathology associated, 58 cases occurred. The previous recognition of any of these conditions before operation, excluding the four instances of abscess of the ovary, would depend entirely on the size and character of the myoma present, also on the size of the pathological ovarian conditions associated. There were 265 cases of associated tubal disease, the majority of which would have required at some time surgical interference. To what extent the circulatory disturbance as a result of the presence of the tumor was the cause of the predominating presence of salpingitis could not be stated. No tube was, however, reported as the seat of inflammatory changes, unless positive pathological examination and evidence showed such a condition. A large number of uterine appendages were removed in connection with hysterectomies in patients about the menopause, in whom only minor pathological changes were found. None of these were included among the 150 cases of salpingitis cited. One hundred and sixty-seven chronic or subacute appendices were found. There wase 9 instances of associated extrauterine pregnancy and 51 of normal pregnancy. Three hundred and fifty-five cases, 23.7 per cent. of the 1,500 consecutive myomatas operated on, contraindicated the use of radium and the *x*-ray. He was convinced from a review of these cases that the symptoms, on account of which the majority of patients entered the hospital, were due in the greatest measure to conditions outside of the uterus and not to the presence of the tumor itself, unless it was from hemorrhage.

Final Results of X-Ray Treament of Fibroids.—Dr. JOSEPH BRETTAUER of New York City, in concluding his paper, formulated his views on the *x*-ray treatment of fibroids as follows: "(1) At an age below 45 the *x*-ray treatment for fibroids should not be the choice, but should be employed only when operative measures are not available or are refused. (2) Between the ages of 45 and 55, *x*-ray treatment should be the method of choice and no patient should be deprived of the right to undergo it. With an open cervix and a distinct diagnoses of the submucous development of a fibroid, operative measures promise better results. Patients with relaxation and laceration of the genital tract should be excepted. These cause no symptoms while the uterus is large and above the pelvis, but when as a result of the treatment the uterus becomes smaller and sinks down into the pelvis, serious inconvenience is caused and operative interference becomes necessary for its relief. (3) Uterine hemorrhages due to fibroids in women beyond the age of 55 should raise suspicion of sarcomatous degeneration and operative measures are preferable to any other form of treatment."

Two Hundred and Ten Fibroid Tumors Treated by Radium.—Dr. HOWARD KELLY of Baltimore said that the only effective method of treating fibroid tumors of the uterus up to the present time had been the surgical, developed with such care through two generations, until the operation had become in skilled hands one of the safest of our major procedures. The author had operated in this way upon 2,000 women, but felt now that the radium treatment, which was without danger and which was found effective in 93 per cent. of the cases, should be preferred to the operation, which was, after all, a major operation of mutilating character offering considerable risk to life and health. He stated his thesis with regard to the accomplishments of radium in this class of cases as follows: 1. Control of hemorrhage and checking of menstruation. 2. The shrinkage

of the tumors. 3. In many instances the disappearance of the tumors. 4. In some cases, even after two years, the return of menstruation either normal or scanty. There had been no mortality associated with the treatment of 210 consecutive cases. Between the dates of March 23, 1913, and January 8, 1918, 210 cases of uterine fibroids were treated with radium by the author and by Dr. Curtis F. Burnam, and 45 cases were operated on either because there was some contraindication to the use of radium or because operation was preferred. In 28 of these 210 cases the data were insufficient; 6 did not complete treatment, although 4 of these were markedly benefited; 7 had been lost sight of; 2 died of causes unconnected with the treatment; 13 were too early for results to be reported with certainty. There were, therefore, 182 cases in which the results were known. In 171, or all but 11 cases, radium alone was sufficient to relieve the patient. In these 171 cases (93 per cent.) the tumor was either gone or markedly diminished, or the patient was symptomatically well. In 5 of the 11 cases some complicating condition was present (ovarian cyst, gallstones, calcified uterus); in 2 cases operation was preferred to further treatment; in 3 cases operation was found not to have been necessary, as the tumor had decreased under treatment; one case proved resistant to prolonged treatment. Nine of the 11 cases were operated on. The fact should be emphasized that if radium failed, the operation has simply been postponed without detriment to the patient. The technique of the treatment included a preliminary curettage both to rule out malignancy and to remove any small polypi which might be found to exist. The average inside application was for 3 hours with 500 microcuries of emanation. A small glass bulb was placed in the end of a metal tube, sufficiently thick to screen off all but the gamma rays. This tube was screwed onto a uterine sound and was then covered by a rubber cot. The cervix was dilated and the sound introduced to the top of the uterine cavity. The applicator was gradually withdrawn, not being allowed to remain longer than one-half hour on each spot. In the external treatments to shorten the time, 4 to 5 grams of radium were being used and the entire treatment could be given in from 5 to 6 hours. In any one case the treatments, internal and external, could be given individually or combined in any desired method. At least 7 weeks should be allowed to elapse before a second treatment was given, and it should not be given if an amenorrhea was already obtained. Usually the second should be an external one. Some tumors reduced rapidly; others slowly over a year or more. Menopausal symptoms were usually not severe. In 50 per cent. of the cases no menopausal symptoms were complained of; in slightly more than 25 per cent. they were moderate and in slightly less than 25 per cent. they were marked.

Consideration of Some of the Technical Problems Connected with the Use of Radium by the Gynecologist.—Dr. Curtis F. Burnam of Baltimore stated that the basic principle underlying all radium treatment was that pathological tissues were in general more sensitive to radiation than normal tissues, and that consequently it was possible with appropriate dosage to destroy the former and leave the latter intact. The gamma rays of radium, which alone could be used for therapeutic purposes, could not be focused and consequently were dispersed in the form of a sphere. This led to their rapid dilution inversely with the square of the distance. In addition there was an absorption of about 8 per cent. per cm. in tissue. The absorption in tissue could not be helped. It was, however, possible to minimize the dispersion factor by placing the source of radiation away from the surface and consequently increasing the radium as well as the time of exposure. If the radium was placed 2 mm. from the surface, at 1 cm. below the surface, only 2.5 per cent. of the surface application was still present, and at 5 cm. only 0.107 per cent. remained. But if the radium was placed 12 cm. above the surface, at 1 cm. below the surface 78 per cent. of the surface radiation was still intact; at 5 cm. 35.8 per cent., and at 9 cm. a little less than 20 per cent. Radiosensibility of tissue was extremely difficult to determine. Individuals varied immensely so far as normal tissues were concerned. Variations of tumors of the same type were even more marked. The same tumor varied at different stages of its development. The single dose method was very valuable in giving us standards to work by, but the broken dose method at week intervals permitted of giving nearly twice the dose within six weeks, the time necessary to elapse between massive treatments. At a distance of 2½ cm. from the skin a gram of radium on an applicator 2½ cm. square filtered through 2 mm. of lead would lead to an erythema in 2 hours and would cause a marked retrogression or cure of an epithelioma. One one-thousandth of this dose might be effectual in destroying large masses of lymphosarcoma or of splenomyelogenous spleen tissue. Three or four times the dose, however, had to be given to destroy normal skin. Ovarian tissue was roughly 10 times as easily injured as normal skin; the vaginal wall would tolerate four or five times the skin dose; the rectal mucosa as much as the skin; the mucous membrane of the bladder certainly twice as much. The vaginal and cervical cancers were fully as susceptible to treatment as skin cancers, perhaps more so. The adenocarcinomas of the rectum as well as of the body of the uterus were decidedly more susceptible than epithelioma. Uterine fibroid tissue was tremendously more susceptible than normal skin. The dosages given were for massive radiation with at least six weeks' interval between treatments. They could not, as a rule, be repeated then without leading to more or less destructive effects on surrounding normal tissue. Effectual treatment could only be secured by careful preliminary determination of the distances of all parts of the growth from the portals. Cross fire radiation should be employed and normal tissues protected by pushing the parts aside wherever possible and by metal screens. For radiation within the cervix, uterine cavity, and rectum, the radium emanation was inclosed in glass tubes, these in metal tubes, and these in rubber tubes, securing a pure gamma radiation. The small growths of the bladder were best treated by direct application through a cystoscope. Extensive infiltrating bladder growths and some rectal cancers were best treated from without the body. A number of illustrative cases of cervical and vaginal cancers were discussed in detail. Appropriate treatments for each were suggested. The injuries likely to result from over-radiation, such as fistulæ and rectal ulcers, were described, as were also the most effectual methods of guarding against them.

Clinical Data on Chorioepithelioma, with Report of Cases.—Dr. Hiram N. Vineberg of New York City said that chorioepithelioma occurred in two types, benign and malignant, but as yet there were no recognizable histological differences between the two varieties. An endeavor should be made to make a diagnosis on clinical data, inasmuch as a curettage was attended with the risk of causing rapid and extensive metastases. Furthermore, a microscopic examination of the curetted material was not always decisive, and might even be misleading. For the present, not knowing the cause, we could have no means of prevention. But, as a possible safeguard, placental residue, when present, should be promptly removed, and in every case of hydatid molar pregnancy, an anterior hysterotomy should be done for the double purpose of removing all the vesicles and exploring the entire inner wall of the uterus for any suspicious nodules or extra thinning of the wall at any one point. Once the diagnosis had been made, panhysterectomy was indicated, as we had no means of differentiating between the so-called benign and the highly malignant cases.

Cancer of the Cervix Complicating Triplet Pregnancy.—Dr. Benjamin P. Watson of Toronto reported the following case: Patient, aged 30 years, 5 para, pregnant. On examination a large cauliflower carcinoma was found growing from the anterior lip of the vaginal portion of the cervix. The abdomen was opened, the uterus incised, and three five months' fetuses removed, and then three separate placentas connected by membrane. A Wertheim operation was then proceeded with. The patient made a good recovery. He reviewed the histories of other cases of cancer of the cervix complicating pregnancy.

Description of Goffe's Gastrocolonopexy Operation.—Dr. J. Riddle Goffe of New York City stated that from his experience he had gradually evolved the method which he now employed as follows: This description embraced the complete operation in which both stomach

and colon were involved in extreme ptosis and adhesions. A longitudinal or transverse incision was made below the umbilicus. Through this adhesions were severed, the organs were set free, the appendix was removed, the caput, if overdistended, plicated, the uterus, which was frequently found displaced, restored to normal position and supported there, and if necessary the appendages were dealt with as indicated. The incision was closed. A longitudinal incision was then made above the umbilicus through which the upper abdominal cavity was thoroughly explored with the hand, noting the condition of the liver, its ligaments, the gall bladder, and ducts especially. Any pathologic conditions were dealt with according to indications, new incisions having been made or the original one enlarged, if necessary. The stomach was then delivered through the wound, inspected and palpated for ulcers and pyloric irregularities. If dilated, the anterior wall was depressed with a sound along the middle line and over this the stomach wall was plicated in a double row of linen sutures. In a line just above or below this, and midway between the extremities of the stomach, two, three or more linen sutures were threaded along in the stomach wall, including the peritoneal and muscular coats, each one being buried for one-half to three-fourths of an inch, the two ends left long and protruding from the wound. They were wrapped in sterile gauze. The transverse colon was then delivered through the wound, the omentum ligated along the border of the gut and cut away. The long sutures were threaded singly in a Peasley needle and passed successively through the abdominal wall into the interior of the abdomen and brought out in the bottom of the skin incisions previously described. First, the stomach sutures were passed, emerging in the middle incision, the stomach restored to normal position, the sutures drawn taut, tied and cut short. The three pairs of sutures in the colon were successively passed in the same way, each pair in the three designated loci of the colon, being directed to the incision in its corresponding location. All the sutures were drawn taut to straighten out the intestine and make intimate contact between it and the parietal peritoneum, and were then tied external to the deep fascia in the bottom of the incision and cut short. The three incisions were then closed with a subcuticular catgut suture and sealed with sterile collodion. It would be observed that the fixation sutures of the stomach and transverse colon were brought out through the same incision. When both organs were to be attached the fascia in the bottom of the wound was laid bare for half an inch above and below the mid line of the incision and the respective sutures passed at the extreme limits of the denuded spaces, the stomach sutured above and the colon sutured below. The sutures composing the pairs were threaded along in the same line and about one-quarter of an inch apart. He had deemed it advisable in some cases to link the sutures together, thus converting them into a figure of 8 or chain suture. This distributed and equalized the tension over a broader area and diminished the tendency to contract. The abdominal wound was closed in the usual three layer method. Adhesive plaster and abdominal binder were applied rather tightly, and the foot of the bed kept elevated from 6 to 18 inches according to the tolerance of the patient.

The Graduate Degree in Obstetrics and Gynecology.—Dr. JENNINGS C. LITZENBERT of Minneapolis said that the Minnesota plan for graduate work in the medical specialties was new, but new only in its application to medicine. The plan simply applied the principles governing university graduate work in any other branch of advanced learning to the medical branches and placed them not only under the same principles, but actually in the graduate school of the university. The requirements for entry were a college degree, a medical degree, and a thorough reading knowledge of French and German, and an internship of at least one year. The course extended over three years of work with a major and a minor, the same as candidates for other advanced degrees, and examinations were by graduate faculty. A thesis, which must be an original contribution to science, was required and must be defended. This led to the degree of Doctor of Philosophy in Obstetrics and Gynecology. A two years' course might lead to Master of Science. Withal it was a plan to raise to a high level the training of specialists.

The Use of Dakin's Solution in Suppurative Conditions Within the Peritoneal Cavity.—Dr. RALEIGH R. HUGGINS of Pittsburgh read this paper, of which the following were the conclusions: "(1) When Dakin solution is brought in proper contact with an infected surface it will destroy pus; if this does not happen, it is because there is some focus not reached by the solution or because of imperfect technique. (2) As a result of its use there is rapid return of strength, and the postoperative course is more comfortable and with less danger of secondary complications. (3) Any offensive smelling discharge is destroyed almost immediately. (4) It is contraindicated in the presence of an intestinal fistula. (5) That it may delay the final healing by interfering with the normal granulating process in some instances, may be true. Further observation is necessary to determine this question."

A Study of Dystrophy Adiposa Genitalias in Women.—Dr. EDWARD A. SCHUMANN of Philadelphia read this paper, of which the following were the conclusions: "The syndrome resulting from the effects of deficient pituitary secretion upon the female sexual system may properly be divided into three clinical groups, according to the sex epoch affected. The terms 'amenorrhea of obesity' and 'lactation atrophy' or superinvolution of the uterus are no longer correct since it seems reasonably well proven that both these conditions are but phases of a primary hypo-pituitarism. Definite regressin of the reproductive tract may follow deficient pituitary secretion in parous women of mature age, and may and frequently does give rise to erroneous diagnosis of pregnancy. Treatment for all groups consists in general measures and the empirical use of glandular extracts, the systolic blood pressure being a fair index of the particular gland substances to be employed; low pressure indicating pituitrin; high pressure, thyroid. The prognosis is guarded in all cases, as to recovery, but is favorable in direct ratio with the age of the patient."

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THE NORMAL AND PATHOLOGICAL HISTOLOGY OF THE MOUTH. By ARTHUR HOPEWELL-SMITH. Volume II. 477 pages. Illustrated. Price, $4.50. Published by P. Blakiston's Son & Company, Philadelphia.

PRINCIPLES AND PRACTICE OF FILLING TEETH By C. N. JOHNSON, M.A., L.D.S., D.D.S. Fourth Edition. 286 pages. Illustrated. Price, $3.00. Published by P. Blakiston's Son & Company, Philadelphia

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SOCIAL RESPONSIBILITIES IN THE REHABILITATION OF DISABLED SOLDIERS AND SAILORS.

By DOUGLAS C. McMURTRIE,

NEW YORK.

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THERE are distinct social responsibilities in the rehabilitation for civilian life of disabled soldiers and sailors. In the restoration of the man to self-support, although the medical treatment be thorough and efficient, though reeducational provision be excellent, and though the will and spirit of the men under training may be of the best, yet the complete success of the program will depend upon whether the attitude of the public acts as a help or a hindrance—upon whether the influence on the individual ex-soldier of his family, his employer, and the community at large is constructive or demoralizing.

What, then, is the public duty toward the disabled soldier? For it is certain that the requirements need only to be understood to be fulfilled.

The first responsibility on the part of the family of the injured man is to learn the meaning of disability, and see the hopeful rather than the depressing aspect. Just recently in the suburb of a large Pennsylvania city a woman in a swoon was found on the steps of the local postoffice. She had just opened a letter from her son at the front which told of a gunshot injury necessitating amputation of his left arm below the elbow. Immediately there rose before her eyes the terrifying prospect of a life of idleness and possible pauperism. One can imagine what her next letter would be like: saying she knows what the amputation means and sympathizes most tenderly on account of what must be faced in the future. If it were only a leg it would not be so bad, for then he might be able to take care of himself and get some kind of a job, but with an arm off, he could not expect to do that. But she and father have saved up some, and with uncle's help they will take care of him till the end of his days. Picture the influence of this message in comparison with another which might be sent in the light of a fuller understanding of what is possible: "I have just heard of your arm amputation and sympathize most lovingly in your loss. But I know you will not lose your courage, even at this sacrifice for your country. Even now, the national authorities are making plans to make up so far as possible for such losses, as you doubtless already well know. One-armed men can be trained for skilled jobs, especially men with native ability such as yours, and the training is already under way in the city near us. The employers also here are becoming tremendously interested in the subject, and are finding jobs specially suited to men who have lost arms or legs and have promised these jobs to the fellows who return from the front disabled. And you can count on our standing behind you at every step and helping in every way we can. This is really a fine future to look ahead to for if you make good here at home with your handicap of honor, you and we will have true reason to be proud. And of course you will succeed if you go at this obstacle with the same spirit and nerve as have gone toward your work in the army. Your mother will look forward to your return home wearing the uniform of Uncle Sam and flying the colors of a soldier who can't be beaten."

It is greatly to be desired that the families of men going to the front should know of the possibilities of reeducation and reemployment and of the provision being made for the disabled, for it would mitigate not only a great deal of mental suffering over actual injuries but over prospective disabilities as well. It is well known that the greatest fear regarding service in the trenches is not the loss of life but the prospect of returning crippled. As one writer has well put it: "To die for one's country: if one could only be sure of dying!"

In coming down in the elevator of a large New York department store recently, the day following the publication in its pictorial section by a great daily newspaper of the photograph of the first American amputation cases in France, the following remark was overheard: "Did you see those horrible pictures in the paper yesterday? I do hope that Jack will not come home that way: I would rather he be killed." Yet the picture showed only foot amputations and to one familiar with cripples and their potential accomplishments such a disability seems a real inconvenience but nothing more. The woman quoted was suffering unduly in her apprehension.

It is not here intended to minimize the seriousness of the total disabilities but these occur in but one case in a hundred thousand. The point is that many injuries that might be regarded as terrible under unintelligent handling in the past no longer remain so.

The second responsibility of the family is to understand the importance to the disabled soldier of the proffered training for self-support, and to encourage him in every possible way to undertake

it. The family must do more than avoid opposition to the soldier's plan for reeducation; they must do more than give it lukewarm assent—they must get behind it with every influence at their command.

Failure to have the family understand and support the program for the future of the disabled man may have disastrous results. In France the mother occupies an unusual place of authority in the family economy. A son may grow up to be twenty, thirty, or forty years old, but mother is still a chief to whom obedience is unquestionably paid. In dealing with the *poilu*, therefore, one must count in his maternal parent as well. At one French center of hospital care and reeducation it was found that, as a man would approach the point of his medical recovery and approach the time of entry on vocational training, his mother was liable to descend upon the hospital office, beat her umbrella on the table, inquire why they were keeping her son so long away from home, and demand his immediate discharge in order that she might take him away "to care for the poor crippled boy for the rest of his life." In vain were explanations and arguments regarding the efficacy of further treatment and training. She had come there determined to take her son away, and the scene would continue until her end was accomplished. And in most instances there was nothing to do but accede to the mother's demand.

But a better way was found of dealing with the families of men deemed likely to benefit by reeducation. Under this procedure when the soldier was nearing the end of his hospital care the director of the institution would summon the mother to come in and advise regarding her son's future. She would then be addressed something in this wise: "Your son's medical treatment will, in another week or two, be practically complete, and we thought you might like to know so that, if you desired, you could make plans to take him home. But you know he is permanently disabled and will not be able to go back to his old job of telegraph lineman. We know that you expect to care for him, but he will outlive you, and later, since the government pension is small indeed, he will be reduced to a miserable situation. You remember the cripples from the War of 1870, how they begged or sold trinkets about the streets—and you would not want your son to be in that fix. Luckily, however, he will not have to be for we have something else to suggest. Across the street is a school where the men are taught various skilled trades. If your son cares to stay for five or six months, and you approve, we will teach him to be a telegrapher and he can go back to his home town and get a good job with the government telegraphs. As a skilled worker still he will be doubly respected in the community, he will be a burden on no one, his future will be assured, and you will be very, very proud of him. What do you think wise under the circumstances?"

The whole situation is changed. Mother greets her boy with: "Son, have you heard what they are going to do for you?" And as the son has already been talked to regarding the program, the joint decision is assured.

This illustrates the difference between a family for or a family against the proposal of reeducation.

The third duty of the family is to stand behind the man during his course of training and try in every way to encourage rather than dishearten him. Letters from home which recite all the troubles of life and none of the joys will not help the enterprise. The family reaction should rather be: "Stick to it; we are getting along all right and want to see you finish the job up right, now that you are at it." In other words it is necessary to maintain the morale of the family in the same way as when the man is at the front. This is largely contributed to by home visitors such as those of the Canadian Patriotic Fund or the American Red Cross.

The fourth family responsibility toward the disabled man is to make the home influence as sensible and as truly helpful as possible after his return from hospital or school. The first and very natural impulse when son or husband comes home crippled or blind is to pet him and wait on him hand and foot. Yet the best interests of the family as well as of the man himself demand his being encouraged to do for himself everything he can, with the aim of stimulating that self-dependence which has been the object of his whole course of training. Within the limits imposed by affection the family should endeavor to carry along the spirit of that training.

In the readjustment of the crippled soldier to civilian life the employer has a very definite responsibility. But this duty is not entirely obvious. It is, on the contrary, almost diametrically opposite to what one might superficially infer it to be. The duty is not to "take care of," from patriotic motives, a given number of disabled men, finding for them any odd jobs which are available, and putting the ex-soldiers in them without much regard to whether they can earn the wages paid or not.

Yet this method is all too common. A local committee of employers will deliberate about as follows: "Here are a dozen crippled soldiers for whom we must find jobs. Jones, you have a large factory: you should be able to take care of six of them. Brown, can you not find places for four of them in your warehouse? And Smith, you ought to place at least a couple in your store."

Such a procedure cannot have other than pernicious results. In the first years of war the spirit of patriotism runs high, but experience has shown that men placed on this basis alone find themselves out of a job after the war has been over several years, or, in fact, after it has been in progress for a considerable period of time.

A second weakness in this method is that a man who is patronized by giving him a charity job comes to expect as a right such semi-gratuitous support. Such a situation breaks down rather than builds up character, and makes the man progressively a weaker rather than a stronger member of the community.

The third difficulty is that such a system does not take into account the man's future. Casual placement means employment either in a makeshift job as watchman or elevator operator such as we should certainly not offer our disabled men except as a last resort—or in a job beyond the man, one in which, on the cold-blooded considerations of product and wages, he cannot hold his own. Jobs of the first type have for the worker a future of monotony and discouragement. Jobs of the second

type are frequently disastrous, for in them a man, instead of becoming steadily more competent and building up confidence in himself, stands still as regards improvement and loses confidence every day. When he is dropped or goes to some other employment, the job will have had for him no permanent benefit.

Twelve men sent to twelve jobs may all be seriously misplaced, while the same twelve placed with thought and wisdom and differently assigned to the same twelve jobs may be ideally located. If normal workers require expert and careful placement, crippled candidates for employment require it even more.

The positive desideratum is to find for the disabled man a constructive job which he can hold on the basis of competence alone. In such a job he can be self-respecting, be happy, and look forward to a future. This is a duty not so easy of execution as telling a superintendent to take care of four men, but there is infinitely more satisfaction to the employer in the results, and infinitely greater advantage to the employee. And it is entirely practical, even in dealing with seriously disabled men.

Thousands of cripples are now holding important jobs in the industrial world. But they are men of exceptional character and initiative and have, in general, made their way in spite of employers rather than because of them. Too many employers are ready to give the cripple alms, but not willing to expend the thought necessary to place him in a suitable job. This attitude has helped to make many cripples dependent. With new responsibilities to the disabled soldier, the point of view must certainly be changed. What some cripples have done, other cripples can do—if only given a chance.

This, then, constitutes the charge of patriotic duty upon the employer:

To study the jobs under his jurisdiction to determine what ones might be satisfactorily held by cripples. To give the cripples preference for these jobs. To consider thoughtfully the applications of disabled men for employment, bearing in mind the importance of utilizing to as great an extent as possible labor which would otherwise be unproductive. To do the returned soldier the honor of offering him real employment, rather than proffering him the ignominy of a charity job.

The responsibility to the disabled soldier on the part of the community at large is much more complex, since the contact exists at a multitude of points and is at none highly intimate. The first reaction of the public to the returning man is hero-worship of the most empty type—described coldly it usually consists in making a fool of the man and entertaining him in inappropriate and hurtful ways.

One form of this is society lionization—and for but the proverbial six days indeed. To a large Canadian city there returned a disabled soldier after two years' absence at the front. His wife and children had been looking forward expectantly to having him with them, but after his arrival saw but little of the head of the house. As a national holiday was approaching they were counting on his accompanying them to the park, and had exacted a tentative promise that he would do so. But as the morning arrived and mother was dressing the children to start, father made no move to get ready. Almost tearfully mother asked if he was not going with them. "Oh, no," he answered, "I am going for an automobile ride this morning and this afternoon to a sing-song at the—(naming a fashionable hotel)." Thus was the community showing kindness to the returned soldier and helping to put him back on his feet.

The man on the street thinks the greatest service to the disabled fighter, particularly when he is discharged from the army and no longer under the partial protection of the khaki, to consist in buying him at the corner saloon as many drinks as he can hold. From one small American city a social worker reported inability to distinguish as to whether certain discharged men were suffering from shell shock or intoxication, so hearty was the hospitality of the citizens. Such "kindness" requires no comment. Fortunately the war-time measure regarding the liquor trade will soon make this impossible, and will guard the ex-soldier from one pitfall. It may be noted in passing that this will be a boon to the returned men in more ways than one. In Canada at a time when most of the provinces had prohibition and one or two others limited license, the placement of disabled men in employment was many times simpler in the dry territory than the wet. In the latter many men lost jobs again and again by reason of intoxication, not only injuring themselves but weakening the standing of their fellows as well in the eyes of the employers.

Finally there is the great general public prejudice against the disabled, the incredulity as to possible usefulness, the apparent will to pauperize, and the reluctance through usual channels of opportunity to give the handicapped man a chance. Successful crippled and blind men unanimously testify that the handicap of public opinion is a greater obstacle than amputation of limb or loss of sight. And this unenlightened attitude is manifest in every social relation of the disabled—with family, with employer, with the community as a whole.

It becomes clear, therefore, that a necessary feature of any program for restoring the disabled soldier to self-respect and self-support is a campaign of public education to convert the general attitude toward the crippled and handicapped.

This need was recognized most clearly among our enemies by Germany and among our allies by Canada. There was signal failure to appreciate the value of public education in France, Great Britain, and Italy. There is no need of it yet in Belgium as all the disabled men are retained in the army and provided not only with training but with employment as well, and there is no family problem as the men cannot return home.

Within a few months of the opening of the war, the secretary of the German national federation for the aid of cripples made a tour of the leading cities of the Fatherland speaking to meetings of public officials, social workers, and the like, with the aim of disseminating intelligence regarding modern principles and methods of dealing with the disabled. The same authority prepared several pamphlets of popular character which were distributed in editions of over a hundred thousand. There was in existence at the outbreak of the war an excellent monthly journal on work for cripples, and this

devoted its columns to the subject of provision for the war disabled. Some other special publications in the same field immediately sprang up. One of these has the interesting title of "From War to Industry."

There has been issued under the title of "The Will Prevails" a volume of biographies of cripples who have overcome their handicaps—from Tamburlaine down to men disabled in the present war. The book is intended for circulation in hospitals and for general reading. Exhibitions illustrating in a practical way the possibilities of the war cripple constitute another vehicle of public education, and have been held in the leading centers of the empire. Moving pictures and lantern slides are also being utilized for propaganda to stimulate interest on the part of the people and to arouse ambition and courage on the part of the disabled themselves.

In Canada a real and very intelligent effort has been made to acquaint the people with the aim and practice of reeducation. A well-known poster, printed in red and black, entitled "What Every Disabled Soldier Should Know," is widely in evidence throughout the Dominion. It is really addressed as much to the public as to the returned soldier. The text of the poster is as follows:

That there is no such word as "impossible" in his dictionary.
That his natural ambition to earn a good living can be fulfilled.
That he can either get rid of his disability or acquire a new ability to offset it.
That the whole object of doctors, nurses, and instructors is to help him in doing that very thing.
That he must help them to help him.
That he will have to have the most careful and effectual treatment known to science.
That interesting and useful occupations form a most valuable part of the treatment in the convalescent homes and sanatoria.
That if he can not carry out his first duty by rejoining his comrades at the front, and if there is no light duty for him with the Canadian forces overseas, he is taken home to Canada, as soon as his condition and the shipping facilities make this possible.
That his strength and earning capacity will be restored there to the highest degree possible, through the Invalided Soldiers' Commission.
That if he requires an artificial limb or kindred appliance it will be supplied free.
That every man disabled by service will receive a pension or gratuity in proportion to his disability.
That if his disability prevents him from returning to his old work he will receive free training for a new occupation.
That full consideration is given to his own capacity and desires when a new occupation has to be chosen.
That his own will-power and determination will enable him to succeed, both in the training and in the occupation afterward.
That his maintenance and that of his family will be paid for during the training he may receive after discharge, and for a month longer.
That neither his treatment nor his training will cost him a cent.
That his home Province has a special commission to assist him in finding employment on discharge.
That hundreds of towns and villages have committees, associations, and clubs, to welcome him on arrival, and to help in securing a position for him.
That the Dominion and provincial Governments, the municipal authorities, and all sorts of employers, give the returned soldier preference in filling vacant positions.
That the returned soldier wishing to take up land and farm it will be helped to do so, under Federal and other settlement schemes.
That the Invalided Soldiers' Commission exists to carry out his restoration and training in Canada.
That the Board of Pension Commissioners exists to distribute the pensions provided by his country for him and his dependents.
That the Invalided Soldiers' Commission and the Board of Pension Commissioners are in the position of trustees, appointed for his benefit, and representing the whole people of Canada.
That, therefore, he should write direct to the Commission or the Board if he needs advice or help.
Canadians are unanimously resolved that every returned soldier shall have a full opportunity to succeed. When that opportunity is put within his reach, his success will depend on his own good sense in seizing and using it.

Another poster of pictorial character shows a one-armed man fitted with an artificial appliance at work on a drill press.

The daily press has been supplied with material descriptive of the success of men who have completed training and made good. Some stories have carried with them a little preachment as to the sound attitude toward the disabled soldiers. One concludes with this statement: "Every man doing steady work suited to his capacity is a gain to himself and his country. Every man left idle, or performing some trifling task beneath his capacity, or trying to do work he is unfit for, is wasted. And Canada cannot afford to waste a man."

A remarkable moving picture film in ten reels has been prepared by the government authorities to illustrate the progress of the disabled soldier after his return from overseas. It shows reception at the debarkation depot, transportation in a hospital train, various forms of treatment at military hospitals, recreation, vocational training, and, finally, reemployment in industry. The message of the series of reels is "that injury does not mean pauperism: that every man is given a chance to make good." Where the man does not try to help himself, however, there is shown the opposite eventuality of vagrancy. The film is for exhibition in Canadian military hospitals in England, and for showing to the public of the Dominion.

In the United States there has been as keen if not a keener realization of the fundamental importance of public education to the cause of the disabled as in any other country, and as might probably be expected actual work on such a campaign began at an early date. The Surgeon General of the Army issued in October, 1917, a clear statement of the modern policy and spirit of dealing with the disabled soldier, under the title of "The Passing of the Cripple." Later the same office made an excellent contribution to the cause in the preparation of moving picture films of five successful American cripples who were seriously handicapped, yet had overcome their obstacles. This series of reels was entitled "The Way Out," and was intended for showing to the general public and in hospitals overseas to men who have just met with disabling injury. The set is one item in a "cheer-up campaign," another projected feature of which is the issue of a volume of biographies of disabled Americans who have beaten their handicaps. Still another factor in this work is the issue by the Surgeon General, in cooperation with the American Red Cross, of an inspirational magazine, by name "Carry On," which aims to convey to members of the army medical corps, to army nurses, to Red

Cross home service workers, and to the public at large some conception of the new spirit in dealing with wounds, of more kinds than one, which are sustained at the front. This magazine has already a monthly circulation of over a hundred thousand.

An unofficial campaign in the interest of the disabled was early initiated by the Red Cross Institute for Crippled and Disabled Men. One of the most familiar items in this campaign was a small folder of which over seven million copies were distributed, largely through the courtesy of telephone, gas, electric, and other public service corporations. It was titled, "Your Duty to the War Cripple" and its text—which epitomizes the gospel preached in the campaign—read as follows:

When the crippled soldier returns from the front, the government will provide for him, in addition to medical care, special training for self-support.

But whether this will really put him back on his feet depends on what the public does to help or hinder, on whether the community morally backs up the national program to put the disabled soldier beyond the need of charity.

In the past, the attitude of the public has been a greater handicap to the cripple than his physical disability. People have assumed him to be helpless, and have, only too often, persuaded him to become so.

For the disabled soldier there has been "hero-worship": for the civilian cripple there has been a futile kind of sympathy. Both do a man more harm than good.

All the cripple needs is the kind of job he is fitted for, and training in preparation for it. There are hundreds of seriously crippled men now holding down jobs of importance. Other cripples can do likewise, if given the chance.

In the light of results already attained abroad in the training of disabled soldiers, the complete elimination of the dependent cripple has become a constructive and inspiring possibility.

Idleness is the great calamity. Your service to the crippled man, therefore, is to find for him a good busy job, and encourage him to tackle it.

Demand of the cripple that he get back in the work of the world, and you will find him only too ready to do so.

For the cripple who is occupied is, in truth, no longer handicapped.

Can the crippled soldier—or the industrial cripple as well—count on you as a true and sensible friend?

The assistance of chambers of commerce and manufacturers' associations was enlisted to secure transmittal to their members, with a special note of indorsement by the organization, of a circular calling to the attention of employers their responsibility to the disabled soldier. Over two hundred thousand employers were reached direct in this manner and the statement was reprinted in scores of trade journals.

A speakers' bureau was organized, a film and picture service instituted, and the daily press and magazines supplied with informative articles on the work being accomplished abroad in the reconstruction of crippled men. One of the most interesting features of the work was the preparation for individual trade journals of articles on re-education in the particular trade covered by each journal or on employment opportunities for the disabled in that trade. This material proved of very direct interest to both editors and readers of the journals.

Another feature of the campaign was the issue of a booklet in ten foreign languages: Yiddish, Italian, French, German, Hungarian, Polish, Greek, Spanish, Danish, and Swedish. These were distributed to pastors of foreign-speaking congregations and to physicians and social workers in the foreign communities. The text of the booklets was also reprinted by almost every foreign language newspaper in the country.

The work of public education in the interest of the cripple has just begun. It must be continued until the "man in the street" is thoroughly familiar with his responsibilities to the disabled—until the community is converted from its present attitude.

311 Fourth Avenue.

BLINDED SOLDIERS AS MASSEURS IN HOSPITALS AND SANATORIA FOR RECONSTRUCTION AND REHABILITATION OF DISABLED SOLDIERS.*

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From the addresses on the reconstruction and rehabilitation of disabled soldiers which were delivered at the annual session of the American Medical Association in Chicago† and from Lieut.-Col. E. H. Bruns' article on the tuberculous soldier (Journal A. M. A., August 3, 1918, p. 373), one may obtain a good insight into the work which Surgeon General Gorgas, his staff, and the Division on Reconstruction and Rehabilitation are contemplating. In his address on "Reeducation of the War Blinded" Lieut.-Col. Bordley says: "After the blind will have received a practical training they will get training in professional work, the trades, or agriculture," but I do not know whether he had in mind also the training of some of the blinded soldiers in massage. As no mention on this subject was made, I may be permitted to call attention to the fact that many a blinded soldier might, with relatively little training, become a skilled professional masseur.

Brigadier General Alfred E. Bradley, Medical Corps, U. S. Army, who recently returned from the front and with whom I communicated concerning the idea of employing blinded soldiers in this way, wrote me as follows: "In regard to the employment of the blind as masseurs, I think suitable men will find this occupation a very agreeable and remunerative one. Our people in America, however, do not utilize massage as freely, nor to such an extent, as we see it employed abroad. While in London I was very much interested to watch the work of the blinded men taking a course in massage instruction at St. Dunstan's. The superintendent informed me that they had no trouble at all in placing all the men in lucrative positions, who qualified in the course as it was given there.

"The experience of the French and English has been that for about every 1,000 men wounded there will be three men blinded; this, fortunately, is a rather small percentage and of this number prob-

*Read by invitation before the Conference on Rehabilitation of the Wounded, arranged by the Amer. Acad. of Political and Social Science, at Philadelphia, Sept. 20, 1918.

†*Journal of the Amer. Med. Assn.*, June 22 and 29, 1918. All these addresses have now appeared in pamphlet form and can be obtained from the office of the Association.

ably only a small portion would be suitable as masseurs; I should think, therefore, that it would be necessary not to depend entirely upon the blinded soldiers as a source of supply for massage pupils and operators."

Dr. John A. Wyeth, president of the New York Polyclinic, suggested to me that, in a class of instruction in massage for blinded soldiers, there might well be included a number of soldiers who had received some injury to the lower extremities and other types might be found if the need for the work increased. It is particularly the blind that I wish to consider here, however, as there are so few occupations open to them. It is well known also that a blinded person develops a more delicate sense of touch than is usually possessed by the seeing, and this would certainly be an advantage in the work.

I have been informed by friends who have traveled extensively in Japan that there massage is exclusively a profession of the blind and that they develop a marvelous dexterity in manipulating muscles and joints for the cure or alleviation of many diseases.

As to the value of massage in certain nervous afflictions, in orthopedic and some surgical affections, I need not say anything. The utility of massotherapy in all these branches of medicine and surgery is well known, but not so much so in tuberculosis. I have, however, found it to be of invaluable help at that period in the life of the tuberculous invalid when his disease has been arrested, but when, owing to the prolonged rest-cure, his muscles have become flabby and his respiratory system indolent. Unfortunately, the expense of giving massage treatment in large hospitals for consumptives is prohibitive, but I have often used it with most satisfactory results in private practice after the return of the patient from the sanatorium as an arrested case. I have found massage to be of inestimable benefit at such times and excellent preparation for active physical exercise and work.

In fact, I go so far as to say that massage combined with carefully graded respiratory exercises and judicious hydrotherapy, skillfully and persistently applied for a period of from four to six weeks, is the best and perhaps the only means to guard the tuberculous invalid against the relapse. In so many cases, because of economic necessity, the arrested case resumes his former occupation before his muscular, respiratory, and cutaneous systems have regained sufficient strength to resist the deleterious influences of over-fatigue, atmospheric changes, the invasion of the pneumococcus, and minor respiratory infections to which the well man is immune. The policy of the surgeon general not to discharge the tuberculous soldier when the disease is merely arrested, but to retain him until his physical vigor is restored, is a guarantee that we will not have nearly as many relapses in military as in civil tuberculosis practice.

To return for a moment to General Bradley's statement that the physicians in this country do not use massage as freely nor to such an extent as we see it employed abroad, I must say that this observation is absolutely correct and is applicable to all branches of medicine, including tuberculosis.

During my recent visit to the Adirondacks I discussed the subject of massage with Dr. Edward R. Baldwin, the Dean of the Trudeau School, and Dr. Lawrason Brown, the well-known specialist and authority on tuberculosis. Both gentlemen were emphatic in their statements that massage is an important adjuvant in modern phthisiotherapy but one much neglected in this country. Dr. Brown stated as his opinion that we do not use massage frequently enough in tuberculosis—first, because we are strangely indifferent, and secondly, because it is too expensive. He also believes that it would offer a good means of livelihood to a certain number of blinded soldiers.

I submitted the draft of this manuscript to a number of other distinguished physicians, Prof. Hermann M. Biggs, State Commissioner of Health of New York, Dr. Thomas McCrae, Professor of Medicine of Jefferson Medical College of Philadelphia; Dr. Edward O. Otis, Professor of Tuberculous Diseases of Tufts Medical College of Boston, and Dr. David R. Lyman of the Gaylord Farm Sanatorium, Wallingford, Conn., until recently associate director of the Rockefeller Tuberculosis Commission in France, and the newly elected president of the American National Tuberculosis Association. Dr. Biggs writes: "I have read your article outlining a plan for the training of blinded soldiers as masseurs. It appeals to me strongly and I can see no reason why it should not be put into effect. I believe that massage is work which these men would be well qualified to take up." Dr. McCrae expresses himself similarly by saying that the suggestion of employing the war-blinded soldiers in that way was an excellent one and hoped that the Surgeon General's Department would take it up. As to the value of massage in tuberculosis, he regretted to say that he had not had opportunity to find out its effect on that class of patients, but that it would seem to him altogether likely to be very useful.

Dr. Otis wrote me as follows: "I have read the paper with great interest and approval. That the blind will and do make skillful masseurs I am sure for I have seen it. We have employed at the Boston Dispensary for some years a blind masseuse with great satisfaction as an example. Massage, I believe, is a valuable means in the post-sanatorium rehabilitation of the arrested tuberculous patient, and indeed, before that period in certain cases. I therefore heartily approve your plan of utilizing blinded soldiers. I believe massage could and ought to be employed in the treatment of tuberculosis much oftener than it is, but the reasons given in your paper are undoubtedly the causes why it is not. . . . I believe your paper is excellent in its suggestions as to the employment of blind soldiers and very timely when the rehabilitation and reconstruction of maimed soldiers is now under consideration and it has my hearty approval. The teaching of massage to blinded soldiers accomplishes two things —it helps the crippled soldier and renders possible the application of massage to the tuberculous more extensively than heretofore has been possible."

Dr. Lyman expresses himself as follows: "I

think your suggestion as to the training of blinded soldiers as professional masseurs an excellent one. Beside the wide field open to them in general medicine there would be the splendid opportunity in our new government sanatoria to give them special training in the application of massage to properly selected cases of tuberculosis. There is no question but that we have neglected this important branch of therapy in our work in America."

To the opinion of these eminent physicians let me now add that of Major Fred H. Albee, Professor of Orthopedic Surgery at the New York Post-Graduate Medical School and Surgeon-in-Chief of U. S. General Hospital No. 3 for Reconstruction, Colonia, N. J. He writes: "The training of our returning blinded soldiers in massage is most important work in the rehabilitation of the wounded soldier. I know of no task so valuable for the delicate touch of the blinded man and especially since individuals skilled in this work are so scarce and so many are needed as the rehabilitation of our disabled soldiers goes on."

My late friend, Dr. Herbert M. King, the regretted physician in chief of the Loomis Sanatorium, to whom I suggested the use of massage in his institution, gave it a thorough trial and assured me later on that I had been right in the belief that it would prove a most excellent means to overcome the tendency of muscular flabbiness and degeneration. Yet he had to discontinue it. At times he had nearly 200 patients and massage could be given to only a few and jealousy and discontent among those who did not get it forced him to abandon it altogether. It was not always easy to get expert masseurs who were willing to go to a sanatorium. Phthisiophobia had doubtlessly something to do with it.

If for the reason just given massotherapy cannot be carried out in an institution for the well-to-do, it is, of course, even more difficult to have it in hospitals or in sanatoria for the consumptive poor. Now, none of the difficulties raised by Dr. Brown's statement and those encountered in the experience of Dr. King concerning the application of massage to the tuberculous civilian, rich or poor, hold good when we are dealing with the soldier whose tuberculous lesion has been arrested or is quiescent so that massage will be truly helpful in preparing him for active exercise and work.

There will probably be a sufficient number of blinded or otherwise invalided soldiers who can take up massage as a profession. Phthisiophobia will not enter into consideration as a hindrance, for the soldier masseur will be instructed that no danger can come to him when dealing with the carefully trained invalid. The matter of expense to the Government when there is a question of rehabilitating the tuberculous soldier and making him a breadwinner again and a useful citizen is of course something which can be considered only as distinctly advantageous in the end.

Having had the opportunity to study massage and the Swedish movement cure in this country and abroad, I have taught these valuable therapeutic adjuvants to many of my pupils and nurses, and in cases where, for financial reasons, a professional masseur could not be employed, I have often succeeded in teaching a well member of the family how to apply the treatment to the tuberculous invalid. It was surprising to me to see how many men and women there are with a natural aptitude for this work. In some instances they developed into experts so that I could employ them advantageously in other families.

It is this experience which convinces me that many a blinded soldier might be advantageously taught the art of massage, not only as a way of earning his livelihood but also because he could do valuable work in our military hospitals for reconstruction and rehabilitation. Many masseurs will be needed in these hospitals and owing to the cessation of immigration from Scandinavian countries, there is already a dearth of expert masseurs. Later on, if there should be more masseurs than needed for military work, I am convinced that any well-to-do invalid in need of massage treatment will rather employ one of our blinded soldier heroes than an imported masseur.

Do I need to say that we physicians or surgeons, whether in military or civil practice, who have occasion to prescribe massage, would consider it a patriotic duty to help the blind soldier masseur to make an honest living by his newly acquired profession? He has given so much in comparison to the little we can give him in return.

On the evening of the day on which I was privileged to present this paper to the Academy, Lieut.-Col. James Bordley delivered a most inspiring address on the work which is being done under his direction in the U. S. Base Hospital No. 7, at Roland Park, Baltimore, Md. From the pictures shown by the Colonel, the institution seems to be exceptionally well placed and has already twenty inmates (sailors and soldiers) and the Colonel assured us that the morale of all the men is excellent, being doubtlessly greatly heightened by the generous provision of the government to have one relative of each patient live for some time on the hospital grounds to help and be present during the period of educational training. While all these blinded heroes regret that they had to leave the field of action "over there," they hope to be still of war service by aiding in the manufacture of ammunition. The plan in the hospital is to teach them to make small armatures, spark plugs, and so forth, and to train them in other trades and professions in which the loss of eyesight is not a hindrance to the attainment of the greatest efficiency. To my great satisfaction massage has been included among the professions to be taught to our blinded war heroes. This is but another evidence of the farsightedness of the Surgeon General and his staff and the thoroughness with which all work is done in that department.

16 West Ninety-fifth Street.

Legitimate and Illegitimate Children in Prussia.—In 1914 the number of legitimate births in Prussia was 1,067,408; of illegitimate births, 99,172. The death rate among the former was 2.85 and among the latter 4.47. The causes of death were congenital debility 35 per cent., diseases of the digestive tract 44 per cent, and the rest scattering.—*Nederlandsch Tijdschrift voor Geneeskunde.*

SOME OF OUR MEDICAL EXPLORERS AND ADVENTURERS.

By WILLIAM BROWNING, Ph.B., M.D.,

BROOKLYN, NEW YORK.

THE naturalist, the explorer, the adventurer, the pioneer, the missionary, the traveler, and the sporting man have something in common or make psychologically a continuous series. If we add medical training all along the line, then it can certainly be said that they represent a closely connected class. In other words, the grouping is an entirely natural and proper one, though it bring together apparently divergent characters.

The outside lines in which physicians attain eminence have an interest for us from many points of view—curiosity, history, information, the value and tendency of our training, etc.

Of these various activities in which medical men engage, in which their profession is a useful asset, and which at the same time have general interest, that of exploration, travel, and adventure has proved attractive in all modern countries. The physician is in fact specially qualified for this work—to guard himself and his fellows against disease and exposure, to take on executive duties, and to act as a valuable aid in ethnologic and other scientific observations, a multiple capacity. Seldom has any considerable expedition of this kind started without a selected medical man in the party, and not rarely he plays an important part.

Attention has been called to English physicians who have thus won distinction (editorial on "The Medical Explorer," *Lancet*, 1906, I, 106), notably such men as Mungo Park (1771-1805), James Stewart, James O. McWilliam, and David Livingstone. And that record might now be extended.

We also have those who have figured with éclat, though possibly our men have not always had as fine publicity agents. And as these phases of medical life are in part changing and unlikely to recur, a review may be the more timely. Especially at this period when so many are called to a new field there is added interest and incentive in the consideration of past exploits. It is easily possible to make a very creditable showing.

The word "some" introduces the title for a double reason. The list may well be incomplete. And then it is a question how far to go in framing up such a category. Many others have been explorers in casual and minor ways, besides those who have neither left traceable records nor found a friendly chronicler. And the use of the term explorer to designate all kinds of investigators is confusing; nor is the word "geographic" much more specific.

Even in pre-colonial exploration of America we find names of medical Europeans, as—Dr. Chanca, who accompanied Columbus on his second voyage, and whose letters give details and corroboration (v. Irving's "Life of Columbus"), and Thomas Dover, M.B. (1660-1742?), the rescuer of Alexander Selkirk, and cruiser along the western American coasts (v. sketch in Osler's "Alabama Student").

From early colonial times with us physicians have often been active in prospecting, pioneering, and the development of new settlements. This at times has included useful exploration, though usually of a local kind.

An early instance occurred within a year of the first settlement at Jamestown. In the summer of 1608 Capt. John Smith led two explorations up the Chesapeake and allied waters. In the first one, June 2 to July 21, was "Walter Russell, *Doctor of Physicke*," who headed a detail party, did the honors in a case of minor injury, and had his name applied to "Russell's Isles", though it does not appear on recent charts. The second, July 24 to Sept. 7, was accompanied by "Anthony Bagnall, *Chir*," who experienced the only near-accident, "shot in his hat by an arrow." Each medical man signed the report of his trip in Smith's "General Historie of Virginia, etc." (Vol. I, "The Third Book," chapter V, Richmond, 1819).

In further illustration it may be noted that many of the first or early governors of our States, provinces, and territories (at least fifteen) have been physicians, most of them with frontier work to their credit.

Naturalists and other scientific explorers comprise a further group. The earlier and systematic botanists especially did much distant prospecting, and were largely recruited from medical ranks. But among zoologists, even archeologists, anthropologists, orientalists, we find the names of men who have done work of an exploratory character. These pursue their activities along more or less traveled lines, with little detours into the unknown. Several of those in the subjoined list were primarily scientific explorers, and others so in part.

Customary accounts of some of these make little mention of their medical trainings (as Carver, Webber, Walker). The more reason for giving them our recognition as confrères.

It is often heroic work indeed that these men have engaged in. Some have perished at their labors—William Walker, Whitman, Webber, Houghton, Ambler. Others have suffered seriously in health or estate. Kane, who died in Cuba, may have thought to make up by tropic heat for sufferings from arctic cold! More, however, have lived to enjoy the records of their achievements, and some to a ripe old age,—Thomas Walker 79, Eights 86, Coates 84, Ruschenberger 88, Wisliscenus 79, Woodhouse 83, Henshall to 80 plus, and David Walker 79, besides some still active.

Hence eight of known age have lived to their eightieth year or beyond. Barring accident, it appears after all to be a long-lived cult. And it might well be expected that such a life would contribute to longevity.

Most of the members of this coterie have been likewise or subsequently prominent in civil or political affairs. Nor is this to be wondered at, if we recall the effect of travel and motation on intellectual development.

The modern extension of scientific training and the endowment of our museums have permitted these institutions of late years to dispatch collecting scientists on innumerable trips to every corner of the earth; with these the medical side is less in evidence. But we might here very well include those other explorers who, especially of recent times, have investigated diseases in their native habitats, so to speak. Of these we have such conspicuous examples as Ricketts (who sacrificed his life in Mexico), Walter Reed and his party in Cuba,

Ashford (of Porto Rico uncinariasis fame), Strong, and others.

Medical missionaries (as Whitman, White, Grenfell, *v. infra*) have also practically aided in work of this kind. In fact, missionaries and explorers are sometimes bracketed together. They, however, constitute so large and special a class that justice cannot be done them here.

Several of these men began as naval or army surgeons, and were billeted to do duty on expeditions. Some of them then became themselves trained leaders. This doubtless in part accounts for the considerable number of medical explorers. We know, however, that doctors take fondly to the wilderness, more so, perhaps, than most classes in the community.

Travelers range from the proverbial globe trotter to those who bring us useful studies of the remote and little known (peoples, places, things), and thus are sometimes in the explorer class. Our estimate must also depend somewhat on time and place; the man *e.g.* who in the early days penetrated a hundred or two miles beyond the frontier was far more notable than one who now journeys in comfort to Alaska.

Then there is the army of hunters, sportsmen, health seekers, and wanderlustige who are out for the zest of the thing. Naturally their contributions are not often of a character to place them in rank. It is pretty well understood that in this country our explorers soon had the benefit of accounts by trappers, missionaries, wild wanderers, and especially the Indians, where better guides were lacking. While such knowledge became more or less common property, it was so tinged with vagary and rumor as to have no authoritative value. It is only possible to recognize those as explorers who leave some tangible record.

It is somewhat a matter of individual view who shall be considered adventurers; that element may have been present to a degree in the case of many. The love of adventure is strong in all youth,—and some never grow old! And, if the adventurer ends with a record of great service to humanity, any uncertain aspects of his career are glossed over and he even becomes a hero of renown.

An allied instance is that of Benjamin Thompson, Count Rumford, who had advanced so far in a medical career as to be about entering practice when he forsook country and calling for political reasons. In the end he left a record of magnificent accomplishments, with scant blemish beyond lack of patriotism. By some he is reckoned an adventurer, and it requires no strain to approve his credentials for that grade. It is at least certain that his medical education furnished the basis for his later scientific and sociologic successes.

The more daring as well as the less successful specimens of the genus adventurer naturally cover up their trail, and in many cases we are left in doubt. There was James Wilkenson, an M.D. and beginning practitioner; then general in the Revolution; mixed up in cabals and uncertain episodes, including the adventures of Aaron Burr; yet who finally became Governor of Louisiana and general-in-chief of our army. Despite doubts and a trial or two it does not appear to have ever been settled how far he was "particeps," if at all, though medical psychology tells us he was at least "tarred" and close to the adventurer class, to put it euphoniously.

It is a bit remarkable that seven, and possibly more, were the sons of men who had also enjoyed a medical training (Eights, Webber, Suckley, Henshall, Ambler, Vincent, Cook), suggesting that, besides the above named factors, there is something special in medical life and heredity that gives an incentive in this direction.

It is further interesting to note that three of them very suitably bore the name of Walker! And that six were born in Pennsylvania, seven in New York, four in Massachusetts, two each in Connecticut and Virginia, three in Maryland, the others scattering, including four in England and three in Germany, *i.e.* distributed among the older States in fair proportion.

A considerable list of names can be gathered of those who in positive though unequal degree appear entitled to special recognition under our caption. The available memoirs of part of these are more brief than complete. An identifying outline follows, with sufficient excerpts of data to show warrant for their inclusion.

1. John Brickell, M.D., practitioner, explorer, naturalist, b. Ireland, settled for a time at Edenton, N. C., the then capital of the Colony. As head of a mission to the Cherokees in 1730 he took opportunity to explore western Carolina and "far into what is now Tennessee."

The Doctor returned to Ireland and published, "The Natural History of North Carolina, with an Account of the Trade, Manners and Customs of the Christian and Indian Inhabitants, Strange Beasts, Birds, Fishes, Snakes, Insects, Trees and Plants, etc." (Dublin, 1737): also, "Catalogue of American Trees and Plants Which Will Bear the Climate of England" (1739): various editions of each.

The first-named and principal work is now classed amongst rare and valued Americana. A copy of the first (1737) issue is in the collection of Dr. William C. Braislin of Brooklyn, and one of the 1743 issue is in the library of the American Museum of Natural History; the two copies are apparently identical except the date.

After an extensive account of flora and fauna (incl. pictures of many wild animals, small simple cuts as in a child's book, and yet perfectly recognizable and doubtless admirable for their time), Brickell gives, pp. 387-393, a most readable description of his expedition, beginning, "The latter end of February, Anno Dom. 1730, we set out on our intended journey, being in Number Ten *White Men*, and Two *Indians*, who served for our Huntsmen and Interpreters." "Our *Indians* seldom returned [from a hunt] without more that a sufficient quantity of *Venison*, *Wild Turkeys* and other Game for the support of all our Company." The trip lasted 32 days.

Martin's History of North Carolina, II, 4-9 (New Orleans, 1829) reproduces Brickell's description of his expedition, and says, "With a view to secure the friendship of the Indians, who were immediately on the western frontier of his government, he (Gov. Burrington) sent John Brickell, a physician, to meet them."

B. L. Robinson, of the Gray Herbarium, in "The

Doctors John Brickell" (*Rhodora*, 1916, Nov.) gives good reasons for concluding there were two of that name. The second John Brickell, M.D., was also born in Ireland, and prominent in like sciences, but lived a little later (1749-1809), and practised at Savannah, Ga.

The lapse of time, a quibble as to the spelling of his name, the few available copies of his work, the criticism (since refuted) that it contained little new, and the doubling of names have combined to obscure Brickell's status.

2. Dr. and Gen. Thomas Walker, A.B., 1715-94, born and lived in Virginia. He is the first recognized explorer of Kentucky (1750), preceding Daniel Boone by 19 years. He began as a physician, and (from his attendance on Jefferson's father) is presumed to have kept it up somewhat. He however also became a surveyor, married a rich widow in 1741, came into control of the fine property known as Castle Hill, and settled down to the life of an active Virginia gentleman.

In 1748 he "made an expedition through southwestern Virginia" and into East Tennessee. Then, as representative and surveyor of the Loyal Land Co. (whose agent he continued to be up to the Revolution), he started in March, 1750 on his famous trip lasting four months. The notes of this were published in full in 1898 by the Filson* Club of Louisville, under the title, "First Exploration of Kentucky.—Doctor Thomas Walker's Journal of an Exploration of Kentuckey in 1750." He entered by the Cumberland Gap, and traversed the "eastern part of what is now Kentucky." "Walker named the principal features of the country."

He was on other trips, commissions to the Indians, etc.; commissary general under Washington at Braddock's defeat in 1755; head of a commission that in 1779 ran the boundary line between Virginia and North Carolina 500 miles further west, "known as Walker's Line"; member of the House of Burgesses; guardian of Thomas Jefferson, patron of Joseph Martin who in 1769 started a settlement near Cumberland Gap; and is thought to have deeply influenced both Jefferson and Clark (the latter of the Lewis and Clark expedition). Walker was one of three who in 1778 gave the 120 acres for establishing the town of Abingdon, Va.

Besides other distinguished descendants, one son, Col. John Walker, for a brief period in 1790, was United States Senator from Virginia, and his 11th child, Hon. Francis Walker, was a Virginia Member of Congress (1793-95).

3. Jonathan Carver, 1732-80, born Connecticut. "Studied medicine."† Was captain in five campaigns of the French and Indian War (1757-63). Then "he undertook to explore the vast territory claimed by Great Britain in North America," and to find, as he says, "a North-West Passage, or a communication betwen Hudson's Bay and the Pacific Ocean."

He left Boston in 1766, reached Mackinaw, the remotest English post, and went on beyond the Mississippi. In 1767 he explored the north shores of Lake Superior. He visited twelve Indian tribes, lived as a native, and learned their language. He returned to Boston in 1768, having spent two years and five months, and traveled 7000 miles. Failing in Boston to secure a publisher, he went to England in 1769, and finally died destitute in London. He had arranged for a later expedition, but was estopped by the Revolution.

Carver had in no ordinary degree the personal equipment of an explorer. But promised supplies failed him, the country was poor and in political unrest, and possibly as the son of a British official he was pro-English. His dream of thus reaching the Pacific had to wait until the Lewis and Clark expedition of 1804-06.

He published two works, "Travels Through the Interior Parts of North America in the Years 1766, 1767, and 1768" (London, 1778), and "Treatise on the Culture of the Tobacco Plant" (1779). His "Travels" went through various editions in England and America, and was translated into French and German. "Carver's volume is still one of the most popular books of early western travel." Dr. Lettsom wrote his life in the 1784 issue, and aided his English wife and two children (he also had a wife and five children in America). Carver town and county and a cave and river in Minnesota are named for him. Carver Centenary in 1867 was celebrated by the Minnesota Historical Society. The query has been raised if, as the "good brother Jonathan" in an Indian treaty of 1767, he was not the original of our national sobriquet. His "description of the funeral of a 'brave' suggested Schiller's song, 'Nadowessische* Todtenklage" (1797-98). He proposed a system of internal waterways much as later realized.

Carver is our one early authority on Minnesota and the sources and upper basin of the Mississippi River. Much of this regoin was not traversed again by an explorer until Long's second trip in 1823.†

See "A Biography of Carver's Travels," by John T. Lee. *Procd. State Historical Society of Wisconsin*, 1909 (1910); also 1913.

4. Seth Reed, typical pioneer, born Rhode Island in 1744. First practised at Uxbridge, Mass. Was a colonel in the Revolution. In 1790 he went "to Ontario County, New York, where he acquired from the Indians a very valuable tract of land 18 miles in extent, known as the Reed & Ryckman location." In 1795 he disposed of that holding, went further west, and was the first white settler in Erie, Pa., where he ran a hostelry for newcomers, and died in 1797. v. Notice in Sanford's "History of Erie Co." 1862.

5. Dr. John McLoughlin, 1784-1857, born Canada. Was with the North-West Fur Co. as postsurgeon, and subsequently Governor of the Territory. Later he went across to the Pacific, and founded Ft. Vancouver and Oregon City, and is called the "Father of Oregon."

6. Dr. James Eights, 1796-1882, naturalist to the U. S. "Exploring Expedition of 1830;" artist, geol-

*Named for John Filson (1747-88), "the first medical man whose name is associated with the early history of Cincinnati," an explorer and medical student who was lost as his party began the settlement of that town.

†That Carver kept up his medical affiliations is indicated by his relation to Dr. Lettsom.

*Naudowesies (variously spelled), a name used at that time for certain Indians near the Mississippi. Schiller's title can best be rendered, "Nadowessian lament for the dead."

†Keating's "Narrative of an Expedition . . . in 1823," Philadelphia, 1824, I, 270 et seq.

ogist, also Indian explorer, but never in active practice. Born Albany N. Y., son of Jonathan Eights, M. D. See "The Reincarnation of James Eights, Antarctic Explorer," by Dr. John M. Clarke, in *Scientific Monthly*, 1816, Feb.

7. Edwin James, A. B., M. D., 1797-1862, born Vermont. "The earliest botanical explorer of the Rocky Mountains." Scientist of Long's first Expedition, and wrote the report, "An account of an Expedition from Pittsberg to the Rocky Mts., performed in the years 1819, 1820," under U. S. War Dept. (3 vols., Phila., 1823). He was the first to ascend Pike's Peak (to which Long gave James' name); surgeon U. S. A.; U. S. Indian agent; named the Ozark Mountains; translated the New Testament into Chippewa; prepared "Chippewa first lessons in spelling" (Boston, 1832); and wrote "Narrative of the Captivity and Adventures of John Turner," a U. S. interpreter stolen by the Indians (N. Y., 1830). "Compiled first list of Vermont plants." Obit. in *Annals Albany Co. M. S.*, 1864, I, 345-8.

8. Reynell Coates, M. D., 1802-86, b. Philadelphia, ship surgeon, scientific explorer, author, physiologist, medical cyclopedist, politician. Went to India and the Island of Mauritius, spending 5 months at Calcutta. Appointed scientist to a South Sea expedition that did not materialize. Professor of natural science at Alleghany College. Edited Godman's "Rambles of a Naturalist"; wrote "Reminiscences of a Voyage to India," and a once well-known poem, "The Gambler's Wife." He drafted the address of the Native American party in 1844, and in 1852 he was the nominee of the National American Party for Vice President of the United States.

9. Marcus Whitman, M. D., 1802-47, b. Yates Co., N. Y., practitioner, pioneer, missionary sent out by the American Board, "commissioned to explore Oregon"; self and wife massacred by the Indians. He early (1836) lead a party overland to the Pacific, and "opened the first wagon trail across the continent." By making in 1842-43 a forced ride across the country to Washington he was credited with saving Oregon to us,—though that conclusion is denied by some who term it the Whitman myth. Whitman's figure acquired such proportions and glamour as to be worthy of attack by the historioclasts. To the ordinary judgment, however, the evidence appears good, not only that he played a leading part in that matter of great importance to us as a nation, but that he was practically a martyr to the cause. Whitman College at Walla Walla was founded 1866 in his memory. His statue unveiled on a building at Philadelphia in 1897.

10. Dr. Elijah White,* first practised in N. Y. State, then a Presbyterian medical missionary to Oregon, and United States Indian agent west of the Rockies. He sailed from Boston in 1836; and went overland in 1842. "The first independent emigrating party of men, women and children—120—to that country was led over in 1842 by Elijah White, Indian agent for the government in the northwest. This was the company that informed Dr. Whitman of the negotiations for the Ashburton Treaty, and hastened him on his ride" (v. *Oregon*, by Barrows in "Am. Commonwealths," 1892.)

*This may be the first notice of Dr. White ever published. The Presbyterian Board in New York can "find nothing whatever concerning Dr. Elijah White."

He is best known from the following accounts: (*a*) "A Concise view of Oregon Territory, its Colonial and Indian Relations, compiled from official letters and reports, together with the Organic Laws of the Colony. By Elijah White, late Sub-Indian Agent of Oregon." Washington. T. Barnard, Printer, 1846, pp. 72. (*b*). "Ten Years in Oregon. Travels & Adventures of Dr. E. White & Lady West of the Rocky Mts.; with Incidents of two sea voyages via Sandwich Islands around Cape Horn." By Miss A. J. Allen, 1848, Ithaca, N. Y., pp. 399. (*c*). "Thrilling Adventures, Travels and Explorations of Doctor Elijah White, among the Rocky Mts. and in the Far West. Containing, also, a brief History of the Missions and Settlement of the Country—Origin of the Provisional Government of the Western Territories, Number & Customs of the Indians—Incidents Witnessed While Traversing and Residing in the Territories—Description of the Soil, Production and Climate." Compiled by Miss A. J. Allen. N. Y., 1859, pp. 430.

"Dr. White . . . developed a remarkable aptitude for organization of border communities into regular civic bodies." His early and later home was in Tompkins Co., N. Y., chiefly at Lansingville, alliteratively known in his younger years as Teeter Town.

11. Charles Pickering, M. D., 1805-78, b. Pennsylvania. "Principal zoologist" of the Wilkes' U. S. Exploring Expedition of 1838, and wrote a report. Later a well-known anthropologist and botanist; travelled in Africa and Asia; wrote on the distribution of man, animals and plants. Obituary by Ruschenberger, Proceedings, Phila. Acad. Nat. Sci., 1878.

12. Wm. S. W. Ruschenberger, M. D., 1807-95, b. New Jersey. As a surgeon U. S. N. he cruised extensively, in one trip sailing over 50,000 miles. Wrote "Three Years in the Pacific" (Phila. 1834), "A Voyage Around the World, incl. an Embassy to Muscat & Siam, in 1835, 1836 & 1837" (Phila. 1838, republished in England), "Notes & Commentaries during Voyages to Brazil & China, 1848" (1854), besides many scientific articles. Med. Dir. & Commodore U. S. N. Picture in Kelly's "Am. Med. Biogr." 1912.

13. Douglas Houghton, M. D., 1809-45, b. Troy, N. Y. Botanist and physician to Schoolcraft's U. S. expedition to the headwaters of the Miss. in 1831-32, and made a report; practised at Detroit (1832-37); projected the geological survey of Mich. and was state geologist (1837-?); prof. P. Mich. (1839-?), declining its presidency; explored south shore of Lake Superior; mayor of Detroit (1842-43); lost his life by drowning on a government survey. A town, a county and a lake in North Mich. and a school in Detroit are named for him.

14. Dr. John K. Townsend, 1809-51, b. Philadelphia. Wrote, "Journey Across the Rocky Mts. to the Columbia River" in 1832 (1839). Later to Sandwich Isl. and So. Am. Also ornithologist to Smithsonian Instn.

15. (Frederick) Adolphus Wislizenus, M. D., 1810-89, b. Germany. Political refugee to U. S. in 1835. Stopped in New York City, 1835-37, as "physician, political pamphleteer and poet." Then to Illinois, and by 1840 settled in St. Louis. The record of his expeditions is as follows: "A journey

to the Rocky Mts. in the year 1839. . . . Translated from the German, with a sketch of the author's life, by Fredk. A. Wislizenus, Esq., St. Louis, Missouri Histcl. Society, 1912." "Memoir of a Tour to Northern Mexico," Washington, 1848. At the instance of Senator Benton of Mo. the U. S. printed 5000 copies.

He went to Turkey in 1850, and then to Panama. From 1852 he remained permanently at St. Louis. He was largely actuated by scientific interests. His graduation thesis was on the crania of epileptics. His meterological observations and his collections in botany and mineralogy were prized. With Engelman in 1837 he organized "perhaps the first scientific society west of the Alleghany Mts.," and in 1856 the "Western Acad. of Science" of which he was president in 1858 & 1859.

"Gedichte von A. Wislizenus. Seiner Freunden zum Andenken von seiner Familie." St. Louis, 1890. His obituary in the *Lancet*, 1889, Nov. 2, says: "The 'Romance of Medicine' might well claim (him) as one of its heroes. . . . By all classes he was looked upon as an enthusiastic and large-minded reformer." Portrait and sketch in *Pop. Sci. Mo.*, 1898, vol. 52, 643.

16. James C. Palmer, A. B., M. D., 1811-83, b. Maryland. "In 1836 he sailed around the world." Was then surgeon of Wilkes' U. S. Exploring Expedition (1838-42). Wrote, "The Antarctic Mariner's Song." Surg. Gen. U. S. N.

17. Geo. L. Ditson, M.D., 1812-!, b. Massachusetts. Travelled in Europe, Asia and Africa (crossing the Caucasus Mts.), and wrote extensively thereon, later U. S. consul in Cuba; prof. of English at a college in Santo Domingo; never in active practice.

18. Charles W(ilkins) Webber, 1819-56, b. South Kentucky, son of Dr. Augustus Webber, studied medicine, then theology; and became a typical rover; author, Texas ranger, explorer, adventurer, journalist, editor of *Whig Review* in New York; killed in Walker's Nicaragua raid. Our S. W. was then new, and he used it for many frontier tales: "Historical & revolutionary incidents of the early settlers of the U. S., with biographical sketches of the lives of Allen, Boone, Kenton and other pioneer," pp. 416. "Old Hicks,the Guide; or Adventures in the Camanche Country in Search of a Gold Mine." 1848, pp. 356. "The Gold Mines of the Gila. A Sequel to Old Hicks, the Guide." 1849. "The Hunter-Naturalist. Romance of Sporting; or Wild Scenes and Wild Hunters." 1851, pp. 610. "Romance of Forest and Prairie Life, &c." pp. 228. "Tales of the Southern Border." 1853, pp. 400. "Wild Scenes and Song Birds." 1854, pp. 347. "'Sam;' or, the History of Mystery." 1855, pp. 550.

19. Elisha Kent Kane, M. D., 1820-57, b. Pennsylvania. Surgeon U. S. N., scientist, traveller, multimedallist; "surgeon to the first American embassy to China," explorer of the Philippines, "the first who descended the crater of Tael," traversed India, Egypt, West Africa, Mexico, etc. Senior surgeon of the first and leader of the second Grinnell Arctic expeditions. Wrote "The U. S. Grinnell Expedition." 1850-51 (1854), "Personal Narratives" (1852), and "The Second Grinnell Expetdition" 1853-55 (1856). Basin, Cape, Sea and Channel in the Arctic named for him.

Of all our past explorers, medical or other, Kane —though now dead over 60 years—still has a leading place in popular fancy He, in a way, appears to have been like Carver enmeshed in the joyism of our neo-psychologists. Biography by Dr. Wm. Elder, Philadelphia. 1858. Sketch and picture in Simpson's "Eminent Philadelphians," 1859.

20. Chas. C. Parry, A. B., M. D., 1823-90, b. England, educated here; botanist and explorer; made many trips discovering and collecting new plants in the Rockies and the whole far west. A peak in Colorado named for him. Sketch and portrait in Kelly's "Some American Medical Botanists." 1814.

21. William Walker, 1824-60, b. Nashville, s. of a Scotch banker; had a college course. First took up law. Next "studied medicine in Edinburgh, Paris and Heidelberg."* Became editor of the "San Francisco Herald." Then started on his career as the star ace of all our filibusters; appears to have been actuated in part by a desire to extend American influence; even winked at by our Government; though captured a couple of times by our officials, he was never really restrained.

In 1853 he fitted out a military colony for Lower California, nominally seized a region, and proclaimed himself its President. In 1855 he headed an expedition to Nicaragua, of which country he promptly became Secretary of War and Commander in Chief and had himself chosen President. In 1857 he was on another sortie there, and then in one to Honduras. In August, 1860, again to Honduras, captured, tried and shot.

He wrote, "The War in Nicaragua" (Mobile, 1860). His pictures make him resemble a modern professional man far more than an ideal buccaneer.

22. John L. LeConte, A.M., M.D., 1825-83, b. New York. Scientific explorer; trip as naturalist to Lake Superior and the upper Mississippi in 1844; to Rocky Mountains in 1845; explored Colorado River; collected fauna in Central America (twice), Africa, and Europe; Medical Inspector, U. S. A.; at one time our leading insectologist; president of A.A.A.S. and of Am. Entomological Soc. Bequeathed his entomological collections to Harvard. G. s. & g. g. s. of physicians.

23. Gustav Bruehl, M.D., 1826-1903, born in Germany, practised from 1848 at Cincinnati. "He spent many years in Central America, investigating the remnants of prehistoric races." Wrote "Die Kulturvoelker Altamerikas," "Zwischen Alaska & dem Feuerlande," and five books of poetry; also edited the "German Pioneer" (1869-71).

24. F. V. Hayden, M.D., LL.D., 1829-87, born in Massachusetts. Famous as the great developer of the U. S. Geologic & Geographic Survey of the Territories. Began in 1853 by exploring the "Bad Lands" of Dakotah, and again in 1854-56; geologist in 1859 to Warren's. Dakotah expedition and on a Yellowstone trip; surgeon in the Civil War, reaching the grade of physician-in-chief; professor University of Pennsylvania (1865-72); resumed Western work in 1865; from 1867 to '72 in survey of Ne-

*Although not noted in accessible sketches, it is evident that he was the William Walker of Tennessee, who in 1843 took his M.D. at the University of Pennsylvania. His graduating essay was on "The Iris," and, apparently a coincidence, he was later called "The gray-eyed man of destiny"!

braska, Dakotah, Wyoming, Montana and Colorado. From 1879 to 1886 "geologist in charge of the Montana division." Made many reports, including the first eight of the Survey. Also wrote "The Great West, Its Attractions and Resources," 1880; "North America," 1883. The Yellowstone as a national park is largely credited to him. He probably did more exploring, and was of more profit to our race, than any other one in this list, unless Dr. Robert Bell. I have been told that he was more of a politician than even scientist; at any rate, his wonderful success depended much on his ability to secure necessary Congressional appropriations. For sketch of his work, see *Sci. American*, 1888, Jan. 7.

25. George Suckley, M.D., 1830-69, born in New York City. Colonel and medical director, U. S. A., surgeon and naturalist of General Stevens' expedition to the Pacific (1853-4); wrote "Natural History of Washington and Oregon"; learned Indian languages; returned by way of Asia and Europe; in 1859 went to Utah and Pacific. Published a work on the Salmonidae. Son of John Lang Suckley, A.B., M.D.

26. Isaac I. Hayes, M. D., 1832-81, born in Pennsylvania. Surgeon to Kane's 1853-55 arctic party; then head of the 1860-61 expedition; again to Greenland in the *Panther* in 1869; gold medallist of London and Paris societies; surgeon in the Civil War; legislator (N. Y.). Author: "The Open Polar Sea" (1867); "The Land of Desolation," "Cast Away in the Cold," and Observations of 1860-61 (Washington, 1867). Also wrote on food values at low temperatures (1859). Sound, peninsula and cape in the Arctic named for him. Obit. in *Phila. M. & S. Reporter*, 1881, XLV, 740.

27. James A. Henschall, M.D. (1836-,) born in Maryland, son of a physician. Sportsman, scientist, superintendent U. S. Fisheries station, president of science and sports societies, writer on fish, fishing, and pisciculture, "Camping and Cruising in Florida" (1884 and 1888). Sketch in "Who's Who in America."

28. Robert Bell, M.D., C.E., F.R.S., etc., (1841-,) born in Canada. Chief of the Canadian Geological Survey; professor of chemistry, Queens University (1863-67); scientist of the 1884 *Neptune*, and 1885 *Alert* expeditions to Hudson Bay, and 1897 *Diana* to Baffinland; made vast surveys in British America and wrote innumerable reports; Bell River (a branch of the Nottoway) named for him. President of International Congress of Americanists (1906); gold medallist.

Dr. Bell appears to have accomplished more traveling, surveying, and describing of the wild northern part of this continent than any other person of record. For comparison we involuntarily think back to the somewhat similarly incisive work done by Hayden for this country.

29. Dr. Emil Bessels, 1847-88, a familiar name at one time, born in Germany. "Studied medicine and natural history"; accompanied Petermann's 1869 Arctic trip; chief scientist to Hall's *Polaris* expedition of 1870-73, and edited its scientific report; also in Dorst's and in Weyprecht's parties; secretary at the Smithsonian. Obit. in *Lancet*, 1888, I, 804; also by Dall, Trs. Phil. Soc., Washington, 1892.

30. James M. M. Ambler, A.B., M.D., 1849-81, lost on the *Jeannette* expedition of 1879-81; thought to have been the last survivor of the party that died "of starvation." "In the history of Arctic research there has been only one ship that was free from scurvy, this was the *Jeannette*," said Commander Melville, in tribute to Ambler. He was born in Virginia, the son of Richard Cary Ambler, M.D. Memoir in *Md. M. J.*, 1882-83, IX, 495-97. Picture and genealogy in du Bellet's "Prominent Virginia Families," 1907, I, 134 et seq.

31. Theophilus M. Prudden, M.D., LL.D. (1849-), born in Connecticut. Professor pathology P. & S., ethnologic popularizer. His writings include: "A Summer Among Cliff Dwellings," "An Elder Brother of the Cliff Dwellers," and "Under the Spell of the Grand Cañon" (1896); "On the Great American Plateau" (N. Y., 1906); "The Circular Kivas of Small Ruins in the San Juan Watershed" (*Am. Anthropologist*, 1914). The objects collected he has donated to the American Museum of Natural History.

32. A. Donaldson Smith, A.B., M.D., 1864-, born in Philadelphia. African explorer (largely under English patronage); medallist; author of "Through Unknown African Countries."

33. Edward E. Vincent, M.D., (1865-,) born in Ohio, son of John H. Vincent, M.D. Surgeon general, Illinois; surgeon Peary Arctic party of 1893-95; lecturer on ethnography. See Stone's "Eminent American Physicians and Surgeons," 1898.

34. Frederick A. Cook, M.D. (1865-,) born in New York, son of Dr. T. A. Koch. Arctic, Antarctic and Alaskan explorer, medallist, writer, lecturer.

35. Wilfred T. Grenfell, M.D., LL.D. (1865-,), the Labrador medical missionary, born in England, but much affiliated with this country.

Of many other worthy if less spectacular names from "Who's Who in Wanderland," a few may be mentioned, such as Henry W. Baxley, M.D. (1803-76), who wrote "What I Saw on the West Coast of North and South America and on the Hawaiian Islands"; Chas. Robinson, M.D. (1818-94), born in Massachusetts, first Governor of Kansas, whose centenary has just been celebrated; Adolphus L. Heerman, M.D. (1818-65), ornithologist on Pacific Railroad surveys; James V. Blaney, M.D. (1820-74), who in 1846 organized a successful mineral exploration of the south shore of Lake Superior, later president of Rush Med. College; Chas. S. Bruckner, M.D., 1821-99, of Baltimore, who practised in Africa and later was in the first party to enter the Yosemite; Samuel S. Woodhouse, M.D. (1821-1904), on Creek, Zuni, and Panama expeditions; Wm. L. Howard, M.D. (1860-1918), Arctic surgeon, author and medallist; W. Hunter Workman, A.M., M.D. (1847-,), born in Massachusetts, explorer, especially of Asiatic mountains and glaciers; and David Walker, M.D. (1838-1917), "last surviving member of the McClintock expedition" of 1857, writer, lecturer, naturalist, and surgeon, U. S. A., born in Irleand, died in Oregon.

Recent men, especially those who have come up in the present century, as Dr. Goodsell, with Peary in 1908-09, and head of one of his parties; the surgeons of the Roosevelt and the Bingham-Peru outfits, and Dr. Harrison J. Hunt of the McMillin 1913-17 Arctic expedition, may merit more specific mention in any future account.

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IPECACUANHA AND EMETINE IN THERAPEUTICS.*

By E. W. KOCH, M.D.,

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THE term ipecacuanha is derived from the language of the South American Indians, and implies vomiting root. Originally it was applied to a number of emetic roots, and for many years the botanical source of the variety, used with so much success in dysentery, was in dispute. Though the description given by Piso and Marcgraaf to one of two plants, believed by them to possess such virtues, fits in a general way the plant now recognized, it was not until 1800 that the matter was definitely settled. In that year a Dr. Gomez of Portugal, returning from Brazil, brought the first authentic specimens to Lisbon, and to him is accorded the honor of being the first to accurately describe the genuine plant. At the present time, the United States Pharmacopœia recognizes the varieties *Cephaelis ipecacuanha*, native to Brazil, and *Cephaelis acuminta*, indigenous to Colombia. There is little or no difference in medicinal qualities between these two forms, both yielding, on an average, 2.17 per cent of total alkaloids.[1] No drug has had a more interesting past, and the recognition it has won in the present assures it a future full of the promise of establishing itself as one of our most important remedial agents. In view of these facts, the following remarks seem justified.

Ipecacuanha has been used in medicine since earliest times.[2] It was being used as an emetic and as a remedy for bowel affections by the Indians of Brazil when that country was first settled by the Portuguese in 1500. Piso and Marcgraaf learned of it in their scientific exploration, and the account of its uses, together with a description of two varieties of a plant which they believed to be its source, appearing in their Natural History of Brazil, published in Amsterdam in 1648, is probably the first direct reference to it in the literature. In spite of the attention called to its virtues by these men, the drug was little used by Europeans until many years later. Le Gras, returning from Brazil in 1672, took some of the drug to Paris, but his attempt to establish its usefulness failed too, the large doses recommended damaging rather than aiding its reputation. A third attempt to introduce it into European medicine was made in 1686, the venture succeeding, and the drug gaining a foothold in spite of much opposition. In this year, a druggist of Paris named Garnier received a shipment of one hundred and fifty pounds of the drug. Having learned of its usefulness in dysentery, he gave some to his physician, Afforty, who, however, paid no attention to the claims made for it by Garnier. Jean Helvetius, a pupil of Afforty, was then appealed to, and, heeding Garnier's wishes, prescribed the drug in some dysentery cases. Meeting with the utmost success, Helvetius became very enthusiastic over this find, and forthwith advertised his successful treatment of dysentery with the new drug, which he sold as a secret remedy. The cures effected by him attracted much attention, and Louis XIV, hearing of them, ordered tests to be made of the remedy to verify the great claims made for it. Happily, these proved successful, and the King rewarded Helvetius by granting him the sole right of vending the new remedy. Some time later several of the court, including the Dauphin, were stricken with dysentery, and naturally Helvetius was called to attend them. Fortune again smiled on him, for the disease responded to his treatment, and his distinguished patients were made well. Louis XIV, thereupon, gave Helvetius 1000 louis d'or and accorded him the highest public honors, on the sole condition the remedy be made known to the world. Its reputation thus becoming established, it was much used, and proved, according to the early writers, of great service in the armies and hospitals. It was used in the form of a decoction in one to two dram doses, or as a powder in amounts ranging from thirty to sixty grains. Besides its use in dysentery and other bowel affections, it was employed for its emetic action, and in smaller doses for its nauseating, diaphoretic and expectorant effects. Its remedial qualities were believed to be due to resins and gums. For more than one hundred years following its successful introduction by Helvetius, the enthusiasm manifested for it at first having waned, no further progress was made, and the state of the knowledge concerning the drug and the disease remained practically stationary.

In 1817, one hundred and thirty-one years after the drug's introduction into European medicine, Pierre Joseph Pelletier isolated a substance from ipecacuanha which he termed emetine, Magendie's tests on dogs and man having shown it to have emetic properties. This same year marks the isolation of morphine, quinine, strychnine, and veratrine, and the greater interest taken in these, doubtless explains why emetine failed to receive the recognition due it. It was not until 1829 that we hear of it again, the medical profession's attention then being called to its value in dystentery, chronic diarrhœa and chronic pulmonary catarrh by Dr. James Bardsley of Manchester. Following this introduction of its empirical use in dysentery, many years were to pass before emetine was to come into general use. While its virtues were lauded by some, its uselessness in dysentery was emphasized by others. As a result we find most workers, until comparatively few years ago, continuing to prefer the whole drug.

Because of its apparent value in dysentery, Paul and Cownley,[3] in 1893, set about to remove from the whole drug the principle emetine, which Magendie had shown to be an emetic, believing the ipecac sine emetine might prove more efficient because the necessary large doses could be given without the danger of inducing nausea and vomiting effects, which too often made the oral use of the drug impossible. Their work resulted in the discovery that the emetine of Pelletier, until then considered a distinct substance, was in reality a mixture of several alkaloids, the principal ones being cephaeline and emetine. In the meantime, progress was also being made concerning the etiology of dysentery, for in the early nineties a dysentery of amœbic origin came to be considered a distinct disease.[4]

The years subsequent to the days of Helvetius have seen the ipecac treatment pass through periods during which it was alternately lauded as a specific

*Read before the University of Buffalo Alumni Association, June 5, 1918.

and condemned as useless in dysentery. Men of recognized standing favored, while men of equal rank opposed its use. Such was the state of affairs in 1910, when Vedder[5] undertook to determine the reason for this divergence of opinion. Testing several preparations of ipecac on various bacteria and on non-pathogenic amœbæ, pathogenic amœbæ not being cultivable as yet, he demonstrated, for the first time, by laboratory experiments, their inhibiting influence on the growth of the bacteria and their destructive action on the amœbæ. A de-emetized preparation of ipecac was found to be inactive, while emetine proved to be more powerful as an amœbicide than any of the preparations of the whole drug. His findings indicate the inconsistencies of the past to be due, in part at least, to the use of drugs variable in strength and their employment in all forms of dysentery regardless of the cause.

The introduction of the drug into the body, up to this time, was possible only through its oral or rectal administration. In spite of all measures tried to overcome them, the irritating effects too often made its use by these methods impossible. On this account, after extending Vedder's observations by proving the amœbicidal effects of emetine on the *Endamœba histolytica*, isolated from dysenteric stools, Leonard Rogers,[6] in 1912, decided to try giving the hydrochloride of emetine hypodermically, believing, if this method proved practicable, the greatest drawback to the use of the drug would be overcome. His tests proved in a striking way the possibility, and to him belongs the credit of successfully introducing the hypodermatic use of the soluble salt of emetine into medicine. He also proved it could be given intravenously and gave one grain of the salt without any bad results. The dangers of this method have, of course, kept it from coming into general use, but the observation is interesting from the standpoint of what it teaches regarding the drug's toxicity. In passing, it might be well to note, in 1913, Walker and Sellard's success in experimentally producing endamœbic dysentery in man, and thus conclusively establishing the pathogenicity of the endamœba histolytica.

The year 1914 proved another eventful one in the history of ipecac and its alkaloids. Barrett and Smith[8], having found endamœbæ constantly present in the pus pockets of a series of pyorrhea alveolaris cases, and believing them of etiological importance, introduced the local use of emetine hydrochloride for its amœbicidal effects, and while it was impossible for them to prove the pathogenicity of the endamœba absolutely according to the rules of Koch, they believed in this indirect way to have secured positive evidence for their contention. Some months later Bass and Johns[9] confirmed the original findings, and also believing in the pathogenicity of the endamœba, used emetine hydrochloride hypodermically with the greatest of success. They also tried giving a new preparation of ipecac (alcresta ipecac) by mouth, and the results obtained testify to the efficiency of this method. When it is remembered that up to this time it was practically impossible to give ipecac by mouth without inducing nausea and vomiting, the value and possibilities of this new method become apparent. Bass and Johns in their enthusiasm considered the *Endamœba buccalis* the sole exciting cause, while Barrett and Smith, more conservative in their views, recognized spirochetal and bacterial pyorrheas, besides the endamebic type. Other workers,[10] however, held opposite views, believing the endamœba not only harmless, but even of benefit to the host. The attention of dental and medical workers everywhere came to be focused on the subject, and the literature for months contained many comments, some favorable and others critical of the findings and conclusions of the original workers. As yet the problem has not been definitely settled. That ipecac and emetine have been of undoubted value in the treatment of many cases of pyorrhea alveolaris cannot be denied, while their failure to be of help in other cases must be admitted. Those favoring the ipecac treatment do not claim it alone will cure the disease, but consider it a valuable adjunct to the local dental instrumentation the two together constituting a rational treatment in the light of our present knowledge. Those opposing it point to the failures as positive proof that an amœbicide is contraindicated in all cases, ignoring or denying the many authentic cases of success reported. These apparent inconsistencies will, no doubt, in time be explained, and the usefulness of ipecac and its alkaloids definitely established.

The status of ipecac therapy has changed very little during the last two years. We find, therefore, the rational employment of ipecac and emetine continues to be almost entirely for the amœbicidal effect, though each also enjoys a deserved reputation as an expectorant. The beneficial effects reported following this treatment in non-amœbic conditions remain inexplicable, but suggest a possible broader scope of usefulness than the drug enjoys at this time. Our knowledge concerning its pharmacology has, however, been advanced, and though it is far from complete, it has not only given us a better understanding of the proper use of the drug, but has also suggested a new theory regarding its mode of action in the body.

Ipecac owes its activity to three alkaloids which in the inverse order of their importance are psychotrine, cephaeline, and emetine. All produce pharmacological effects that are similar in kind but different in degree. Psychotrine is present in traces only, and though it has a very low toxicity, its relatively poor amebicidal property renders it unimportant from a therapeutic standpoint. Emetine is present in the largest amount, and by virtue of its lower toxicity and greater amebicidal powers is preferred to cephaeline. Following its extensive employment in endamebic infections in recent times, there have appebared, especially during the last two years, quite a few reports[11] regarding its great toxicity. A consideration of the toxic action of the drug is therefore desirable.

The value of any effective drug is first of all determined by the difference between the dose necessary to produce the desired action and the toxic dose. Clinical trials have shown that the hypodermic use of one-half to one grain of emetine hydrochloride daily, for at most from six to about ten days, suffices to destroy all active endamœbas in most cases. In this dosage, unless the patient is unusually susceptible, the drug gives rise to untoward effects. A single course of treatment of longer duration is entirely uncalled for and should not be undertaken.

The minimal lethal dose of emetine for man is not definitely known, no authentic case of fatal poisoning from a single dose having been recorded. A few fatalities as a result of the continued use of the drug have, however, occurred. Dr. A. L. Walter[1] basing his figures on one such report and animal experiments, estimates the probable single lethal dose for a man of seventy kilograms to be not less than 10.8 grains, while Dalimier[12] concludes from animal experiments that the toxic dose for a man of 54.5+ kilograms is about 27 grains, whether it be given in a short period or during several weeks. Compared with the fatal quantity of some of the other commonly used active alkaloids, the toxic dose of emetine is surely a very large one. While large doses are rarely used, and probably never indicated, it is interesting to know Allan's[13] patient, aside from becoming nauseated and vomiting once, suffered no other ill effects from a single injection of 4 grains of emetine hydrochloride.

In animals, the too long-continued use of small doses of emetine hydrochloride produce effects which suggest a cumulative action.[1] In man the prolonged use of therapeutic doses of the drug produces a like action, and constitutes the real source of danger in its employment. Many clinical reports indicate, however, that this action is of such a nature as to permit of complete recovery if the danger signals—beginning depression, intensified diarrhea, neuritis, etc.—be heeded and the use of the drug discontinued. For instance, among the cases reported by Murphy and Johnson,[14] is one who received twenty-two grains in as many days. Toxic symptoms were manifested but complete recovery followed the discontinuance of the treatment. And Lyons[15] tells of a physician who took twenty-one and one-third grains in sixteen days. General muscular weakness and pains in the legs developed, but these effects were gradually recovered from, when the use of the drug was stopped.

The many thousands of cases in which emetine has been used without ill effects, and the comparatively few fatalities that have been recorded, prove the drug not to be so dangerously toxic as some would have us believe. The difference between the usually recommended dose of one-half to one grain of emetine hydrochloride daily for six or eight days, and the toxic dose, which is probably not less than one grain a day for about twenty-two days, assures a margin of safety permitting the use of the drug, as recommended, in average beings, without any great risk.

One other development must be mentioned. Until quite recently it was generally believed ipecac and emetine produced their good effects in endamebic infections by a direct action on the endamœbæ. Dale and Dobell,[16] however, in a recent report, bring forward evidence which seems to disprove such a theory, and leads them to suggest "the therapeutic efficacy of emetine is a result of its action upon the host rather than upon the parasite." These findings, while probably undermining the theory of the drug's mode of action suggested by Vedder's original work, do not, in the least, detract from the value of the manifestations of the action of the drug, established by the success attending its empirical use in former years, and its rational employment in more recent times.

Remarks.—Ipecac and emetine are efficient drugs and their employment is rational in all endamebic infections.

Emetine, when used as recommended, appears to be as safe as any other effective and potent drug.

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24 High Street.

AN EFFECTIVE TREATMENT OF LOBAR AND BRONCHIAL PNEUMONIA, ALSO OF INFLUENZA AND ITS COMPLICATING PNEUMONIAS.

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It is not the purpose of this article to discuss in detail the causes, symptoms, and complications of the various types of pneumonia. It is conceded, however, that the disease is of bacterial origin, in most cases the generally accepted organism causing the disease being the *Diplococcus pneumoniæ*, of which four types, called respectively I, II, III, and IV, are recognized. They are not infrequently associated with other microorganisms, especially streptococci, staphylococci, the bacteria of influenza, and sometimes the bacillus of Friedlander. The gravity of the cases depends upon which one of the above pneumonic types is present, and whether or not it is associated with one of the latter groups. Friedlander's bacillus occurs in about 5 to 10 per cent. of the cases, and almost exclusively in late

adult life; seldom in children. It is very fatal, and the bacillus can be found in the blood in the early stages of the disease. Its demonstration is important as regards prognosis. No type of pneumococcic serum would have any specific influence on this bacillus. At present we will deal only with the two forms of pneumonia, lobar and bronchial, including also those cases complicated by the presence of streptococci, staphylococci, and the influenza bacillus. In bronchopneumonia we have an associated streptococcus infection with which to deal.

Complications other than those resulting from direct infection from the disease should be treated according to recognized methods. Where the pneumonia is the direct cause of the complications, the treatment to be suggested will generally be sufficient. Empyema and meningitis can frequently be treated by aspiration and lumbar puncture respectively and the direct application of the colloid as described below.

In reference to symptoms and diagnosis, it is presumed that the diagnosis of pneumonia, with or without complications, has been made, therefore the symptoms and differential diagnosis will not be considered in this article.

Several methods of treatment are in vogue, the older consisting chiefly of symptomatic treatment, viz., Heart stimulants, general hygiene, dietetics, hydrotherapy, etc. Some of the older methods are still considered useful and applicable. The selection of such means as are necessary to combat special symptoms can be left entirely to the discretion of the physician. Specific treatment, so called, requires more consideration.

At the present time, the generally accepted procedures of specific treatment are along the lines of vaccines (autogenous and stock), pneumococcic serum of the older types, and the newer serums developed along lines dependent on the differentiation of the four bacterial types of pneumococci. Types I and II, where differentiation of the types is possible, and the appropriate serum is obtainable, are reasonably responsive to serum treatment. Serums for types III and IV are recognized as having little or no value. Of the other forms of so-called specific treatment one or two deserve special mention.

The synthetic product, ethylyhdrocuprein, or optochin, is accredited with having specific bactericidal action on the diplococcus of pneumonia; it is open to the objection of sometimes producing toxic effects, though some very favorable reports regarding its value have been made.

The use of the salts of quinine, applied according to the method of Solomon Solis-Cohen, is credited with some desirable results. The use of camphor in oil injections in large doses, according to the Seibert method, is also reported to have given good results.

The pneumococcic vaccines (autogenous or stock), although credited with specific effects, have seemed, in my experience, to be too slow in their action.

The plan of treatment that I would suggest in these cases has, in my own experience, been productive of nearly 100 per cent. cures. I have found it applicable to the usual types of pneumonia, lobar and bronchial, also the type of pneumonia complicating influenza. In streptococcic infection, which is frequently associated with the so-called septic varieties, in which extreme prostration, high temperature, rapid pulse and respiration, delirium, stupor or coma, are present, is almost equally effective. I refer to the metallic colloidal solutions alone, or combined with bacterial derivatives. The use of metallic colloids alone in pneumonia and other infectious diseases is not new. Etienne and others, as long ago as September, 1907 (*Revue Médicale de l'Est*), reported favorably on their action. The use of metallic colloids combined with bacterial derivatives is, I believe, original, and in many instances it seems to be a decided improvement.

A metallic colloid is an ultramicroscopic suspension of positively and negatively charged particles of metals in a state of constant motion (the so-called Brownian movement), and possessing the properties of natural body colloids, of which the blood serum is the most imporant.

In their physicochemical properties they resemble the natural colloids, viz., in their antitoxic and fermentative properties and their effect in producing leucocytosis and thus stimulating body resistance.

The properties of antitoxins, the function of agglutination and digestion, must be regarded as due to the action of colloids. As evidence of their applicability, I would refer to an article by Dr. J. W. Jobling and Dr. William Peterson, entitled "The Non-Specific Factors in the Treatment of Disease," published in the *Jour. Am. Med. Assn.*, June 3, 1916.

The subject of purely chemical substances of an inorganic or metallic nature, so transformed by chemical or electrical means as to resemble in their mode of action, lack of toxicity, and physicochemical properties, substances of a purely organic nature, and to have similar bactericidal, antitoxic, catalytic, and fermentative properties, is apparently not very well understood.

It seems probable that the action and beneficial effects observed from these substances, metallic colloids, and specific antitoxins and vaccines, are based on a similar mechanism in all cases. In view of these facts it would seem possible that the various agents act as stimulants of hematopoiesis, and, as a consequence, the organism is suddenly flooded with antibodies, thereby overcoming the infection.

If this is the mechanism, it is important to keep in mind that the stimulus itself is not a specific factor, but that the hematopoietic system has been attuned to respond to the non-specific stimulus with the production of specific substances.

"It seems probable that the fundamental change on which the majority of the above described biologic reactions are based is one of colloidal dispersion, in that the injections bring about a less dispersed state affecting not only the serum proteins but also the serum lipoids. Such an alternative is sufficient to account for the fluctuations in the ferment and antiferment balance, and in the coagulation mechanism, as well as in the opsonic and complement process of the serum; although it does not at present explain the increased antibody titer." (Jobling and Peterson, *loc. cit.*)

With this as a basis, we can understand that many and diverse substances of a non-specific char-

acter, viz., metallic colloids, might be capable of producing specific antibodus in pneumonia and influenza, and thus make a non-specific treatment capable of producing specific therapeutic results.

It has been my experience, extending over a period of several years, that colloidal silver alone, or colloidal gold combined with bacterial derivatives, is able to combat successfully the progress of pneumonia. The usual method is the intramuscular or the intravenous injection of colloidal silver at intervals of four to twenty-four hours, according to the amount of reaction, accompanied by the internal administration of adrenalin chloride in doses of five to ten minims at intervals of two to four hours, according to the necessities of the case. In cases where the symptoms are not relieved by the following method I have frequently obtained results by combining bacterial derivatives (Schafer) with two to four times the amount of colloidal gold used subcutaneously (not intravenously), and repeated at intervals of twenty-four hours. If used intravenously it must be preceded by a subcutaneous injection and the initial dose must not exceed 1/5 c.c. of the bacterial derivative and the colloid. The rest of the treatment consists of the usual hygienic and dietetic measures and of treating the complications as they arise, according to the indication present. Expectorants and heart stimulants are to be given, if found necessary. Essence of pepsin, combined with guaiacol and syrup of ammonium hypophosphite, seems to be of some benefit as expectorants and in diminishing the gastrointestinal disturbancess so frequently encountered.

Conclusions.—In view of the fact that pneumonia is the result of a pneumococcus or combined infection, and that differentiation not only of the various pneumococcic types but also of the associated organisms, is necessary, and that such differentiation is not always possible; and further, that the appropriate serum may not be obtainable after the differentiation is made, it would appear reasonable to make use of chemical substances, nonspecific in nature, which are capable of producing clinically specific results. The metallic colloids are some of several substances capable of producing this specific therapeutic reaction, and they possess the great advantage of being of themselves absolutely nontoxic. Furthermore, their use does not in any way interfere with subsequent specific serum treatment, and their application does not require previous differentiation of the organisms present.

If investigation of the character of the type of pneumococcus should indicate specific treatment, and the same should be employed as the metallic colloids would still be indicated as having a general appliability to other varieties of infection frequently associated with pneumonia, viz., streptococcic, staphylococcic, and influenzal. Therefore, they are at least deserving of trial while awaiting the determination of the type of pneumococcus and its associated infectious organisms, if any be present.

The fact that they are at the disposal of any practising physician, and do not require an elaborate technique for their administration or special after care of the patient, even though the treatment is not a strictly specific one, speaks strongly in favor of their employment.

The use of metallic colloids is not suggested as a substitute for Type I serum when differentiation is possible, but as a treatment having real value, as demonstrated by experience when specific treatment is not available or is inapplicable. It has the further advantage of producing an almost equal effect on other organisms occasionally present, viz., the influenza bacillus, streptococci, etc.

The frequent repetition of colloids adds much to their efficiency, and the use of water in large quantities proves a valuable addition in the treatment of the toxemia. An aid to the practicability of frequently repeated treatment is the use of water holding the metallic colloids in suspension, which may be taken in the absence of the physician.

2173 Broadway.

A METHOD OF HEALTH CONSERVATION.

By GUSTAV F. BOEHME, JR., M.D.

PSYCHIATRIST, EDUCATIONAL CLINIC, COLLEGE OF THE CITY OF NEW YORK; NEUROLOGIST, WEST SIDE GERMAN DISPENSARY; ASSISTANT, NEW YORK NEUROLOGICAL INSTITUTE; FORMERLY MEDICAL EXAMINER, METROPOLITAN LIFE INSURANCE CO.; MEDICAL EXAMINER, AMERICAN TEMPERANCE LIFE INSURANCE CO.; POLICE SURGEON, CITY OF NEW YORK.

THE physical condition of the average young American has always been of interest to the educator and the public hygienist. The various boards of health have pointed with pride to their lowering death rates, especially if the figures in the infantile death rate column became less and less per thousand. All of this has, however, had to do chiefly with "mortality"; the question of "morbidity" is a somewhat different problem, and only careful school examinations have to some extent helped reduce conditions that mean ill health and lack of efficiency on the part of the growing up man or woman.

The recent draft examinations have shown, however, that all past methods of preventive medicine have not been as effectual as had been supposed, for the percentage of rejections and the number of men fitted only for limited military service was surprising. It would seem, therefore, that more careful methods of physical examinations, of recording data, and of repeated reexaminations of children and adolescents are called for. Already various means are being devised to prevent further physical "unfitness" on the part of the future American citizenry.

It is the purpose of this article to suggest one other method, one which the author has considered of tremendous importance for at least a period of three years before the entrance of the United States into the war, but which, there being apparently no necessity therefor, had repeatedly been rejected by those to whom his plan was suggested.

Some of the larger insurance companies in this country (to wit: the Metropolitan Life, the Prudential, and the Hancock companies) insure children from one year upward; they also insure for larger policies adolescents between eighteen and twenty-one years. Besides this they have a system of industrial insurance, a system by which individuals who are limited in means can insure for sums as low as five cents weekly. In this way they reach the poorest class of patients, those who, if ill, utilize our clinics and our hospitals to the maximum extent.

It is the office of the insurance examiner to ex-

amine apparently normal individuals, and decide not alone their state of health at the time of the examination but also their prospective likelihood of good health and life throughout the duration of the policy applied for. He decides these facts by careful observations and a knowledge of mortality statistics as related to each condition discovered. Of all phases of medicine his is unique in that he must primarily know what constitutes *good health*, and separate it from disease conditions (the primary problem of the practicing physician).

After he has completed his examination he forwards his report to the executive medical board of his company, and that, guided by definite actuarial tables, decides for or against the risk.

All this is done in secret, and the applicant rarely if ever knows why he has been rejected; in fact, frequently becomes incensed, believing himself to be in good health, against all forms of insurance. The examiner may find an inherent cardiac condition, a potential interstitial nephritis, even a tuberculosis. The applicant only knows "I was rejected."

The flaw in this scheme has seemed to the writer to be that here are potential invalids, so markedly so that the insurance company cannot take the risk of granting them insurance. They are given no guidance; no suggestion is made to them of how to regain health or to live so as to conserve their impaired constitutions.

Destructive criticism, however, is of little help. Constructive criticism may be valuable. The writer would suggest a scheme whereby the health of all would-be insurees could be conserved, and whereby, as insurancy begins at one year, a great deal may be done to prevent the lamentable showing in our first draft of physical unfitness. He would advocate:

1. That a central health conservation board, under the auspices of the State Board of Health or the State Superintendent of Insurance, be established.
2. That to this board every rejection on the part of insurance companies be reported, with a complete record of all the data.
3. That every rejected individual receive from this board a card giving him the reason for his rejection, with the advice that he consult his physician or the nearest hospital or clinic. To this card should be attached a second one for a reply from that physician or the hospital consulted, which it shall be statutory that that physician or institution return to the Health Conservation Board.
4. That a yearly follow-up card be mailed to each reject for a report of his status at this time.

As an experiment it might be interesting to go over the rejection lists of the large companies to discover how many cases of tuberculosis diagnosed by their medical examiners have been reported to the health boards. The secrecy of their system, to date, has kept them safe from observation, and yet the State Tuberculosis Report Law does not exempt them from this duty, for the law distinctly states "all cases of tuberculosis must be reported by the examining physician" (and he, in the insurance field, is acting only as an agent for his medical board). The author himself has in four years' examinations, disobeying the law of the insurance company, sent at least twenty-five tuberculous patients to clinics where they have been properly attended.

Pre-tabetic conditions, incipient nephritis, suspected tuberculosis, myocarditis, slight endocardial conditions are discovered in the adult—to be neglected unless these individuals are guided aright.

In children, the deformities of rickets, the signs of spasmophilia, the enlarged tuberculous glands, the oral defects are glossed over by a rejection. It should be the duty, the lawful duty, of the insurance organizations to guide these children. It is interesting, it is valuable, it is proper that books of child hygiene be distributed by them to the insuree; they are healthy at the time of the examination, and it is "good business" to protect these well members of the insurance family. Much greater is the call to help these poor, usually almost poverty-stricken, children whom the examiner has rejected to regain a sound body.

220 Audubon Avenue.

Medicolegal Notes.

Selling Morphine Without Prescription—Effect of Opium on Witness.—Appeal was made from a conviction of selling morphine without a physician's prescription. Evidence was admitted on the trial of various alleged illegal sales of morphine by the appellant to four persons other than the prosecuting witness. Offered evidence of a medical expert was refused, this evidence being offered to show the effect of morphine upon the mental condition of a person addicted to its use, as was the prosecuting witness at the time of her purchase of the drug from the appellant and her arrest. Instructions were refused which directed the jury to view with caution and suspicion the testimony of prostitutes and drug users. Error was predicated upon these matters.

The Washington Supreme Court, in reversing the judgment of conviction, said that there is no more insidious and dangerous testimony than that which attempts to convict a defendant by producing evidence of crimes other than the one for which he is on trial, and such testimony should only be admitted when clearly necessary to establish the essential elements of the charge which is being prosecuted. To establish guilty intent, unlawful motive, or criminal knowledge, it is permissible to show that the act charged against the defendant was one in a series of similar ones; but beyond this the state cannot go, and for the purpose of securing a conviction show the perpetration of other similar acts, even though committed in furtherance of a general scheme, where there is no proof required to establish intent, motive, or knowledge, other than proof of the act charged itself. In other words, where the act charged against the defendant itself characterizes the offense, the guilty intent is proven by proving the act. Here the proof of giving of dry morphine on a prescription calling for morphine in solution was proof of the intent, and nothing more was necessary to establish criminality.

The evidence of the state having shown that the prosecuting witness, a sporting woman, was under the influence of morphine at the time of the alleged sale to her by the appellant, and that she was arrested then by an officer to whom she related her story, the defense was entitled to prove, by expert testimony, the effect of the drug upon the mind and memory of its user.

While testimony is admissible to show the character of or effect of the use of drugs upon a witness as affecting his or her credibility, it is not proper for the court to violate the constitutional provision against commenting upon the evidence by instructing the jury that it should regard the testimony of any class of witnesses with caution or suspicion.—State v. Smith, Washington Supreme Court, 174 Pac. 9.

Military Medicine.

Early Stages of Trench Nephritis.—In the *Bulletin of the Canadian Army Medical Corps* for September, 1918, Major G. S. Strathy describes phases of the early stages of trench nephritis. It is pointed out that while microbic infection is almost certainly the cause of the disease, predisposing causes probably play an important part. The problem of the predisposing cause has given rise to many theories and suppositions. The epidemic is more prevalent on the Western European front than the other fronts and it is more common among the British than the French troops. McLeod and Amenille (*Lancet*, September 9, 1916) found that the percentage of men having albuminuria was higher among British than French troops. The urea excretion was also higher among the British.

Various theories were advanced to explain these facts. Exposure and fatigue due to army life were suggested as a cause of albuminuria. Chlorinated water and immature beer were said to damage the kidneys. However, Strathy found nothing to suggest that these were predisposing causes of epidemic nephritis. Several men were affected who were sleeping in warm, dry billets, and did not do any heavy manual labor. Possibly the high protein diet of the British soldier predisposes him to attack. Strathy's records do not show age as a predisposing factor. Very few men were attacked during their first three months in France. Several Australians developed their first symptoms while on board ship coming from Egypt. While there is probably some relationship between epidemic nephritis and the high percentage of albuminuria found in healthy troops both in France and England, it is almost certain that these cases of unexplained albuminuria are not mild cases of epidemic nephritis. It would seem likely that there is an extra strain thrown on the kidneys of the British soldiers which predisposes them to an attack by a microorganism which is prevalent in the army abroad.

The symptoms, according to Strathy, divide the diseases into three main clinical types: (1) Mild cases with albuminuria and few subjective symptoms; (2) hematuria cases with symptoms pointing to affection of the lower part of the urinary tract, and (3) nephritis cases with edema. It is often difficult to differentiate mild cases of epidemic nephritis from albuminuria due to other causes. The test on which most reliance is to be placed is blood pressure. Nearly all cases of mild nephritis, even without edema, have an increased blood pressure in the early stages. Few, if any, of the other albuminurias have increased blood pressure.

The second type, hematuria, comprises a smaller class and under the term hematuria Strathy includes only those cases in which hematuria is marked and there is no edema. Rise of blood pressure is not always present and is never marked.

The third clinical type, comprising those usually sent to the clearing station with a diagnosis of nephritis or bronchitis is the most important for it includes all the severe cases. This type resembles in most respects the acute nephritis of civil life, but shows important differences. Bronchitis, edema, hydrothorax, and ascites are more marked features than are toxic symptoms, such as headache, drowsiness, vomiting, and convulsions. The lack of symptoms due to cerebral poisoning by chemical products is an outstanding feature in over 90 per cent. of the cases. Suppression of urine is seldom marked. Rapid disappearance of acute symptoms is usual.

Nearly all the severe cases admitted to hospital were markedly dyspneic due to bronchitis and fluid in the pleural sacs. This marked tendency to affection of the lungs and pleurae and the unequal distribution of the edema in the body is, says Strathy, the most conspicuous feature of the disease in contrast to nephritis of civil life. So much indeed is this the case that it may be doubted if the disease should be classed as a nephritis, but should rather be described as a proliferative endarteritis of the smaller vessels affecting different organs with varying severity in different cases. Treatment advocated is as follows: Rest in bed and a simple diet of milk and milk puddings will effect rapid improvement in the large majority of cases. The symptoms calling for active treatment are cough, dyspnea, decrease of urine, headache, and convulsions. If a patient is markedly edematous or his blood pressure high a hot-air bath is indicated. The patient's bowels should be kept fairly free with Epsom salts, but purging should be avoided. If dyspnea do not subside after such treatment inhalations of oxygen almost invariably give considerable relief. Aspiration of the hydrothorax is indicated in some severe cases.

Strathy thinks that opium in any form for relief of cough is strongly contraindicated. Its administration appears to increase cyanosis. For convulsions spinal puncture and withdrawal of fluid was employed with good results, due in the belief of Strathy to the removal of poisons from the fluid. French observers have reported excess of urea in the spinal fluid and Strathy holds that spinal puncture should be done either when an attack of convulsions is threatened or as soon after the convulsion as possible. The mortality from the disease is everywhere reported as low.

Report on a Series of Gassed Cases.—Major S. G. Ross and Captain A. T. Henderson, C. A. M. C., publish a report on gassed cases in the Bulletin of the Canadian Army Medical Corps for July, 1918. As for the effects of gas on the gastro-intestinal system it is stated that vomiting was a fairly constant symptom, being present in 60 per cent. of cases; 10 per cent. had nausea without vomiting. Several complained of retching. Vomiting often was the first symptom, coming on as early as five minutes after gassing. In other cases it was not complained of until two days later. Certain men did not vomit until food was eaten. The stomach appeared to be irritable for some days after the men had been gassed. Abdominal pain was complained of by 19 per cent. It was nearly always referred to the epigastrium, and was stated to be of a steady, burning character. Only one man had crampy pains. Diarrhea occurred in 2 per cent. of the series. Twenty-four

per cent. showed definite skin lesions, and one-half of these had blistering. The remainder showed burns of the first degree only. Burns were noticed as soon as nine hours after gassing. The blistering was often extensive and severe. Seventy-eight per cent. of the cases complained of headache at one time or another. Headache was moderately severe. A few men suffered from dizziness. Three men gave a history of collapsing or fainting. A number of cases complained of weakness and pains in the muscles. One man only showed definite jaundice. Forty-three cases had a temperature of 99° or more on admission, and of these thirteen had a temperature of over 100°. Bronchitis was present in ten cases, and the fever of the remainder might be accounted for by laryngitis or burns. Eleven per cent. had a pulse of 90 or over. A few cases only showed increased respiratory rate.

Iodine in the Treatment of Gassing.—Bondreau, who is apparently a partisan of the use of iodine for a variety of affections, such as tuberculosis, many infections, enteritis, etc., believes that this remedy possesses remarkable powers in the treatment of gassed subjects. According to an abstract in the *Journal de médecine et de chirurgie pratiques* for August 10, the drug is especially adapted for the reconstitution of the damaged lung through its powers of promoting leucocytosis, its stimulation of glandular secretions, its antitoxic properties, and its power of stimulating the myocardium. It is also a remarkable general roborant and is a valuable synergist in systemic depression of strychnine, camphor, ether, etc. It must be given in very large dosage in fractional portions. The author prefers the tincture, which mixes readily with various liquids, as milk, tea, beer, etc., and may therefore be incorporated in all of the patient's daily fluids. In this way the patient may ingest 7 or 8 daily doses. One begins always with very small doses, as one drop; on the next day two drops, and on the third, three are given. The tolerance which develops enables a patient to take most formidable doses and in tuberculosis the author has pushed the daily dose to 300 drops and even to 500 and 800. The individual dose may be run up with impunity to 60 drops. In gassed subjects he has gone as high as 400 drops of the tincture daily. No clinical data are given in support of the author's claims.

Dry Pleurisy at the Front.—Lesage, in a recent Paris thesis reviewed in the *Journal de médecine et de chirurgie pratiques* for August 10, states that not infrequently men who are exposed to cold and damp at the front begin to complain of symptoms afterward found to be due to dry pleurisy. These men complain of their sides, shoulders, liver, kidneys, spleen, etc., and examination reveals the presence of a more or less abortive lesion of the pleura, the sole symptoms of which are pain and a friction sound. The question at once arises whether we are confronted in a given case with a tuberculous or a simple pleurisy from exposure. In the former the tendency is to involvement of the upper lobes, subfebrile temperature, tenacity of symptoms, slight and characteristic physical signs comprising subdulness on percussion and increased conduction of vibrations of the chest wall when speaking. The general condition is inferior. On the other hand, the subject with pleurisy from exposure is usually in a good physical condition, gives a history of exposure and of a cold, has chills and a true fever and complains of pain referred to any of the localities already referred to. The symptoms are soon over —for they last but three or four days as a rule. The pains are regional and the patient will often indicate with his finger the exact spot at which the friction sound will be heard. In tuberculous pleurisy this is apt to be otherwise, the sensations being more general and vague. The treatment consists of cups and quinine, perhaps with antipyrine. The author appears to believe that these cases are sterile in type and due purely to exposure, the left side being somewhat more often attacked because more frequently exposed.

Primary Interventions in War Surgery.—In an article in *Le Progrès Médical* for May 4, by Demmler, attention is first called to the remarkable study by Professor Delorme on secondary suture of nerves which shows the possibility of obtaining in a majority of cases an ultimate good functional result. So far so good but the question at once asserts itself, might not a primary intervention do away with the necessity for months of incapacity and trophic changes? What is true of nerves holds good equally for muscles, tendons, and bones.

Recently Sieur has made suggestions for improved transport of wounded to the rear, so that primary interventions are favored. In 1912 it was shown in Arthus' laboratory that immediate exact suture of a cut nerve should be followed by downward proliferation of the central end of the cylinder into the sheath of the degenerated portion. This confirmed the old teachings, which seem to have been set aside as a result of unfavorable experiences in the Russo-Japanese War. During the present conflict favorable results of primary suture have been reported—for example by Tavernier and by Tanton. The operation was performed as late as twenty-four hours after injury.

In immediate suture of bone the interest centers on the detached fragments of bone. It was once the teaching to remove all such and eventually surgeons went to the extreme of conservatism. A middle course seems best. Small, projecting spiculæ should be removed, and perhaps also those denuded of periosteum. Free fragments of any considerable dimensions must be saved, lest the loss of so much tissue result in a false joint. It is easy to disinfect these and this should always be the practice else the fragment may become a sequestrum. In some cases one may reconstruct a bone by suturing together so many free fragments that a veritable mosaic results. This course appears to be the one in actual use by a large number of surgeons. The reconstructive procedure is sometimes termed osteosynthesis. The use of circling bands is naturally indicated in these cases.

A similar practice is recommended for wounds of muscles and tendons, which could be termed patching up. It was recommended by Lejars in his work on surgical emergencies. It is after seeing the disastrous results of waiting that one is resolved to do something at once. Left to heal, the muscles shorten and become fused with other tissues. Nat-

urally cases for primary intervention have to be selected by first excluding wounds in which the tissues are hopelessly disorganized. The selection depends on the possibility of restoring continuity and securing attachments. In some cases tendons can be reunited by end to end suture while in others implantation can be effected. In the case of muscles it is often possible to secure enough tissue for primary suture.

Chronic Sinusitis in Soldiers.—In the *Archives Médicales Belges* for July, Sterckmans relates ten cases of sinus disease illustrated with photographs and radiograms, and concludes as follows: These affections are very common, and while it is usually easy to locate an acute sinus inflammation, the reverse is true if the disease is chronic. This difficulty is due largely to the fact that in chronic affections we are often dealing with a polysinusitis. Treatment of these cases must be active and energetic and we must not shrink from opening up these cavities whenever such a course is indicated and even when drainage seems to be absent. The diagnosis must be exact and we should use every diagnostic resource available. Thus the author makes a thorough use of radiography and with good results. The method is very commonly neglected, but he cannot understand why for he finds it quite indispensable, especially in ethmoid disease. He has utilized the expert services of a colleague instead of trying to do his own work. There is considerable objection on the part of the soldier for fear of a bad cosmetic result, and even members of this profession are not without apprehension of this sort. The latter is unfounded, for in the great majority of cases healing of the operation wound takes place by first intention.

New Hospitals in the Riviera.—The American Red Cross announces that 30,000 beds are ready for American wounded in a series of new hospitals established in southern France under the command of Major W. H. Browne of Detroit. Hospital units composed of American physicians and nurses are being sent to Nice and other cities along the Riviera.

Red Cross Work in Near East.—Another of the American Red Cross series of reports has just been issued showing how the society's war fund is being spent in Russia, Siberia, the Balkans, Syria, Armenia, and other sections of the Near East. In European Russia, to date, the American Red Cross has spent $2,807,919. More than one-half a million dollars was devoted to buying milk for the starving babies and children of Petrograd. The fund supplied 125 motor ambulances to Russian hospitals as well as large quantities of medical and surgical supplies. In recent months more than $120,000 has been spent in the relief of refugees in Switzerland and Siberia. In July, $1,511,233 was spent for several thousand tons of food, drugs, and soap among returning Russian prisoners. In Siberia $4,273,200 has been expended, the greater part being for clothing. A hospital of 250 beds for the accommodation of Czech wounded was equipped at a cost of $10,000. In Roumania in the six months between September, 1917, and March, 1918, $2,676,369 was expended; for work in Serbia $1,244,197 has been appropriated; for the relief of refugees in northern Greece $429,596 has been spent. For the maintenance of a hospital at Vodens $30,000 was appropriated and $48,598 was given for a dental contingent to serve the Serbian Army. Fifty thousand dollars was contributed to the Serbian Red Cross. For Greece $375,000 has been appropriated, and for Armenian and Syrian relief an aggregate of $3,000,000 was contributed.

Influenza in Army Camps.—According to reports from Washington, on October 18, the number of influenza cases was slightly on the increase, after having shown a decrease for several days. The total number of influenza cases reported from all camps up to the above date numbered 279,945, the pneumonia cases 42,675, and the deaths 13,681. It is the belief of army surgeons in charge of military camps, where every single case is known and kept under observation, that the death rate from influenza is 5 per cent., and it is believed that this proportion may be accepted as reasonably accurate in civil life.

Sinusoidal Current Banned from German Military Hospitals.—The *Wiener medizinische Wochenschrift* records that the Ministry of War, having learned that several deaths have followed the use of the sinusoidal current in the treatment of war neuroses, has forbidden its use in military hospitals. The faradic current alone may be employed. It seems that the fatalities were as sudden as chloroform fatalities, and that they occurred soon after the current was applied. Status lymphaticus is said to have been found at the autopsies in such cases.

Ohio to Care for State's Wounded.—Ohio soldiers from overseas are to be cared for while convalescing by the State of Ohio at the State School for the Deaf. Other hospitals for convalescents are to be established at Lima, Dayton and Cincinnati.

Municipal Civil Service Commission to Protect Red Cross Nurses.—An effort is being made to amend Section 22a, Chapter 211, of the Laws of New York, which provides that persons in the Federal, Military, Naval or Marine Service, whose names appear upon all eligible lists, shall be placed upon a separate eigible list for the same position for a period of one year from the date of their honorable discharge from such service, so that the same privilege may be extended to Red Cross nurses as are enjoyed by the armed forces of the United States.

Lieut. Leo J. Crum, M. C., U. S. Army, of Kalamazoo, Mich., has received the Distinguished Service Cross for extraordinary heroism in action near Clerges, France, on July 31 and August 1, 1918, "where by his untiring efforts under fire he saved the lives of many wounded and suffering men and was a source of inspiration to the entire command."

Deaths in the Service.—LIEUT. ROBERT HARRY SCOTT, M. C., U. S. A., of Brooklyn, N. Y., a graduate of the Long Island College Hospital, in 1910, died of pneumonia on October 15, aged 33 years. He was a surgeon in the United States Navy assigned to the Naval Rifle Range at Peekskill, N. Y.

LIEUT. COLEMAN SIMPSON SIFF, M. C., U. S. A., a recent graduate of the University and Bellevue Medical College, and an interne in Bellevue Hospital, died of pneumonia at his home in Bath Beach, L. I., on October 20.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE MENINGITIDES AND ZONAS.

OF all the symptomatic zonas, that of tuberculosis at present appears to be the most individual of all. In chronic tuberculosis, spinal or pulmonary, one quite frequently encounters herpes zoster, and particularly a relapsing zona occurring in successive crops. The thoracic form predominates, although it may appear in other regions. The extrathoracic forms of zona are interesting because they indicate that this process is not an extension in the neighborhood of the tuberculous lesion, but a secondary involvment of the nervous system by the bacillemia. In this case the prognostic value of zona is considerable, but although it thus proves the diffusion of the bacillus and preceded serious meningeal localization of tuberculosis, it may very well be the first symptom of an unsuspected tuberculous process. In these circumstances it is the index of a mild meningitis which may be recovered from, although examination of the cerebrospinal fluid and general and nervous disturbances leave no doubt as to the true nature of the affection. In all such cases the ganglion and root are involved, but perhaps more often acted upon, in the mild cases, by the toxin than by the bacillus itself. The fact that tuberculosis may thus pass over the meninges and end in a local recovery is one of the most interesting which has been brought to light by the study of bacillary zona.

The mild involvements of the meninges are classic in syphilis and zona is frequently a symptomatic manifestation of the process; but one must not confuse symptomatic syphilitic zona with zoniform syphilides of the tertiary period which have nothing in common other than their localizations, the eruptive element being quite dissimilar and with a torpid evolution. Zona has also been met with in locomotor ataxia, a fact easily understood, given the essentially radicular nature of the affection. The meningitis of mumps is to-day well known and zona may accompany it. Certain affections are normally accompanied by an eruption of herpetic vesicles which is in itself an important diagnostic element. The most characteristic are those encountered in pneumonia and cerebrospinal meningitis.

Dermatologists have established an absolute difference in histological characters between zona and herpes zoster. Instead of a reticulated degeneration, as in herpes, zona offers a fibrinous degeneration accompanied by a process of ballooning degeneration. The vesicles are not trabeculated. From the pathogenic viewpoint it hardly appears doubtful that the nervous system is at the bottom of the trouble in both processes, but data are wanting to show beyond question that herpes results from a distinct lesion of the nervous system, while zona is the first dermatoneurosis in which the relation of the cutaneous lesion to the nervous lesion has been demonstrated. Nevertheless, more or less zosteriform herpetic eruptions may accompany pneumococcia and they are classic in cerebrospinal meningitis.

In the group of meningeal states recalling cerebrospinal meningitis, but differing from it bacteriologically, attention should be directed to the researches of Dopter, Simon, Achard, Lober, and others, who have attempted to isolate and grow cultures of the agent of essential zona. Their conclusions are that they were dealing with meningitides due either to a diplobacillus or to a strain of *Bacterium coli* producing symptomatic zonas. They also doubt the existence of an essential zona, because at the present time only the study of biological reactions is capable of demonstrating this entity. In all symptomatic zonas arising in meningeal states the commencement with the meningitis is proved by the time elapsing between the two processes, from two to five days' interval existing between the appearance of the zona and that of the meningitis.

It is only necessary to mention the causes of zona other than meningitis, because the symptoms of the various causal affections are always sufficiently evident and distinct so that an erroneous interpretation as to the pathogenic relationship cannot occur. Perhaps influenza, scarlet fever, measles, typhoid fever, rheumatism, intoxications, and neoplasms are not the etiological causes of zona, but merely adjuvant causes, preparing the soil for the invasion of true zona. In chronic affections, as for example neoplasms, the relapses may perhaps cause one to reject the latter hypothesis, but in the case of acute infections it seems logical to assume that only the discovery of the pathogenic agent of essential zona can solve the problem.

INTESTINAL OXALIC LITHIASIS.

THE pathological phenomena present in intestinal oxalic lithiasis are of divers sorts. If some, such as pain and vomiting, can possibly be explained by the mechanical and chemical action of the gravel on the intestinal mucosa and therefore are the consequences of simple lesions, there are others, such as vertigo, paleness, asthenia, etc., which

precede the paroxysm and represent the early manifestations of oxalemia before the organism has been able to localize the elimination, after having passed through a phase of tolerance and latent toxic accumulation. The violent pain of intestinal colic has been particularly noted because, given the large caliber of the intestine and the small size of the calculi or gravel, it is astonishing that accidents almost equal to those of intestinal occlusion should arise. Foutel attributes them to enterocolitis, founding his supposition on the presence of similar painful manifestations occurring in the latter affection, although gravel cannot be detected in the stools.

In conformity with his ideas on inflammatory lithiasis, Chevallier is of the opinion that this may be likened to those met with in pyelonephritis, latent in the first place but becoming painful as soon as a secondary calculus forms. Moreover, he believes that the painful irradiations along the transverse colon may be explained by stasis in the gut, while the stasis itself can be readily understood when the frequency of enteroptosis in mucomembranous enteritis is recalled.

But if this explanation is to be admitted for lithiasis due to lithogenous catarrh, it is not admissible in the case of oxalic lithiasis in which the accidents of enteritis are absent. Although admitting, perhaps, that both mechanical and chemical lesions may exist, Loeper believes that the pain is not entirely due to the elimination of the sand, but also to the congestion caused by the intensive secretion of the oxalates by the intestine. This accident may be compared to those encountered in gout and in point of fact the crystals of calcium oxalate form in the glandular culs-de-sac where their presence provokes real disorders, just as the precipitation of calcium oxalate *in situ* in the mucosa causes true miniature oxalic infarcts with their resulting hemorrhage, which consequently is not due to erosions only. It is for this reason that the pain always begins in the epigastrium and offers the characters and irradiations of solar plexus pain. A certain number of reflex symptoms may be explained by simple lesions of the intestinal mucosa, but the majority of the others are the direct consequence of the decalcification of the organism.

Many researches have shown the peculiar affinity of the oxalates for calcium and in point of fact during the evolution of oxalic intoxication the percentage of lime in the organic fluids is increased. Thus in one case Loeper and Béchamp found 0.095 gram calcium per liter of fresh blood, this being twice the normal percentage. Likewise, the amount of calcium eliminated in the urine and feces is increased. The experiments of Sarvonat and Rebattu have shown that during oxalic intoxication decalcification commences at first in the soft tissues, the calcium content of which becomes 0.10 instead of 0.17, and it is only later that the skeleton commences to lose its calcium salts; but if elimination continues, the line of the bones drops from 0.49 per 100 to 0.37. Decottignies has shown that by injecting animals with both oxalates and phosphoglycerate of calcium in sufficient quantity at the same time, the former become almost inoffensive. Likewise, by giving calcium chloride to animals the paralysis of their hind legs and oxalic cachexia are prevented after they have been poisoned by the oxalates.

This subtraction of calcium has as a consequence a certain number of disturbances which have been studied by Arthus, Gley, and other observers. Sometimes they are local disturbances, such as spasms of the colon, simple or painful, constipation and mucorrhea; at other times they are of a general nature, mostly neuromuscular. That oxalic acid has a particular affinity for muscular and nervous tissue is shown by the researches of Locke and Howell, who have demonstrated that a muscle placed in a 0.70 per cent. solution of sodium oxalate loses it motricity and regains it only after calcium sales have been added, and several writers have shown that brain matter fixes oxalic acid in almost the same way as it does the toxin of tetanus. It is most probable that the intimate mechanism of the action of oxalic acid can be explained by a more or less brutal decalcification of the viscera. This then explains the asthenia, cardiovascular disturbances, particularly the arterial hypotension, and the nervous phenomena. The profound denutrition produced by subtraction of lime also explains the loss of weight which is almost constant in these patients.

But if decalcification suffices to explain the nervous and muscular disturbances or even the cardiovascular disturbances it does not throw any light on the origin of the anemia and the leucocytosis. Therefore, for the time being, at least, a toxic element of some other nature must be admitted which is as yet insufficiently known.

HEADACHES OF NASAL AND MASTOID ORIGIN.

Some few years ago headaches were by some extremists attributed almost exclusively to eye strain, although the symptoms in perhaps the majority of cases did not warrant this diagnosis. Undoubtedly eye strain does play a conspicuous rôle in the causation of pain in the head and is, on the whole, probably the most frequent cause or contributory cause of this condition. But an undue amount of attention was paid to this theory and other agencies calculated to produce similar results were overlooked.

The need for a clear and correct causal diagnosis is obvious, and in order to obtain this a comprehensive knowledge of the very large number of causes which produce headache is necessary, else the practitioner is too apt with the view of relieving the acute symptoms to prescribe sedative drugs. As a rule, this kind of

medication, in the long run, does more harm than good. It causes relief from pain, but not a cure, and the sufferer learns to rely on drugs to his ultimate undoing. If the physician had diagnosed the origin of the pain he would have been able to attack it with every hope of bringing about a cure. It has been pointed out on many occasions recently that a frequent cause of headache is inflammation affecting one or more of the nasal or mastoid sinuses. Sluder lays stress on the fact that headaches and eye disorders of nasal origin are numerous.

William Ibbotson, writing in the *Practitioner* for September, 1918, discusses headaches of a sinus origin and describes the position and characters of headache due to disease in the various nasal or mastoid sinuses. For example, the position of a headache in acute ethmoidal sinus disease is (a) frontal, chiefly on the same side as the lesion, especially if the anterior set of ethmoidal cells are involved; (b) occipital, if the posterior set of ethmoidal cells are affected. Such headaches are dull, aching, often throbbing, and a feeling of heaviness over the bridge of the nose is more or less constant. In an acute maxillary sinusitis the headache is on the same side as the lesion and pain is referred to the incisor, canine, and premolar teeth, to the lower eyelid, the side of the nose, and the cheeks and upper lip. The pain is throbbing in character over the site of the inflammation and is acutely neuralgic following the course of the superior maxillary nerve after it has entered the inferior orbital fissure.

The Significance of Marbled Nails.

There are numerous minor diagnostic symptoms and signs which the observant physician notes, and which sometimes greatly aid him in arriving at a correct diagnosis or prognosis. In fact, the ability to observe such symptoms and signs, to tabulate them, and to apply to each its value as a means of coming to a conclusion is in great measure what differentiates the skillful from the ordinary physician. It is certain that effective treatment cannot be given unless the diagnosis is correct, and it is only by acute and comprehending observation of various minor points that the physician is able to say with any degree of certainty what the originating cause of the malady is and to attack it at its root. In the *Medical Press* of August 7, 1918, Dr. R. Sabouraud of Paris discusses the prognostic symptomatic significance of "marbled nails." Marbled nails—that is, finger nails with one or more small white patches—are nails on which there are multiple transverse white patriæ, and according to Sabouraud are of definite diagnostic and prognostic significance. In men, marbled nails are less frequently met with than in women, but on the other hand they are more characteristic. They are usually associated with the pretuberculous period, with neurasthenia, and with chronic alopecia. Sabouraud has met with it in its maximum degree in the subjects of exophthalmic goiter, accompanied by alopecia, in whom it seemed to follow the oscillations of Graves' disease, and ran its course alongside the latter, so to speak, hand in hand. It is, he says, a bad symptom, though it is not a grave symptom, because we see persons who present it for years and years without any notable depreciation of health. It is, however, a symptom which is never met with in the really healthy subject. It is accompanied by a lowered blood pressure and other symptoms of physical and mental depression. It is never an accidental product, and its presence corresponds to a tangible departure from perfect health, or, at any rate, it only occurs in subjects who sooner or later are likely to develop something—exactly what, it is not in our power to state for the time being. In short, the existence of marbled nails is a danger signal, not only demonstrating in the apparently healthy a latent weakness or susceptibility to disease, but also in conditions of poor health an augury that serious results may ensue. The presence of marbled nails, therefore, should serve to put physicians on their guard.

Food Stringency and Its Consequences in Germany.

Extracts from the German lay periodicals concerning the food situation are published from time to time in *La Presse Médicale*. In the September 9 issue it is stated that dog thefts are common, the animals being used for food—not so much a necessity as a luxury, by reason of the scarcity and high price of fresh meat. Dressed dogs bring fabulous prices in the market as a substitute for game, which is no longer seen on sale. Naturally the production of sausages constantly increases and offers opportunities for using everything edible as well as much which is doubtless unfit for food. Milk is frozen into large blocks and handled like ice to facilitate transportation. The largest weigh 60 pounds. This milk ice can be kept sweet for several weeks. The crop of pulses and fruits has suffered from the drought and from caterpillars. Edible fungi are to be salvaged under government supervision. Much of the sugar crop has to go for alcohol. Sodium benzoate tablets are sold in the market for housewives' canning purposes. To conserve potatoes alcohol is made from shavings, etc., which are transformed first to glucose by means of sulphuric acid. On the fighting front seeds, draught animals, and farming machinery are requisitioned from the conquered Belgian and French farmers. The cereals in these zones go to the German civilians with a portion of the potatoes. The forage, straw, beets, etc., go to the German army. In this way at least 100,000 transport wagons are released for war purposes. The salvage of dried leaves has become an industry of much importance. They are milled and mixed with molasses as a succedaneum for oats for domestic animals. Recently there has been a plague of abortion in cows and it is attributable to a germ against which a serum is used. Rabies in dogs is prevalent and suspected animals are at once killed—even stray dogs are supposed to be destroyed at sight. At last accounts there were 20,000 cases of cholera in Petrograd, so that the German troops have been vaccinated against it. Infant mortality is up and has been brought

in direct causal relationship with the house fly, against the eggs and larvæ of which a campaign has been conducted.

Biopsy in Cancer.

It is somewhat instructive to observe with how great unanimity authorities on cancer agree as to the harmfulness of biopsy. Though advocated as a means of diagnosis by the late Commissioner of Health of New York City, the danger of following such advice has been emphasized by surgeons throughout the country. Lieut.-Commander Jerome M. Lynch, writing on cancer of the rectum in the *International Journal of Surgery* for September, 1918, states that he is unalterably opposed to biopsy, as it tends to disseminate the growth and serves no useful purpose, in that the liability to err is just as great as it would be with one unfamiliar with the characteristics of the growth. It is also known from experience that even the rough handling of a tumor is very often sufficient to disseminate the cells, and so much more certainly is the cutting into it harmful. The teaching that biopsy should be practised in the case of tumors for the purpose of diagnosis is mischievous and dangerous and should be contradicted at every opportunity.

Medico-Physics in the University of Lima.

This institution has a chair in medico-physics, of which Professor Mayorza is the incumbent. A program of the course appears in the *Anales de la Facultad de Medicina* for March-April, and includes the following subjects: Architecture of the bones, joints, etc.; height, volume, density, superficies, weight, etc., of the body; center of gravity; attitudes of the body; graphics; gaits; locomotion; cohesion, tenacity, and elasticity of the tissues; dynamometry; hydrostatics of the body; hydrodynamics; air pressures; animal heat; calorimetry; electrophysics of the body; *x*-rays; optics; acoustics; meteorology. Such a course might with advantage be taught in all medical schools, if time permitted, and it is much to the credit of the University of Lima to have inaugurated it.

News of the Week.

Influenza Still on the Increase.—Reports to the Public Health Service on October 18 showed that influenza was still on the increase in most parts of the country. The epidemic is more pronounced in the Eastern section than west of the Mississippi River. Up to October 16, New Jersey had reported 107,839 cases, with 2,232 deaths. The number of deaths reported in Pennsylvania up to October 15 was 10,046. Fewer cases are being reported from Massachusetts, but in other New England States the disease is still epidemic. In the District of Columbia the epidemic continues unabated. In Greater New York, the number of cases reported has continued to increase. On October 23 there were 5,390 cases reported. The hospitals are filled to overflowing with influenza patients, the surgical wards in some hospitals having been given over to this class of patients. The shortage of nurses is acute. A comparison of the statistics of the Health Department for the epidemic of 1889 with those of the present outbreak show that in proportion to the population more persons suffered from the disease then than during the present epidemic. Figures corrected to correspond with increased population show that during the first week of the 1889 epidemic there were 688 cases, as against 202 during the first week of the epidemic of 1918; during the second week, in 1889, there were 1,518 cases, as compared with 740 during the second week of the present epidemic; during the third week, in 1889, there were 2,180 cases, as against 1,972 during the third week of the epidemic of 1918. Admiral Usher, commandant of the Brooklyn Navy Yard, has forbidden the men of the Navy to ride in the subways of the city. The Polyclinic Hospital, which was to have been taken over by the Army this week, is being used by the Health Department for the care of influenza patients; and the New York Infirmary for Women and Children, as well as vacant houses and other buildings, are being utilized for the same purpose. Health Commissioner Robertson of Chicago, where the epidemic has not yet reached its height, has ordered the inoculation of every person in that city with vaccine. The public schools will be used for vaccination, and it is planned to vaccinate 100,000 persons daily. In New York City the Health Commissioner's Emergency Advisory Committee has announced the opening of forty-two centers in different neighborhoods where inoculations of preventive vaccine will be given and where all cases needing the care of physicians, nurses, domestic help, shelter, or food, should be reported.

Influenza in Other Countries.—An epidemic of influenza is ravaging the coast of West Africa. In Sierra Leone the deaths are said to average 1,000 a week. It is reported that the malady has spread to the interior and has attacked chimpanzees and monkeys, which are dying in numbers of the disease. A despatch from Kingston, Jamaica, states that influenza is epidemic in the West Indies, and is causing many deaths. Chili is also reported to be in the throes of an influenza epidemic. It is said that in some places near Santiago the deaths number three out of every ten cases. The epidemic has spread throughout the Dominion of Canada. A considerable number of cases are being reported from Quebec, Ontario, Winnipeg, Manitoba, and Vancouver.

Examination for Institutional Positions.—The Civil Service Commission of the State of New York announces that an examination will be held on November 9, 1918, to provide eligibles for the position of assistant physician in the State hospitals and other positions of a similar nature in various State and county institutions. The examination will be open to regular and homeopathic physicians licensed to practice medicine in this State. Applications must be in the hands of the Civil Service Commission at Albany by October 30.

Government Begins Fight on Tuberculosis Among Cattle.—The Federal Government has begun a nation-wide campaign for the eradication of tuberculosis among cattle, which it is estimated now costs the country $40,000,000 a year, besides endangering human life. The campaign is divided

into three well-defined projects. The first aims at the eradication of tuberculosis from individual herds of pure-bred cattle, the second at the eradication of the disease from the cattle in circumscribed areas, and the third to eliminate tuberculosis among swine in this country. It is estimated by officials in close touch that about 15 per cent. of pure-bred cattle in this country are affected with tuberculosis. For tuberculous cattle that must be slaughtered the Department of Agriculture is to pay one-third of the difference between the appraised value of the cattle and the salvage value, provided the State, county, or municipality in which the cattle are owned and kept is cooperating in the tuberculosis work, and pays at least an equal amount to the owner. It is believed that the provisions made for reimbursing cattle owners for slaughtered cattle will do much to remove the opposition that has hindered tuberculosis eradication work in the past.

New York Polyclinic Hospital Taken by Government.—An agreement has been reached whereby the Federal Government will assume control of the New York Polyclinic Hospital and Medical School.

Public Health of Porto Rico.—The first number of the new monthly health bulletin of Porto Rico, bearing the date July 1, has reached us. The estimated population of the island is 1,258,970. The number of births in July was 6282, over 2000 more than in July, 1917. The number of deaths during the same month, 3,246, is considerably below the total for July, 1917. The number of lepers in the colony is now 39. The number of patients in the two sanatoria for tuberculous subjects is 30. During July the number of individuals vaccinated was 4,352. The number of insane who are interned is now 469, the commitments for the month being 15 and the number released 8. The number of blind in public institutions is 81. The port of San Juan has rat inspection, and 811 rodents were examined in July. During the month 2,648 cases of anemia were treated by the State. Recently the Island suffered from a heavy earthquake by which much property was destroyed and many lives lost.

Removal.—Dr. Arthur A. Landsman of this city has removed his office from 17 East Thirty-eighth Street to 310 West Eighty-sixth Street.

Yellow Fever in Guatemala.—Cases of yellow fever are reported to have developed at San Jose, Guatemala, and the commandant and port doctors are said to have died from the disease.

The Medical Society of the Missouri Valley, at its thirty-first annual meeting at Omaha, September 19 and 20, elected the following officers: *President*, Dr. Charles Wood Fassett of St. Joseph, Mo.; *First Vice-President*, Dr. Watson of Diagonal, Iowa; *Second Vice-President*, Dr. J. M. Aikin of Omaha; *Secretary*, Dr. S. Grover Burnett of Kansas City; *Treasurer*, Dr. O. C. Gebhart of St. Joseph, Mo.

The First District Branch of the Medical Society of the State of New York, at its twelfth annual meeting, at Tuxedo, on October 17, elected the following officers for a term of two years: *President*, Dr. Joseph B. Hulett of Middletown; *First Vice-President*, Dr. George A. Leitner of Piermont; *Second Vice-President*, Dr. Edward C. Rushmore of Tuxedo; *Secretary*, Dr. Charles Ellery Denison of New York; *Treasurer*, Dr. John A. Card of Poughkeepsie.

Obituary Notes.—Dr. Walter Franklin Chappell of New York died suddenly at his residence in this city on October 19, aged 63 years. He was a graduate of the Toronto School of Medicine in 1879. Dr. Chappell was a Fellow of the American College of Surgeons, a member of the American Medical Association, the American Laryngological, Rhinological, and Otological Society, and the New York Academy of Medicine. He was surgeon to the Manhattan Eye, Ear and Throat Hospital and consulting laryngologist to the Loomis Sanatorium.

Dr. Charles Solomon Calverly, a graduate of the University of Vermont College of Medicine, in 1881, and president of the State Board of Health since 1891, died at his home in Rutland, Vt., on October 16, aged 62 years.

Dr. Thomas Nash Broaddus, a graduate of the Medical College of Virginia, Richmond, died of pneumonia at his home in Richmond, on October 5, aged 31 years.

Dr. Benjamin James Willingham, a graduate of the Medical College of Virginia, Richmond, in 1906, died of pneumonia following influenza, on October 5, aged 37 years.

Dr. Laura Stone, a graduate of the American Medical Missionary College, Chicago, in 1904, and a member of the staff of the Battle Creek Sanitarium, died of pneumonia in Atlanta, Ga., on October 3, aged 40 years.

Dr. William James Douglas, a graduate of the University and Bellevue Hospital Medical College, in 1908, died of pneumonia at his home in Belleville, N. J., on October 16, aged 34 years.

Dr. Alfred Friedman, a graduate of the College of Physicians and Surgeons, in 1876, died of pneumonia at his home in New York City on October 18, aged 67 years.

Dr. Harold Milne French, a graduate of the New York Homeopathic Medical College, in 1913, died of pneumonia at his home in Freeport, L. I., on October 18, aged 35 years.

Dr. Charles Ryttenberg of Port Chester, N. Y., died in a local hospital of influenza, on October 16, aged 36 years. He was a graduate of the College of Physicians and Surgeons, New York, in 1906, a member of the National Association for the Study and Prevention of Tuberculosis, and of the American Medical Association.

Dr. Leonard Cassel McPhail, a graduate of New York University Medical College, in 1876, and consulting physician to the Brooklyn Orphan Asylum, died at his home in Brooklyn, N. Y., on October 16, aged 63 years.

Dr. I. Jacques Grossman, a graduate of the University and Bellevue Hospital Medical College, in 1915, died of pneumonia at his home in Brooklyn, on October 16, aged 27 years.

Edward Middleton Thompson of Brooklyn, N. Y., died of pneumonia at his home, on October 16, aged 41 years. He was a graduate of the University and Bellevue Hospital Medical College, in 1899, and visiting orthopedic surgeon to the Kings County Hospital.

Dr. Francis Joseph O'Neil, a member of the staff of St. Joseph's Hospital, Jersey City, died of pneumonia on October 11, aged 33 years.

EDWIN BRADFORD CRAGIN, M.D.

NEW YORK.

Dr. E. B. Cragin, whose death from pneumonia occurred on Tuesday of this week, was born in Colchester, Conn., on October 23, 1859, and was graduated in medicine from the College of Physicians and Surgeons (Columbia University) in 1886. After serving as interne at Roosevelt Hospital he entered upon practice in this city, giving his attention chiefly to the specialty in which he soon won fame. He was a member of the Medical Societies of the County and State of New York, the American Medical Association, the New York Obstetrical Society, and the American Gynecological Society, and a fellow of the New York Academy of Medicine and of the American College of Surgeons. He was professor of obstetrics and gynecology in Columbia University, attending obstetrician and gynecologist at the Sloane Hospital for Women, consulting obstetric surgeon to the New York Maternity and the Nursery and Child's Hospital, and consulting gynecologist to the Presbyterian, Roosevelt, and Lincoln hospitals, to the New York Infirmary for Women and Children, and to St. Luke's Hospital, Newburgh, N. Y. Dr. Cragin was the author of the "Essentials of Gynecology" and of a "Text-book of Obstetrics," and one of the contributors to the "American Text-book of Gynecology."

Correspondence.

LAY ANESTHETISTS.

To the Editor of the Medical Record:

Sir:—A gradually increasing misconception of the Art of Anesthesia has led to a rather unique condition of affairs.

We find that nurses and other lay persons may, by the simple acquisition of a few rules, become anesthetists. Large institutions have adopted the nurse anesthetist upon grounds of economy, expediency, and even sentimentality. It is argued that these workers can be employed at little expense, that the supply meets the demand and that the feminine element eliminates fear and works for smoothness during the induction of the anesthesia.

These institutions may employ lay persons to take their *x*-ray pictures and to make urinary, blood, or sputum examinations, but does any one dream of speaking of these workers as the hospital roentgenologists or the attending pathologists? They are employed as technicians and the nurse who administers an anesthetic is an anesthesia technician. She can never be more without a medical degree, for in order to understand the language of anesthesia one must have intimate acquaintance with anatomy, physiology, medicine, surgery, diagnosis, psychology, and special branches.

The nurse who in discussion with a medical man attempts to defend a theory relating to anesthesia cannot fail to feel the presumption of it and, if graced with wit, to see the absurdity of such a position. Yet it has actually come to pass that medical men have suffered themselves to be instructed by a nurse in the theory and practice of anesthesia.

In justice to an important branch of surgery and to our medical confrères who devote their training and their energy to its development, let us drop the term anesthetist as applied to its non-medical workers and adopt the term anesthetic technician.

Paluel J. Flagg, M.D.
War Demonstration Hospital of the Rockefeller Institute, New York.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE STREET-WALKER IN LONDON—AMERICAN RED CROSS HOSPITAL AT LIVERPOOL—DEATH OF CHARLES DEVEREUX MARSHALL—THE RAILWAY STRIKE—ROYAL AIR FORCE MEDICAL SERVICE.

London, September 26, 1918.

Mr. Edward Bok, editor of the *Philadelphia Ladies' Home Journal*, at present a guest of the British Government and engaged on a special mission, has sent to *The Times* a remarkable indictment of the condition of the London streets, which he describes as being, together with hotels and restaurants, the scene of huge and uncontrolled solicitation of soldiers by prostitutes. Mr. Edward Bok disclaims any discourtesy in his plain speaking while he is a guest, but this is entirely unnecessary, for his mission here is to cement in every possible way the relations between Great Britain and the United States, and the more plain speaking there is between the two countries, the firmer will be the resulting alliance. But those who know best do not consider his picture accurate. Mr. Bok speaks of the temptation offered to "our soldiers, clean-blooded and strong-limbed over here only to be poisoned and wrecked in the London streets," and goes on to demand that the streets should be swept of prostitutes, that the houses of ill-fame should be closed, and that strong government action should be taken. Now, medical men know full well the prevalence of venereal disease in London, and among the soldiers, but those who live in London know perfectly well also that never has the street life of this huge city, in the recollection of living men, been more decent. It is undoubted that a large number of the girls whom Mr. Bok has mistaken for prostitutes are happy-go-lucky wage-earners, possibly with no high moral standard, but as far divided from prostitutes as from vestals. There are prostitutes in London streets, and those who look for them can easily find them, for their centers of congregation are matters of common knowledge; but even at those centers no man will be solicited if he does not to some extent invite the offence, while solicitation is an illegal offence, though one which is difficult to prove. The suggestion that the streets should be cleansed of all prostitutes, coupled with the remark that houses of ill fame should be closed, is doubly confusing. It is obvious that such prostitution as cannot be eliminated by legal methods, if driven off the streets will tend to secrete itself in houses, but it appears to be unknown to Mr. Bok that there are no "houses of ill-fame" or "red lamp houses" or "great number houses" in London. For many years now the presence of two or more women in one house, who are known to be living on the earnings of prostitution has laid the owner of the house open to prosecution. In less

regenerate times, when public women had taken over certain streets in London, the premises and the inmates were subject to no government inspection, so that if by strong government action Mr. Bok meant an inspection of brothels, he is asking for a new Act of Parliament to regulate the proceedings of non-existent establishments. Mr. William C. Edgar, the editor of the *Bellman*, Minneapolis, writing to *The Times* with obvious and intimate knowledge of London life, apologetically describes Mr. Bok's fulminations as "hogwash," saying, "I have been visiting London at intervals for nearly thirty years, and in all my experience I have never found its street life so free from all objectionable features of the kind"; and it is an excellent thing that Mr. Edgar's independent reply should have followed so promptly upon Mr. Bok's honest but mistaken indictment. For undoubtedly these lurid charges against the morality and decency of London life give terrible pain to many men and women, the parents, relatives and *fiancés* of the soldiers. Into the huge maelstrom of London a large proportion of the Allied armies find their way now and again; it is little less than a tragedy that their home circles should be asked to believe that they are almost perforce driven to dangerous vice.

As a matter of fact, it is not the women who do (or who do not) solicit at street corners, in the "lounges" of public houses, in so-called "tea-rooms," and in the lobbies of cinema shows, who cause the medical profession any great anxiety. The number of these women is comparatively small, and they have a knowledge of preventive hygiene which to a considerable extent minimizes the perils arising from the promiscuity of their embraces. The real danger to the soldiers, as well as to all the womenfolk of the country, lies mainly in the irregular actions of girls who do not strictly speaking solicit, who do not strictly ply a professional calling, but who surrender themselves, more or less accidentally, to a chosen man, while their standards of morality and powers of self-control are insufficient to prevent them from entering into relations with another man as soon as the first one has disappeared off the scene. These girls, only half vicious, quite ignorant, and usually acting without the knowledge of their friends or their employers, contract and spread gonorrhea, and in so doing are a real threat to the future of the race. These are the people whom the National Council for Combating Venereal Diseases are vainly striving to reform. The prevalence of venereal disease and especially of gonorrhœa in the British army both at home and abroad, though no longer the source of real apprehension that it was some two years ago, is none the less a drain upon manpower of a sort that ought to be prevented. The National Council has done real good, and the foundation of venereal clinics has provided centres at which sufferers can obtain prompt care. There are medical men in attendance at these centres, who learn the clinical practice of experts and deal with cases by the modern methods. These methods are effective for males, who are by an enormous majority the attendants at the clinics, but chronic gonorrhea in a woman is almost an incurable disease and the most fruitful source of sterility. The greatest danger of gonorrhea lies in the future, when many potential mothers are found incapable of procreation.

The American Red Cross Hospital at Liverpool was opened in January last with 75 beds at Mossley House, the property of Mr. Edmund Muspratt, vice-chairman of the United Alkali Company. Almost immediately the premises were extended to accommodate 200 patients; by April it was again reconstructed to hold 500 patients, and just now it has been equipped by Captain M. W. Leonard so that it can receive yet another 300. In six months the hospital has grown from 3 medical officers and 12 nurses to a personnel of over 200, including 18 medical officers and 60 nurses.

The death has occurred at Colaba Hospital, Bombay, one of the war hospitals of the Navy in the East, of Staff Surgeon Charles Devereaux Marshall, principal medical officer with the Persian Gulf and Mesopotamian expeditionary forces. Staff Surgeon Marshall succumbed to cholera the day before yesterday (Sept. 24) and his loss to the men under his charge can hardly be exaggerated, so capable and popular was he. He was an officer of the Royal Naval Volunteer Force of some years' standing when war broke out, and joined up at once in the ordinary conditions of his service. He was almost immediately promoted, and saw service in home waters and the Mediterranean before proceeding to the important appointment which he held at the time of his death. A very competent surgeon, and skillful operator, Marshall had been a well-known ophthalmic surgeon in civil life, and surgeon to the Royal London Ophthalmic Hospital (Moorfields) and ophthalmic surgeon to the Victoria Hospital for Children (Chelsea). The author of many papers on ophthalmic subjects, he had written an excellent treatise on diseases of the eye, and also made important contributions to the subject of color-blindness. He was just 50 years of age at his death.

A railway strike broke out at the beginning of this week, but fortunately collapsed just as it bade fair to become general. Medical men in charge of wounded soldiers at distant and isolated spots were considerably embarrassed, while the temporary shortage in London of milk and vegetables had begun to be felt seriously in hospitals, and by invalids and babies. As the strikers were roundly told by a unanimous press, their action was equivalent to a German victory.

The Royal Air Force Medical Service came into being as a separate entity over a year ago, and its parturition was a distinctly stormy act. At that time the Air Force, half a naval and half a military arm, had attached to it medical officers mainly of the Royal Army Medical Corps, and it is no discredit to those officers to say that they had no particular conception of what the duties would be in ministering medically to the needs of flying men. The flying man was not at first selected for any particular qualifications—speaking generally—he was young and brave, and if he was up to a certain physical standard he was allowed to enter upon his training. Similarly, when once a flying officer the trials of the new life as they affected

his cardiac or respiratory systems attracted no especial attention, nor did it occur to anybody that the officer who was the victim of an accident, might have incurred that accident through some physical default, which if it had been detected could either have been remedied or have been used as a proper excuse for stopping further aviation on his part. As in the course of the war aviation began to shape itself as an arm of offence and defence which is the complement of the navy and the army, the necessity and humanity became evident of economizing in the material, first by selecting as flying officers only those who were likely to prove good at the work and secondly by caring well for such officers when selected. Obvious as this must be, it was left to medical men to point out to the authorities and to urge that the Air Force ought to have at its disposal highly qualified medical officers, and ought not to be dependent on the medical service of either the army or the navy. There was grave resistance in bureaucratic circles to the creation of a new service while the war was on us—and doubtless we had in those same circles persons who objected to the manufacture and employment of tanks because there had been no tanks before the war. There was a time when the opposition to a really scientific medical establishment in connection with the Air Force made it seem impossible of realization, but in the end the Force obtained its separate medical service, although the conditions under which the medical officers were to work remained indefinite. Now those conditions have been published, and they are at once seen to form an advance upon the terms offered to medical men either in the army or navy. The advance is not so much in money, or indeed at all in money; it is constituted entirely by the scientific spirit which inspires the circumstances in which medical officers of the Royal Air Force will work. The scope of the service is divided roughly into two main divisions, namely (1), care of the effective personnel and (2) care of the non-effective, whether by sickness, disability, or accident. The former may be considered to represent the hygienic and preventive side of the work, and to include such special subjects as selection and care of the flying personnel, maintenance and improvement of the physical efficiency of all ranks, sanitation, etc. The latter represents the curative side of the work. Here certain subdivisions, which facts have already shown to be necessary in the care of aviators, will be recognized, namely, neurology, surgery of the eye, throat, nose, and ear, and plastic surgery, while general medicine and pathology will be undertaken by men of broad experience. Under this system it will be possible to allocate each medical officer of the Air Force to the work that suits him best. For selecting good flying officers a knowledge of men and manners will be a great asset. The doctor who has been at a public school and a university and who has lived in communion with young sporting men, will know many things that will assist him in chosing the best flying officer; on the other hand, all the different branches of therapeutics, medical as well as surgical, will fall into appropriate hands. The deadly trouble of regimental routine is thus avoided, namely, that scientific men, with the unquestioned spirit demanded of all officers, go off unprotestingly to do what they cannot do, and further go off knowing that by the time they have learned to do the work they will be promoted to something quite different. Moreover, in the Medical Service of the Royal Air Force promotion is by merit and not seniority, so that the medical officer, if the scheme works as it is intended to work, will not only find himself employed upon congenial tasks, but will be rewarded if his efforts are particularly good. With such incentives it will be surprising if the service does not hold out many inducements to young men for employment.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

REMOVAL OF FOREIGN BODY FROM THE LEFT VENTRICLE—CARDIAC HYPERTROPHY IN AVIATORS—HOSPITALS THE SIZE OF CITIES—MRS. COREY DONATES CHATEAU TO THE RED CROSS.

PARIS, September 3, 1918.

AT a recent meeting of the Paris Academy of Medicine Dr. René Lefort presented a wounded soldier from whom the 13th of June last he removed a fragment of a hand grenade from the left ventricle. The operation was perfectly successful, the hemorrhage was limited to two jets of blood and the respiration was arrested momentarily during the incision of the ventricle. The fragment had rested nine months in the cavity. This is the first recorded case of the extraction of a projectile from the left ventricle. This makes nine operations upon the heart made by Dr. Lefort, seven for foreign bodies in the heart wall and two intraventricular, one of which succumbed the fourth day after the intervention.

Drs. Etienne and Lamy presented a report of a series of examinations of the heart of aviators. Without exception there was a degree of hypertrophy after five months' flying, persistent still after eight months' repose from their professional work. The hypertrophy was confined to the left ventricle. No case presented where the cardiac change was not seemingly well tolerated, the hypertrophy did not seem to interfere with the physiological function of the organ and was caused by the effort of the heart to adapt and protect itself against the vascular tension determined by the rapid atmospheric changes and quickly recurring mental excitement incident to the varying altitude and necessities of combat.

Base Hospital No. 38 represents the Philadelphia Jefferson unit, and the medical staff is under Colonel J. S. Lambie, of Jefferson Medical School. There are over thirty doctors in this hospital, and their services are distributed among 300 patients, which means that this contingent gets mighty good care. However, there is room for 3.000 patients, while in time of pressure, 3,000 more can be accommodated. Added to this there is a convalescent camp for 2,000 men, which brings up the total to 8,000.

In the same town is Base Hospital No. 34, over which Colonel Devoe presides. The colonel is from the University of Pennsylvania. This hos-

pital resembles the American Hospital at Neuilly, inasmuch as it is a new seminary taken over for the American wounded. Everything here is spick and span. It was opened in January, but patients did not come until three months afterward. The colonel thinks it more suitable for hospital purposes than most places taken over for the army. He says the entire building, with annexes, is wonderfully well arranged, and such details as the sewage are of the best modern arrangements. There is accommodation here for 1,300 patients. Most of the medical staff of eighteen doctors come from Philadelphia, being connected with the Episcopal Hospital there. It is a general hospital and not limited to special cases.

At a place near there is another hospital getting into shape. It will accommodate from 12,000 to 15,000 patients. Then there is another enormous hospital in an adjoining town where patients are received from the first-mentioned hospitals. If the wounded men are found to be incurable, or if the chances are that they will not be of use at the front again, they are sent back home to America.

The enormous hospital accommodation for American troops in France is very ingenious. As wounded men come from the front they may pass through quite a number of hospitals. They go gradually from the front toward one of the hospital ports where the accommodation is very great. The nearer they get to the sea the better they are likely to become so that they soon are able to return to the front again, or if they show no prospect of quick recovery they are sent back home.

Mrs. William E. Corey has handed over the Château de Villegénis, Massy, Seine et Oise, to the American Red Cross for a convalescent home, to be known as the "Corey Home." The formal opening will take place to-day. The estate is princely —there is no other word for it. Laid out for Jerome Bonaparte, it comprises about 200 acres of beautiful land. Traversed by the Vièvre, and wooded with about 50 acres of forest land, it comprises a babbling brook, two lakes, one of which contains an abundance of fish, 40 acres in crops of wheat, oats, and barley, and 30 acres of hay land, a large swimming pool (2 meters deep), orchard, vegetable gardens and flower gardens— where convalescents will have the time of their lives when assigned to that fair corner of France.

The rose gardens are two in number. One of these rose gardens is a covered vault, 200 yards long and thickly festooned with roses. The other is nearly as long. There are stables for fifteen horses and automobile garages for four machines. Long avenues of ash, oak, and elms invite health-giving promenades among stately trees that throw their cooling shades over the walks, making hot weather not only tolerable but delightful. The Château de Villegénis can be approached by train or auto, and soon the termini of the newly constructed railway line from Paris will be available. Probably few estates exist with such enormous advantages as health resorts and what its future may be can easily be imagined, as the surrounding district is exceptionally beautiful.

146, Avenue des Champs Elysées.

CANADIAN LETTER.

(From an Occasional Correspondent.)

PUBLIC HEALTH AND FOOD CONSERVATION—THE MEDICAL PROFESSION OF ONTARIO AND PROHIBITION— INFLUENZA IN EASTERN CANADA—DR. H. B. ANDERSON APPOINTED REFEREE—OFFICERS OF THE ONTARIO MEDICAL COUNCIL AND OF THE MEDICAL COUNCIL OF CANADA—PERSONAL NOTES.

Toronto, October 5, 1918.

An interesting and a useful feature of the Canadian National Annual Exhibition, recently held in Toronto, was the exhibit of the Ontario Board of Health. By means of moving models the menace of the fly, the facility with which a rural water supply may be contaminated, the dangers involved in the use of the common drinking cup, and the results of effective and of improper ventilation of sleeping apartments were illustrated. The necessity for the prevention of communicable diseases was emphasized by an exhibition of the various biological products which the board is supplying to the public of Ontario free of charge.

The question of tuberculosis was fully dealt with, being allotted a special section. Posters were displayed which bore upon the general aspects of the problem. Ten of these were devoted to a consideration of the prevalence of the malady in childhood. Venereal diseases received very particular attention, the object being to instruct the public. By the aid of excellent charts the outstanding facts in connection with the disease were graphically brought out, while available statistics were introduced to clinch the argument and to dispel some of the ignorance with which the subject of the venereal diseases is still shrouded so far as the general public is concerned.

Special stress was placed upon child welfare at the exhibition. By a system of free clinics, expert medical and dental advice was made available to mothers of infants and of children up to sixteen years of age. These clinics were in operation from two o'clock up to five o'clock during the time the exhibition was open. A rest room for nursing mothers was provided. Qualified trained nurses were in charge throughout the day and evening, and practical demonstrations in the care of the baby, under the headings of bathing, clothing, and feeding, were given every afternoon. As the primary object of the exhibit was to stimulate interest in infant welfare work and medical and dental inspection in the schools, clinics for these purposes were held daily. The equipment used by the Department of Public Health of the city of Toronto was lent for the occasion, as well as the services of the medical staffs of the various divisions. The Public Health Board of Toronto heartily cooperated with the Ontario board, and it is to this practical appreciation that their interests were identical that the unqualified success of the exhibit was due.

Another feature of the exhibition closely related to the public health and to the successful prosecution of the war was the department dealing with food conservation. The various methods for conserving food were fully demonstrated, but the only one to which attention will be drawn here is a new process devised and introduced by Dr. W. B. McLaughlin of New York. Dehydration of certain

foodstuffs, principally vegetables, by the latest methods, by means of moderate heat and air currents, appears to have answered the purpose in a satisfactory manner. By some, however, it is claimed that dehydration pure and simple materially injures the flavor of vegetables, and, moreover, the adding to them of their proper quota of water is a somewhat tedious process. It is said that the process brought out by Dr. McLaughlin embodies the best features of dehydration and canning, and avoids their main defects. The principle of this method is that fruits and vegetables are only partially dehydrated, the result being that the housewife may easily restore the food to its original state or to the necessary state of rehydration. It is urged on behalf of this method that the great loss of time experienced in using dried fruits is saved, and that owing to the moisture retained after partial dehydration the flavor of the products is preserved. The weight is reduced according to the degree of dehydration, and varying with the amount of the original moisture, from one-fourth to one-third the weight of the product in the normal state. This affords a consequent decrease of bulk, with all which that signifies in containers, shipping, storage, carting, and other costs. After the products have been partially dehydrated they are sterilized by placing them in a vacuum chamber and then admitting live steam for a period of from six to ten minutes. The heat employed by this mode of sterilization is considerable. It is said that steam at 250° F. has been found satisfactory, and that owing to the short period required for sterilization as compared to the canning process there is far less cooking or breaking up of the tissues of the products, thus leaving the foods in a more attractive condition. After undergoing the sterilization process the foods are put up in tin or glass receptacles.

Since prohibition has come into vogue in Ontario it goes without saying that in order to obtain alcohol many subterfuges have been resorted to by those who have become habituated or addicted to its use. Those desirous of providing themselves with their customary stimulants without laying themselves open to the rigors of the law, adopted the plan so well known in other communities of applying to a medical man for a prescription ordering alcohol in some form as a medicine. One or two physicians have been prosecuted for the freedom with which they have given prescriptions for alcohol. Complete returns from all the vendors of alcohol in Ontario, issued recently by the Ontario License Board, show that during August last over 90 per cent. of the medical men in the province gave out not more than twenty-five prescriptions, their average being 5.26 per medical man. Five per cent. of the profession issued more than twenty-five, but less than fifty. It would appear that these physicians gave more liquor prescriptions than the therapeutic indications in their practice justified. The others were offenders against the Ontario temperance act, the average of their prescriptions for alcohol during the month being 124.79. According to the lay journals, the difficulty of securing conviction in cases in which the medical man flagrantly and patently contravenes the law is likely to result in a change in the Ontario temperature act at the next session of the Legislature. In adopting the clause permitting physicians to issue prescriptions for liquor the Legislature assumed that the medical profession would scrupulously comply with the strict spirit of the law. As the law now stands, the medical man who is prepared to testify that in his judgment the applicant needed liquor as a therapeutic measure will go scot free. It is somewhat difficult to understand how the law will be altered so that it will not be left to the discretion of the medical man to prescribe alcohol. As long as alcohol is regarded as a drug it will be infringing upon the rights of the profession to prohibit its prescription as a medicine. On the other hand, when a doctor writes in one month 725 prescriptions for alcohol, as the returns of the Ontario License Board show that a practitioner in Ontario did, it would seem that prohibitive steps should be taken.

While it can hardly be said that influenza is rife in Canada, it is prevalent in certain parts of the Dominion. There are many cases of the disease in Montreal, and it is reported to have broken out in epidemic form in barracks there. The Khaki League Convalescent Home has been set aside as a hospital to deal with influenza cases. In the Polish army stationed at the Niagara Camp, Ontario, influenza has been present for some little time. There are now about 160 cases in hospital, and there have been ten deaths.

Dr. H. B. Anderson has been appointed by the Minister of Education chief medical referee for the Ontario branch of the Inspectors and Teachers' Superannuation Fund Commission.

The annual meeting of the Ontario Medical Council was held from June 25 to June 27. The officers elected were: *President*, Dr. R. Ferguson; *Vice-President*, Dr. A. T. Emmerson; *Registrar-Treasurer*, Dr. H. Wilberforce Aikins; *Solicitor*, H. S. Osler, Esq.

The Medical Council of Canada, at the concluding session of its annual meeting, at Ottawa, elected the following officers for the current year: *Honorary President*, Sir T. G. Roddick, Montreal (reelected); *President*, Dr. R. Eden Walker, New Westminster; *Vice-President*, Dr. I. C. Connell, Kingston; *Registrar*, Dr. R. W. Powell, Ottawa (reelected); *General Counsel*, F. H. Chrysler, K. C., Ottawa; *Auditor*, G. L. Blatch, K. C., Ottawa.

Dr. F. N. G. Starr, a well-known surgeon of Toronto, who has recently joined the R. A. M. C., has arrived in England. He has been appointed a consulting surgeon to the Canadian forces in France. Col. A. E. Ross, M. P. for Kingston, has been appointed director of medical services for the Canadian Section, general headquarters in France.

Progress of Medical Science.

New York Medical Journal.

1. Bacteriology and Possibility of Antiinfluenza Vaccine as a Prophylactic. William H. Park.
2. A Note on the Pathology of the Prevailing Pandemic Influenza. Douglas Symmers.
3. Clinical Aspects of Influenza. Henry W. Berg and Jesse G. M. Bullowa.
4. The Treatment of Influenza. Walter A. Bastedo.
5. Concomitant Bronchoscopy and Esophagoscopy. Samuel Iglauer.
6. Day Phantasies In a Child. Adolph Stern.
7. Spontaneous Pneumothorax in Pulmonary Tuberculosis. Moses Kahn.

8. The Real Value of Fresh Air in Tuberculosis and Many Infectious Diseases. Charles Gluck.
9. Improving the Sight of Soldiers and Sailors. W. H. Bates.

8. The Real Value of Fresh Air in Tuberculosis and Many Infectious Diseases.—Charles Gluck believes that the whole domain of the treatment and cure of diseases will be revised by the work now being done by the nose and throat specialists, whose view is more mechanical and therefore more efficient and practical. Germs themselves cannot produce disease; the predisposing factors must be present. The first of these are with us all, such as the strain and stress of life, worry and exposure, but the second—the nasopharyngeal factors—are the only means whereby germs accomplish their work. Gluck points out that the production of disease is chemico-mechanical, and he lays particular stress on the mechanical side. Inspired air which is drawn through abnormal or diseased nasal fossæ or the mouth results in suboxidation, facilitates the growth of germ life, especially in the nose and throat, and leads to disease. In illustration of the fact that abnormalities of the nasopharynx produce or aggravate disease, the case of interstitial keratitis is quoted, which in a child with perforated or deflected septum, enlarged tonsils and adenoids is difficult to cure, but which clears up under simple treatment in a ehild with normal nasopharynges. Air which is breathed by mouth or drawn through abnormal nasal fossæ is not properly moistened, warmed or filtered, and gives rise to a condition of the body tissues which permits of germ growth and infection, the natural resistance thus being lowered. Not only is it important that sufficient air should be drawn into the lungs, but a sufficient quantity must be absorbed into the system by the lung alveoli if health is to be maintained. The body should be regarded as a machine which cannot work properly unless the mechanical factors are right. The three cardinal points of a deranged nose and throat are: The presence of diseased tonsils; tissues found in the pharyngeal vault, consisting of adenoids or their remains, and adhesion bands; the deflected nasal septum. In a child the more the tonsils and adenoids are infected, the more they swell; and the greater the swelling, the greater is the interference with normal nasal breathing. The more the child breathes with its mouth, the greater is the degree of suboxidation and the more will germs proliferate and be absorbed. Thus a vicious circle is established which results in colds, and later in pneumonia, diphtheria, and tuberculosis. That this is so is demonstrated by the fact that if the faucial tonsils are completely removed and the vault of the pharynx thoroughly cleaned out, the child grows and is free of almost all ailments. In eczematous keratoconjunctivitis and all infiltrative inflammatory disease of the cornea, both faucial tonsils should be enucleated and every vestige of adenoid tissue and adhesion bands taken from the pharyngeal vault, which subsequently should be scraped by the index finger at intervals of three, six, and nine months after operation (this is essential in all eczematous children). A complete submucous operation should also be done in all cases that require it. The finger snare method for complete enucleation of tonsils under local anesthesia (novocaine) is the best. In the adult the disease producing mechanism is the same, but of the three cardinal points mentioned the third is perhaps the most important. All other abnormalities of the nasal fossæ are secondary to the deflected septum, diseased tonsils and vault abnormalities. In older people adenoids are usually atrophied, leaving bands of connective tissue which stretch between the vault of the pharynx and the pharyngeal projecting ends of the Eustachian tubes, and it is in the interspaces between these bands that the germs breed. Gluck believes that tuberculosis in all its forms can be prevented and eradicated by the means indicated, and that we possess a wonderful instrument for the prevention of many other ailments and the more scientific treatment of disease when present. The reason for breakdowns may be more easily understood and an explanation furnished for cases of malnutrition, underweight, anemia and so on. All such conditions, he believes, may be successfully treated by destruction or removal of the disease producing mechanism described; and this can be done in the manner indicated. He states that no tuberculous patient is properly treated unless his tonsils are completely removed, and he is assured that in his nasal fossæ there exists a straight and thin nasal septum, and that he possesses a perfectly clear pharyngeal vault, a fact to be repeatedly ascertained. This means a complete submucous operation on the nasal septum in every tuberculous adult who is able to stand the operation. Such a procedure can only be adopted under the most careful scientific handling as regards diet and rest in bed, or absence from work. Cases of other infectious diseases may be given ambulatory treatment. It is seldom necessary to remove much turbinate tissue; a little trimming of the edges of the middle turbinate on the concave side of the septum will be necessary, to reduce it to normal size. This is true also of the inferior turbinates. Polypoid tissue must be removed but the necessity of sparing as much of the turbinate tissue as possible must be borne in mind.

Journal of the American Medical Association.

October 12, 1918.

1. The Lymphatics of the Dental Region. Frederick B. Noyes and Kaethe W. Dewey.
2. Further Experimental Study of Surgical Shock. F. C. Mann.
3. Reconstruction of the Common Bile Duct. J. Shelton Horsley.
4. Reconstruction of the Choledochus. Le Grand Guerry.
5. Hemophilia: Experimental Data Bearing on the Effect of Glycerinized Extracts of Visceral Hemophilic Tissue on the Coagulation Time of Blood. Harry Lowenburg and A. I. Rubenstone.
6. Recent Studies in the Anatomy and Physiology of Tendons: Their Application to the Technique of Tendon Operations. Leo Mayer.
7. The Bacteriology of Measles. Ludvig Hektoen.
8. A Study of Diphtheria Carriers in a Military Camp. Frank R. Keefer, Stanton A. Friedberg, and Joseph D. Aronson.
9. The Protective Qualities of the Gauze Face Mask: Experimental Studies. David A. Haller and Raymond C. Colwell.
10. The Army Shoe and Milk Foot Disabilities. J. Torrance Rugh.
11. Face Masks in Infections of the Respiratory Tract. Brewster C. Doust and Arthur Bates Lyon.

3. Reconstruction of the Common Bile Duct.—J. Shelton Horsley. (See MEDICAL RECORD, June 29, 1918, p. 1143.)

4. Reconstruction of the Choledochus.—Le Grand Guerry. (See MEDICAL RECORD, June 29, 1918, p. 1143.)

5. Hemophilia: Experimental Data Bearing on the Effect of Glycerinized Extracts of Visceral Hemophilic Tissue on the Coagulation Time of Blood.—Harry Lowenburg and A. I. Rubenstone. (See MEDICAL RECORD, August 3, 1918, p. 216.)

7. The Bacteriology of Measles.—Ludvig Hektoen reviews the literature on this subject and concludes that the chief bacteria to engage the attention in connection with measles at present are: (1) the diplococcus found by Tunnicliff in the blood early in the attack and in the throat and nose; (2) influenza bacilli, and (3) hemolytic streptococci. As opsonins and probably other bodies specific for the Tunnicliff diplococcus come into the blood in the course of the measles attack, this coccus must be of some significance, but the exact significance we have still to learn. While hemolytic streptococci seem to predominate overwhelmingly in the bronchopneumonia and other allied acute processes in measles, influenza bacilli are found so frequently in the throat secretions and in lung lesions that doubt arises as to their harmlessness. Hence the part played by these bacilli in measles should be studied further. As hemolytic streptococci may spread rapidly among measles patients, and largely it would seem by droplet and throat infection, in order to avoid the most serious complication of measles, that is, streptococcus bronchopneumonia, the patient should be isolated under conditions that protect against infection from persons, including fellow patients, who may harbor streptococci. Such isolation also protects against other infections (pneumococcus, influenza bacillus). The possible danger of streptococcus infection by way of food should not be overlooked. Finally, it is evident that the immunology of the streptococci concerned, their unity or plurality, their changes in virulence, and other problems require continued investigation.

British Medical Journal.

September 21, 1918.

1. Observations on the Nature and Symptoms of Cardiac Infection in Childhood. IV. Myocarditis or Neuromuscular Cardiac Affections. F. J. Poynton.
2. Preliminary Note on the Association of Rickettsia Bodies in Lice with Trench Fever. J. A. Arkwright, A. Bacot, and F. Martin Duncan.
3. The Work of a Department for Employing Expectant Mothers in a Munition Factory. Rhoda H. B. Adamson and H. Palmer-Jones.
4. Notes on Three Fatal Cases of B. aertrycke Infection. Major A. J. Jex-Blake and Brevet-Major W. James Wilson.
5. Ventral Hernia: A Device to Strengthen the Abdominal Wall. Captain H. H. Greenwood.
6. Boot Heels as a Cause of Flat-foot, Soldier's Heart, Myalgia, etc. Captain Sylvester D. Fairweather.
7. A Simple Splint for Facial Paralysis. Lt.-Col. Chas. E. Dennis.
8. The Cause and Cure of Constipation. A. C. Adams.
9. Restoration of Function After Penetrating Wounds of Joints. W. J. Foster.
10. "Chronic" Diphtheria. W. A. Norman-Robinson.

2. Preliminary Note on the Association of Rickettsia Bodies in Lice with Trench Fever.—J. A. Arkwright, A. Bacot, and F. Martin conclude from their observations that: (1) The constant presence, after a suitable lapse of time, of rickettsia bodies in lice which have been fed on a trench fever patient has been confirmed. (2) The absence of rickettsia bodies from lice bred in captivity and fed only on healthy men has been shown by their work, in contradistinction to observations made on the Continent, where the population is much more exposed to infection and a clean stock of lice is more difficult to procure than in England. (3) A very close correlation has been shown to exist between the presence of rickettsia bodies in lice or the excreta of lice and the virulence of these materials when inoculated into men.

6. Boot Heels as a Cause of Flat-foot, Soldier's Heart, Myalgia, Etc.—Captain Sylvester D. Fairweather points out that to cure flat foot the heel and sole should be of the same thickness. Arch supports and thickening the inner side of sole and heel fail to cure because the os calcis is raised from the ground, with the result that the weight of the body falls on the arch instead of the heel and outer side of the foot, and consequently the peroneus longus and brevis, while extending the foot, also evert it, and the tibialis anticus becomes elongated and no longer supports the arch. Boot heels rob the arch of its elasticity instead of supporting it. Exercises should therefore aim at developing the tibialis anticus, and not the calf muscles as hitherto taught. A heel even a quarter of an inch thick is harmful. He also points out that flat-foot is no disability if heelless boots are worn, except in hopeless cases; that boot heels help to produce soldier's heart, myalgia, and numerous other ailments, and that with heelless boots women would not require corsets.

Revue médicale de la Suisse romande.

June, 1918.

Two Cases of Adrenal Insufficiency.—Betchov and Demole relate the following cases: Man, aged 44, had recently gone through an attack of quinsy, after which he suffered from what was regarded as lumbago. The next symptoms were those of probable malignant disease of the left side of the neck—a parent lesion and enlarged regional lymphnodes. He also began to emaciate without apparent cause, which reinforced the diagnosis of malignancy. It was thought that the tumor in the neck was a secondary nodule, but no primary growth could be detected anywhere. The remainder of the finds of a systematic examination were also negative with the exception of vascular hypotension. This first drew attention to the adrenals and Sergent's white line was repeatedly obtained. Poultices applied to the loins brought out a brown pigmentation. An injection of adrenaline increased the blood pressure without causing glycosuria. The lumbalgia had persisted. The patient was interned technically for a slight bronchitis, but in the hospital he rapidly sank and died of adynamia. Autopsy revealed a complication of affections, the primary growth being an ulcer of the base of the tongue with numerous metastases, including the visible ones of the neck. The right adrenal was the seat of a cancerous metastasis, while its fellow appeared to be hypertrophied. The second patient was a man of 24 years, who went through a typhoid fever complicated with perforation and peritonitis. Owing to the profound state of depression, a surgical operation was out of the question. The presence of the white line and low bloodpressure showed the condition of the adrenal functions. Death was preceded by the development of acute hemorrhagic diathesis. There was a marked anatomical foundation for the adrenal insufficiency, but the lesions could not be interpreted beyond evidences of degeneration of some sort. Such lesions have frequently been encountered in death from acute infectious diseases, but the rationale is not apparent, although the adrenals have evidently lost most of their lipoid content.

Deutsche medizinische Wochenschrift.

August 8, 1918.

The Regeneration of Joints.—E. Payr, in this final instalment of his article, again insists on the part played by the muscle functions in the re-establishment of the physiological articular play. Regeneration of a joint is, all things being equal, the function of the simplicity of the mechanical arrangement. Thus, in the case of the elbow, flexion and extension return more rapidly and completely than pronation and supination. Besides the part played by muscular movement, passive movements play an appreciable part in re-establishing functional activity. For that matter, this may be entirely independent of a return to the former state of the joint and radiography often reveals the most grotesque joint deformities, although the articular functions are perfect. Rest, which is unquestionably an excellent therapeutic measure, is generally employed to the point of exaggeration by most surgeons; therefore, contraction of the synocial membrane, processes of retraction of the fibrous capsule and ligaments, bone atrophy, and muscular contraction ensue. Permanent immobility is the outcome of too long rest and is due to extra-articular changes much more than to anhylosis. Anhylosis brings the writer to the question of arthroplastic operations by violent disjunction, bone modeling and interposition of various forms of tissue flaps. A well applied extension assures proper gaping of the joint cavity during the process of repair. The writer has been able to examine cases a long time after discharge from hospital and he found in place of the interarticular line a membranous connective-hyaline-sclerous network, without any trace of chondrification, enclosing some small clefts with mucous contents, in its meshes. In closing, Payr refers to the importance of the study of the normal development of joints in order to understand the phenomena of regeneration.

The Treatment of Infected Gunshot Wounds with a 10 Per Cent. Sea Salt Solution.—C. Stieder argues in favor of the treatment by sea-salt solution, which he considers superior to Dakin's fluid.

Münchener medizinische Wochenschrift.

August 6, 1918.

A New Procedure of Surgical Experimentation.—E. Sehrt has applied to the internal viscera direct observation of the capillaries as Müller has inaugurated it in the case of the skin. The small intestine of animals may be examined *in vivo*, the circulation being distinctly visible with the changes it may offer from pathologic causes. Thus, ligature of a portion of the mesentary immediately causes a special aspect of the capillaries of the gut, namely, a dilatation and immobility of the vessels. The writer has made the important observation that the area involved extends much beyond the zone actually involved by the mesenteric ligature, this latter including 32 centimeters while the circulation ceased over an extent of 28 centimeters above the ligated area. When the animal was killed the intestinal necrosis was, in reality, about 70 centimeters in extent. Sehrt's procedure would thus seem to allow one to judge the viability of a given portion of the intestine and the writer proposes to continue his studies on other organs, as, for example, the brain.

Meinicke's Reaction in Syphilis.—F. Lesser points out that the union of the antigen with the antibody has not been demonstrated by complement deviation, but rather by the presence (or absence) of a persistent occulation when in presence of a Na Cl solution. This reaction has been experimented with by Lesser, who declares himself convinced of its great value. The comparative tests with the classic Wassermann offers a satisfactoy concordance. Although Meinicke's method is much more simple than Wassermann's it should not, however, be considered as more available, and although it is true that all animals are eliminated in the procedure, it nevertheless requires minute technical precautions, as well as reactions in series, according to the plan given by Lesser in the text. The reaction is not applicable to the cerebrospinal fluid.

Wiener medizinische Wochenschrift.

August 10, 1918.

The Clinical Aspects of Typhus Fever.—E. Nobel and J. Zilczer have followed epidemics of this disease in prisoners' camps. The most rapidly progressive epidemic that the writers met with was quickly checked by hygienic measures, particularly the destruction of lice. In typhus foci in the country flying columns equipped with necessary disinfecting apparatus have been able to clean up a radius of 45 kilometers at a time. Isolation of suspected cases shows that incubation may last as much as twenty days. The disease seems to present exacerbations during cold weather, this being perhaps due to great promiscuity among the men. The disease usually offers a gravity in direct ratio to the age of the patient. The mortality which is 5 per cent. up to the age of fifty years, reaches 30 per cent., 60 per cent., and 100 per cent. in patients between seventy to eighty years of age. Among the complications the writers mention pneumonia, nephritis, bilateral parotiditides and especially mental disturbances.

La Presse Médicale.

July 18, 1918.

Antianaphylactic Treatment of Various Affections.—Danysz discusses the possibility of a general plan of antianaphylactic treatment applicable to asthma, various dermatoses and certain gastrointestinal disorders. Plenty of work has been done along special lines but without attempts at coordination, although Besredka, the leading authority on antianaphylaxis, has pointed out numerous analogies. The author differs from any of his colleagues in seeing a basic resemblance between subjects at the first sight quite unrelated, this bond of union being none other than what is known as antianaphylaxis. In fact almost the whole of biological therapeutics may plausibly be brought under this rubric. The author believes that the sensitizing agents to various affections may preexist in the subject's own tissues, and cites the case of an asthmatic whom he cured by making a sterile culture from his intestinal flora. The control of the paroxysms by hypodermics was remarkable. After two series of ten injections each the patient appeared to be immune to his own poisons. The treatment was confirmed on cases of skin disease. A trial of the remedy by the mouth in a single instance seemed to be without effect. The author sums up his views as follows; any microorganism or foreign protein when swallowed can behave as an antigen and can sensitize the organism with the production of certain disease pictures. The neutralization of these antigens by vaccines, serums, etc., is fundamentally the same process as when these methods are exhibited against extraneous bacteria and toxic products.

Finska Läkaresällskapets Handlingar.

February, 1918.

Malaria in Abo.—Ekholm discusses the subject of the incidence of malarial fever in the city of Abo during the period 1881-1916. Records exist which show this incidence by years and by months. Everything appears to support the theory that the Anopheles can only become dangerous when the temperature reaches a certain height. The plasmodium appears to be viable only in certain particular years and in the months of July and August. The mosquitos then become infected but soon go into hibernation, the sporozoa persisting only in the salivary glands of the insect. The infection then appears in man in the following May, for during the cold weather the parasites complete their development and are for the first time a menace to man.

The Eye Symptoms of Recurrent Fever.—Kuhlefelt goes exhaustively into this subject which is of interest because this affection is a spirillosis, and hence might show some parallelism with syphilis. The eye symptoms of this affection have attracted attention in Finland since 1866. The most common of the symptoms is cyclitis, which is doubtless often overlooked. This lesion, despite its protracted course, is not to be regarded as chronic cyclitis, but the persistence of the symptoms is simply the result of delayed absorption. The lesion therefore is acute cyclitis. Iritis when present is as a rule simply a complication of cyclitis, or in other words iridocyclitis; primary iritis is rare, but does occur. In iritis of any type the formation of synechiæ may occur. Typical iridocyclitis is said to be rare and until recently had been seen only by Uhthoff. Conjunctival and subconjunctival hemorrhages may occur. Other eye affections in recurrent fever are probably best regarded as chance coincidences. The existence of a specific choroiditis is to be doubted. Serous choroiditis could not account for the alleged symptoms, while the ophthalmoscopic finds of exudative choroiditis have never been reported.

Nederlandsch Tijdschrift voor Geneeskunde.

June 8, 1918.

Acute Myeloblastic Leukemia.—Hannema reports a case of this affection in a man aged 39 years who before his present illness had been quite healthy. In July, 1917, he had a tooth pulled and the bleeding which accompanied the act persisted for 4 or 5 hours. This hemorrhage stood in some association with a preceding stomatitis with suppurative gingivitis. The gums continued to bleed off and on and he began to show pallor. The appetite remained good and there was no emaciation. There was no other hemophilic tendency. He entered the hospital in October, a very pale subject with pale mucosae. There was a marked *fetor ex ore* and the gums were everywhere much swollen and covered with a foul grey deposit. The gums bled readily and pus could be expressed from them. The physical examination was largely negative, as far as organic lesions were concerned. The blood examination showed hemoglobin 50 and erythrocytes 2,130,000. Leucocytes were 10,000. The further finds were atypical and the case is summed up provisionally as one of infectious stomatitis with a peculiar reaction of the bloodmaking organs. The blood picture was quite devoid of any evidences of regeneration. It was that of aplastic anemia without signs of hemolysis. There was chiefly an insufficiency of the bone marrow. The author mentions for the first time enlarged spleen. The patient failed rapidly, the hemoglobin falling to 10 and the erythrocytes to 900,000. Death occurred Oct. 24, about three weeks after admission. Autopsy revealed only intense anemia. Only after a microscopical examination of the spleen, liver and bronchial lymphnodes was the diagnosis of acute myeloblastic leukemia made.

Psychogenic Urticaria.—Van de Roemer refers to a case recently reported in the Tijdschrift of emotional urticaria and is able to duplicate it with an observation of his own. The patient was a medical student and the case occurred in 1915. The entire body broke out at once but the lesions were more pronounced on the exposed surfaces. The lesions began as small papules with a red areola. The greatest distance was 3 mm. between the spots. He never had experienced an emotional outbreak of hives until he was 21 years old. They appeared under all kinds of conditions, in summer and in the coldest weather, during active labor and when quietly seated. The only *sine qua non* was some emotional experience. Psychogenic sweating was always associated with the hives.

Book Reviews.

THE MEDICAL CLINICS OF NORTH AMERICA. Vol I, No. 5. Chicago Number. March, 1918. Price, $10 per year. Published by W. B. Saunders Company, Philadelphia and London.

SOME excellent cardiovascular material is presented by Dr. C. L. Mix and A. R. Elliott in discussions of the aortic disease, aneurysm, syphilis of the aorta, and the fundamental principles underlying the diagnosis of the more common cardiac lesions. Dr. S. Strouse demonstrates two cases of diabetes in twins, a boy and a girl. The glycosuria appeared about the same time in both. He also takes up the Karell treatment of edema and makes some observations on the importance of details in the treatment of angina pectoris. Dr. Charles A. Elliott shows three cases of leukemia; one, of the myelogenous type, was treated with radium and followed by splenectomy. Under the influence of radium the spleen was reduced in size, so that it weighed only 300 grams when removed. The leucocytes were 311,200 at the beginning of treatment and decreased to 11,700 when the patient left the hospital in good condition. Another case of myelogenous leukemia and one of lymphatic leukemia were treated with radium radiation and materially benefited. Elliott believes that this form of therapy is much more effective than any other. Not only do the leucocytes return to within fairly normal limits, but the red blood cells and hemoglobin increase decidedly. Next in order is a clinic by Dr. F. Tice, on epidemic respiratory infection, in which he takes up the particular variety of infection that was prevalent in Chicago last winter. Dr. C. S. Williams presents a case of Vaquez's disease. Dr. M. Portis gives a very interesting clinic on the differential diagnosis of lesions of the right upper quadrant. Following is a list of the remaining clinics in this number: Reflex gastric disturbance and epigastric pain, by Dr. J. C. Friedman; tuberculin skin reactions in diagnosis of tuberculosis in childhood, by Dr. J. H. Hess; nephritis, by Dr. F. Wright; splenomegaly and cirrhosis of the liver, by Dr. A. F. Byfield; insomnia and hysteria, by Dr. R. C. Hamill; asthma in Children, by Dr. I. Abt; Roentgen examination of the appendix, Dr. M. J. Hubeny; pyelitis in the newborn, Dr. H. F. Helmholz.

THE COST OF CLEAN CLOTHES IN TERMS OF HEALTH. By LOUIS I. HARRIS, Dr.P.H., M.D., Director, Bureau of Preventable Diseases, Department of Public Health, New York City, and NELLE SCHWARTZ, Executive Secretary, The Consumers' League of the City of New York.

THIS little brochure appears without reference to its publication and bears no date. The subtitle is "A Study of Laundries and Laundry Workers in New York City." There are staffs of subeditors from the Board of Health and Consumers' League. The subject matter comprises a complete account of the laundry industry of the metropolis, apparently the first effort of its kind, for the territory covered. The only works cited are similar reports of the industry in the State of California and City of Milwaukee. The book is well illustrated by photographs and other graphics, tables, examination blanks, etc., and should be read by all who are interested in civics, occupations, hygiene, and cognate subjects.

DIFFERENTIAL DIAGNOSIS. Volume II. Presented through an Analysis of 317 Cases. By RICHARD C. CABOT, M.D., Assistant Professor of Clinical Medicine, Harvard University Medical School, Boston; Chief of the West Medical Service at the Massachusetts General Hospital. Second Edition, Revised. Profusely illustrated. Price, $6.00. Philadelphia and London: W. B. Saunders Company, 1918.

THIS volume is on the same general plan as the first part which appeared a few years ago. In place of the usual text-book method of treating this subject, the author takes some prominent symptom and presents in detail some cases in which this symptom was a marked feature. These cases are analyzed and discussed; and the reader gets the advantage of being present at a clinic, where all of the possibilities are brought forward and one by one are eliminated, until a diagnosis is reached. The volume is most interesting as well as instructive; and the practitioner will derive real benefit from studying some of the cases here presented. If the reader does not always agree with the author's conclusions he will, at any rate, have had the benefit of thinking over the case; and Dr. Cabot's views are always stimulating. The Symptoms considered in this volume are: Abdominal and other tumors, vertigo, diarrhea, dyspepsia, hematemesis, glands, blood in the stools, swelling of the face, hemoptysis, edema of the legs, frequent micturition and polyuria, fainting, hoarseness, pallor, swelling of the arm, delirium, palpitation and arrhythmia, tremor, and ascites and abdominal enlargement. The book contains 317 cases, with discussion, and will afford profitable reading for one year, at the rate of a case a day.

INTERNATIONAL CLINICS. Edited by H. R. M. LANDIS, M.D. Vol. I. Twenty-eight Series, 1918. Price, $10 per year. Philadelphia and London: J. B. Lippincott Company.

THE present volume of "International Clinics" contains a list of seventeen contributors, fourteen of whom are American. The subject-matter of his volume follows the customary arrangement into clinics and lectures on the various branches of medicine. Among the foreign papers that of Dr. Charles Greene Cumston on "Injuries to the Cranium and Brain in Warfare" is particularly worthy of note. Dr. W. S. Lee of Philadelphia reports the successful treatment of an enormous carbuncle on the back, 7½ inches in diameter, by means of deep crucial incisions and dichloramine-T antisepsis. The lesion healed in seven weeks. Lee calls attention to the value of secondary suture of infected wounds after their chemical sterilization with Dakin's solution. Dr. F. P. Weber of London has an interesting and instructive article on "Some Pathological Conditions of the Nails," in which he discourses on various forms of leuconychia, transverse grooving, incurved nails with clubbed fingers, and congenital ingrowing nails. The other articles are sufficiently diversified to make a well-balanced number. The illustrations are numerous and help to visualize the context. Finally, there is the annual general review of medicine, which gives the reader a synopsis of the principle advances made in all branches during 1917.

THE PREVENTION OF VENEREAL DISEASES. By OTTO MAY, M.A., M.D. (Cantab.), M.R.C.P. (London), Late Hon. Secretary, National Council for Combating Venereal Diseases. Price, $3.00. Oxford University Press, American Branch, 1918.

AS a consequence of the social conditions incidental to and arising out of the present war, venereal diseases are increasing and their ravages have prompted the author to present his views on their prevention. He realizes that their ultimate extinction by the abolition of promiscuous sex-relations is Utopian. In agreement with all other writers on the subject he emphasizes the importance of childhood education in self-control and morality. He views with more or less scepticism the practicability of governmental control of infected individuals and points out the flaws in these statutory enactments. Chapter III, entitled "Prostitution and Venereal Diseases," shows the fallacies of segregation and registration and is in accord with the writings of all modern practical sanitarians. Greatest stress is laid on prophylaxis or personal prevention, which, after all, is the most material and practical preventive measure. Little or no technique of this procedure is described and that little is open to a serious question as to its value. The closing chapter on venereal disease and marriage is excellent, and with regard to syphilis is based on Fournier's work and the opinion of J. E. Lang, F.R.C.S., who prefers to trust the clinicians' judgment rather than laboratory findings. With regard to gonorrhea, Kidd's test is accepted, which consists of bacteriological tests of the expressed prostatic and vesicular contents. Of the four appendices, the first only is of consequence. It consists of a lecture to troops on the nature and seriousness of venereal diseases in words intelligible to the laity. The work is dignified, serious, and timely.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held May 27, 1918.

THE PRESIDENT, DR. HOWARD C. TAYLOR, IN THE CHAIR.

Some of the Fundamental Scientific Principles of Radium Therapy.—Dr. WILLIAM DUANE presented this communication. He said that by fundamental principles he meant those general laws dealing with the radioactive substances, such a large mass of which had been collected during the past twenty-one years since Professor and Madame Curie discovered radium. Dr. Dunne showed pictures of Professor and Madame Curie and related his personal experiences in their laboratory. At the time Madame Curie discovered radium she was a student at the University of Paris, and the work she did in discovering radium represented her thesis for the degree of doctor of science. It was perhaps the most important doctor's thesis that had ever been presented to the University of Paris or to any other university, for that matter. Pictures were also shown of the place from which we obtained the ores containing radium and other radioactive substances. The first ores the Curies used came from Bohemia; those we were using in New York and Boston came from Colorado, and the radium was extracted in this country. Radium-bearing ores were distributed throughout the surface of the globe. Since the discovery of radium some thirty other substances, also radioactive, had been discovered, each one of which was a chemical element. Each one of them, however, was constantly transforming itself into another element. In addition to transforming themselves from one element into another they were all peculiar in that they were radioactive. The speaker then described the way in which they obtained the radium emanations that were being used in Boston and New York, and called attention to two new methods of using radioactive substances in America. The first was called the prolonged radiation method, because by means of it one could radiate tissues for two or three weeks or a couple of months. In order to do this a capillary glass tube, very small, containing a few units of emanation, was placed in the tissue by means of a trocar and left there. One-half unit of emanation would disappear in four days; one-half of the balance disappeared in 3.85 days; in sixteen days there was one-sixteenth left. By this second method three radioactive substances, A, B, and C, were deposited on anything that came in contact with the gas emanation. C was most active. Bringing it in contact, in a glass tube, with a piece of metal, one could make that metal intensely radioactive. This represented an intense radiation for a short time. In the application of radioactivity they had a set of rules that were very flexible. The radiation varied widely; the application might be either an intense radiation lasting a short time or a very weak radiation acting over a long time.

The Influence of Radium on Cancer Tissue.—Dr. JAMES EWING spoke on this subject from the standpoint of one interested in the general progress of cancer research. He stated that, since 1904, it had been his lot to make periodic visits of investigation at institutions abroad and in this country, and he had made one or two observations of interest in regard to therapy in the treatment of cancer. The first was that these institutions were always in the habit of using some constitutional agent in the treatment of inoperable cancer, and what was used in one institution was not the same thing as advocated in another. The list of agents used was very large. The second observation made was that many had definite results from these agents; they all claimed and professed to be able to prove certain results. In making a comparison of the effects of radium one fact stood out, and that was that while the results of these various agents were no doubt visible to the observer, they were so uncertain and unusual that Tuffier described them as paradoxical, and there was always the question whether the results were not due to some spontaneous change in the course of the disease. With radium the results were different in that if the same amount of radium were applied, through the same sort of filter, to the same type of cancer, the result was invariably the same. The advent of an agent that could do something to cancer that was not open to argument was most welcome. Radium was to be relied upon to do the same thing every time under the same circumstances, the difficulty being to provide the same circumstances. Radium was a specific in the sense that it was a substance that produced results that the speaker had not seen duplicated in any other way and produced changes which one would not see under any other circumstances. The entire series of changes followed by regression was not produced by any other agent with which the speaker was familiar. The changes which took place were controlled by one or two general principles. Radium exerted its chief effect upon the nucleus of the cell causing a peculiar liquefaction, necrosis, and atrophy. Another principle of its action was its effect on the underlying tissue in which the tumor cells were growing. It acted on the soil in which the tumor cells were growing, bringing about a natural healing process. It stimulated the growth of granulation tissue which excavated the cells and caused an exudation of various round cells; this he interpreted as a process of healing because the scar was very even and the end result a natural process. The healing effect of radium on the underlying tissues was due to stimulation of normal regenerative processes on the part of the normal tissue. This being so, one might assume that no matter what the type of cell it would respond to the action of radium. There was a great difference in the way in which different types of cells responded to radium. Some tumors were very resistant, some very susceptible. The chemical and morphological structures of tumors were very different and one must expect a very different response to radium in the various types of tumors. This fact should force us to pay more attention to the physical and chemical constitution which determined their response to radium. Dr. Ewing said he would not prophesy what radium was going to do in the future. In one respect it was far from being an ideal cancer cure. When applied locally it was efficacious but it had no constitutional influence at all. It might be possible by injecting it in salt solution to accomplish this, but that was a matter for future study. The local application of radium produced its effect over a territory more or less limited and the results so far attained were best in those conditions. As a remedial agent in advanced and inoperable cases, Dr. Ewing did not believe its results would ever represent its greatest usefulness. It acted in a local center only. If one gave large doses bad toxic effects followed. All the changes he had seen in many autopsies had indicated its limitation in the average case. The proper cases for radium treatment were the early forms of the disease.

Lantern Slide Demonstration of Uterine Cancer Treated with Radium.—Dr. HAROLD C. BAILEY made this presentation. He said that what Dr. Ewing had just said fell right in line with what he wished to demonstrate by the slides he was about to show. The future aim of the institutes that had large masses of radium would be, insofar as uterine cancer was concerned, to treat early cases in which the disease was not far advanced in the parametrium. Dr. Bailey showed illustrations of six cases in which hysterectomy was done after radiation. These cases were treated by the old method of small doses with replacement of the capsule in the same spot. Another series of cases treated with the idea of cross raying were shown. Dr. Bailey explained the attempts at regeneration shown in the specimens that had been subjected to radiation.

Treatment by Radium of Cancerous Mucous Membranes.—Dr. HENRY HARRINGTON JANEWAY presented this communication in which he called attention to the importance of knowing accurately the indications for the use of radium. At the present time there was a wide difference of opinion as to the place in cancer therapy which radium should occupy. This difference of opinion was perhaps most strikingly expressed in the question "Should some of the more important forms of cancer be treated by radium in their early stages, in an attempt to cure the disease by this agent, instead of by operative removal; or should radium be used alone as a palliative or supplementary means to

the usual methods of dealing with the disease?" At the Memorial Hospital, they had been encouraged to treat a rather large number of operable cancers of the mucous membranes. The remarkable improvement in some of the cases treated palliatively had not alone stimulated this attempt, but more especially the favorable result obtained in many early cancers in patients refusing operation, or in whom operation was contraindicated for other reasons. Two facts had been demonstrated by this experience: First, that within the time limit within which they had been working, single applications were often sufficient to cause apparent complete retrogressions, and, second, that in the larger lesions, in which this favorable result was not obtained, the lesion had become much more of an operable one than it was before treatment. There had been obtained, for instance, complete retrogressions within the time limits within which they had been working, in 21 cases of cancer of the lip, eight cases of cancer of the superior maxilla, including two which originated within the antral cavity; nine cases of cancer of the tongue and in one instance a large growth was greatly reduced in size and had since been removed under local anesthesia, without recurrence up to date, an interval of five months; in three cases of cancer of the tongue, and probably in two others not traced to date; in one patient with cancer of the soft palate. A number of patients with cancer of the larynx had been greatly improved, but none had been cured by radium alone, although in several there was a complete disappearance of the disease for a time. In one patient with advanced cancer of the larynx, an incomplete but marked regression of the disease was caused by the radium. At this stage the speaker removed the larynx and the patient had now been free from recurrence for one year, and was able to speak loud enough to be heard across a small room. In cancer of the larynx definite temporary improvements had been obtained from single treatments. Cancer of the rectum offered a most important and fruitful field for radium therapy. The operative treatment of cancer of the rectum had been disappointing. Moreover the necessity of establishing an artificial anus in the majority of the cases was a most serious drawback to the operative treatment of cancer of the rectum. While he could not, at the present time, claim with the same certainty favorable results in the treatment of cancer of the rectum that he could in the more accessible cancers of the mucous membranes of the mouth, yet the results thus far obtained, fully warranted the management of early cancer of the rectum by radium. If the entire management of cancer of the rectum should not be by radium, at least the preliminary treatment should be by radium. Among the patients whom they had treated clinically, complete retrogressions had been obtained in eight patients. Of these patients, one was treated in August, 1914, and when last heard from, a few months ago, he was well and working. Three other cases were at least clinically free from the disease at an interval of one year from the time of their treatment. Life was prolonged in the case of two others in comparative comfort for two years. The majority of their patients had very advanced lesions and the end results in these cases must be wholly discounted. The technique of the treatment of cancer of the rectum was constantly improving. Unquestionably the most promising field of radium therapy among the mucous membrane cancers was cancer of the uterus. It was possible to safely give these cancers very large doses, and it was doubtless due to this fact that, in the writer's experience, practically uniformly good results had been obtained. Among his own patients he had two who had primary growths of the cervix, involving most of the vaginal surface of the cervix from which positive microscopical sections were obtained, who had remained well after one treatment for a period of two years up to the present time. At least five other patients promised equally good results to date. The mixed tumors of the parotid, many of them being fairly cellular with the carcinomatous elements pronounced, had given almost specific response to radium treatment. They had had five striking results among these tumors. They had wholly omitted reference to the epithelioma of the skin, not because the benefit conferred upon these patients was a life saving one, but because the problem was relatively simple. The real problem in the treatment of cancer today was the successful management of cancer of the mucous membranes. It was a problem unsatisfactorily solved by surgery alone. In cases of cancer, in equal stages of growth, the character of the end results among cases cured by radium, coupled with the ease to the patient by which this result could be obtained, far surpassed the results of surgical ablation. The possibilities of the radium treatment of cancer were by no means exhausted. When they began their work at the Memorial Hospital, they little dreamed of the step by step improvement in technique which they had already accomplished. This improvement promised satisfactory and fairly uniform results for the future.

Dr. JOSEPH BISSELL said that to listen to the conflicting statements of various physicians it would seem that there was only one thing easier to prove than the fact that cancer was favorably affected by the proper use of radium and that was to prove that improperly used radium did a great deal of harm. The results of radium treatment seemed to depend on the point of view, the amount of radium used, the form of cancer, and the amount of enthusiasm of the observer. He did not agree with Dr. Ewing that radium should not be used in inoperable cases and that because of the view that Dr. Ewing had expressed, namely, that radium made cancer regressive. Why not take these cases and divide them and treat each piece as a local cancer? Dr. Bissell stated that his experience with radium in cancer of the mucous membrane had always been satisfactory, but he never saw cancer of the tongue without feeling that the patient was doomed. Cancer of the rectum he had seen absolutely disappear. Radium had great possibilities ahead of it. It caused the disappearance of lymphosarcoma which could not be removed with the knife. Many cases of Hodgkin's disease improved under the proper application of radium. He had seen a number of cases of fibroid of the uterus, including pedunculated fibroid, that had disappeared as surely as though removed by the knife and one did not destroy the function of the organ by the radium treatment, so there was left another child-bearing unit that might be needed if this war went on. If one could not remove cancer without mutilation he did not see why radium should not be preferred to excision as in many cases, rodent ulcer, for instance, it caused the disappearance of the growth. Recurrent nodules in the breast were repeatedly caused to disappear. In the inoperable cases of cancer one had no choice. They might not be cured, but the patient could be relieved of the odor and in most cases bleeding could be prevented. Under radium treatment the patient would be mentally better and would be restored to the comfort of living and the possibility of hope; radium was worth while for this reason alone.

Dr. BENJAMIN BARRINGER said that rather than attempt to discuss the very comprehensive papers presented here this evening he would like to give a very brief review of their work at the Memorial Hospital in the radium treatment of carcinoma of the bladder. As to the curability of carcinoma of the bladder, there was no reason why carcinoma should not be more often cured. It was long confined to the bladder. An instance of this was a patient autopsied at Bellevue Hospital who had a carcinoma completely filling his bladder. There was perhaps room left in his bladder for one or two drams of urine. There were no metastases in any other part of the body. This case was not an exception, but rather the rule to the papillary variety of carcinoma of the bladder. Again, often the diagnosis could be made early because of the one early and fairly constant symptom—hematuria. Nearly all bladder tumors bled early in their existence. There was no other internal organ which might be so completely examined as the bladder. It could be palpated suprapubically, the base could be palpated rectally, the interior could be examined by means of the cystoscope and pieces excised for microscopical examination. Notwithstanding all this, they had signally failed to cure bladder tumors. The reason for

this was principally the fact that most bladder tumors invaded the base of the bladder and later either ureter. The base was difficult of surgical access, and excising and reimplanting one or another ureter was considerable of a surgical operation. The application of radium in bladder tumors was made through the urethra through the sheaf of the cystoscope. As to untoward results of radium they had had no deaths from the radium application. They had had a number of burns, and when such burns occurred they were long in healing, caused a good deal of pain and frequency of urination. They had to be controlled largely by morphine. Better technique and more accurate application of the radium to the bladder tumors ought to prevent radium burn. They had had 43 cases of carcinoma or indurative carcinoma, or a combination malignant papilloma, the rest had been either papillary carcimona or indurative carcinoma, or a combination of the two. But two of the cases could be classified as early operative cases, and these two had been too recently treated to report finally upon them. Of the other 41 cases, some of them might have been operated upon; if so the operation would have been a partial or a total cystectomy. On the whole, operation would have offered but slight chance of cure. As to the benefit done, in operable cases, he believed the one thing that radium did was to check the hemorrhage. In most cases it did this and he believed this meant that the radium had attacked the carcinoma, and the very fact that the hematuria was checked encouraged the patient a great deal if it did nothing more. These 41 cases had been cured, as far as the bladder was concerned, one for 23 months, one for 12 months, one for 7 months, and one on one examination. All of these cases were advanced cases, one a post-operative case, three were confirmed microscopically as "carcinoma of the bladder." In two cases the tumor had recurred after being removed by radium from the bladder. Three or four more cases of the 43 would probably later go into the cured column as far as the bladder was concerned. It was on this record of five cases cured, as far as the bladder was concerned for various periods of time, that he based his claim for the efficiency of radium treatment in carcinoma of the bladder. One of these patients came to him about two and one-half years ago with a diagnosis of "inoperable carcinoma of the bladder." She had a sloughy extensive carcinoma (proved microscopically by Dr. Ewing), occupying the left side of the bladder and obscuring the left ureter. She was given one dose of radium and experienced for 48 hours frequent (every hour) burning urination. Sixteen days later she was cystoscoped and the speaker with Dr. Keyes, whom he wished to see the case, were present. Much to his astonishment, he found the tumor was gone. The radium had evidently been exactly in the right place and exactly the right amount. That case had stayed cured for twenty-three months. The speaker had never known another case in which the carcinoma was so rapidly removed as this.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held March 26, 1918.

DR. WILBUR WARD IN THE CHAIR.

Three Cases of Hydatid Mole.—Dr. M. A. SHLENKER reported these cases. He stated that his reason for bringing them before the section was because there seemed to be quite a variance of opinion as regards the frequency of their occurrence. In the older textbooks and in the majority of recent ones the statistics of Madame Biovin were quoted, stating that hydatid mole occurred only once in 20,000 cases. The textbooks by Williams on this subject quoted Williamson's statistics stating that they occurred as often as once in 2,400 cases. In the writer's conversation with many obstetricians and general practitioners he had been impressed by the fact that they did not regard this condition as unusual but thought that it was of rather frequent occurrence. He, too, was of the opinion that these cases occurred much more frequently than they were reported, though not with such frequency as one might be led to believe. The important point in the consideration of this subject was the fact that these cases often found a fertile focus for the implantation and proliferation of one of the most malignant and dreaded conditions, chorioepithelioma. This condition was found to be secondary to molar pregnancy in about 16 per cent. of the 210 cases collected and reported by Palmer Findlay. He regarded these figures as rather high, taking into consideration the fact that these cases did not seem to be reported as frequently as they occurred. The cases and specimens presented occurred at the Gouverneur Hospital within a comparatively short period of time, about 15 months. The writer had investigated the hospital records as far back as 1911 and found that four cases were recorded. Two of the latter cases died, one after a curettage, the patient being septic at the time of her admission to the hospital; the second case, which presented a protruding mass, was subjected to laparatomy and died shortly afterwards. The remaining patients, except for one who was lost sight of, had kept well and reported this week in perfect health. During this period the hospital had cared for 3,071 obstetrical cases.

CASE I.—This patient, 42 years of age, was admitted to the Hospital on December 15, 1916. She gave a history of having had four full term pregnancies and two miscarriages, and at the time of her admission was apparently gravid six months. She began to flow the day before for the first time. During the night the bleeding became profuse. The uterus was enlarged to the height of the umbilicus and the cervix was dilated sufficiently to admit one finger. The abdomen was not distended. A palpable mass extended up to the umbilicus, corresponding to a pregnancy with a six months amenorrhea. On December 24 the patient expelled a multicystic mass. Dr. John F. Erdman then performed a vaginal hysterectomy. This patient was now well.

CASE II.—Dr. Shlenker said this patient, 19 years of age, was admitted to the hospital on February 20, 1918. She gave a history of having suffered during her entire menstrual period for the past two years. Her health was apparently excellent until February 14, 1918, when she began to spot. At the end of four days the bleeding became profuse and the patient sought the hospital. At this time abdominal palpation revealed the uterus three fingers' breadth above the symphysis. The cervix was soft and admitted one finger into the os. The fundus was enlarged to the size of a three months pregnancy and reached about three fingers' breadth above the symphysis. On February 20 the patient expelled a bloody grape-like mass. A disagreeable discharge continued; hence the uterus was curetted and explored digitally. The scrapings were submitted to the pathologist who made a diagnosis of hydatid mole without any evidence of malignancy. The Wassermann reaction was negative in this case. Vaginal examination, on March 5, showed the uterus slightly enlarged and in normal position. The ovaries were enlarged and felt as though they were cystic. This patient was discharged cured with instructions to report to the outpatient department within a month

CASE III.—This patient, 45 years of age, was admitted to the hospital on December 10, 1917. She had been married at the age of 22 and had had eight full term pregnancies and four miscarriages. About two weeks previous to her admission to the hospital she began spotting and four days later the bleeding became constant and more pronounced. The patient complained of great abdominal pain and frequent desire to urinate. At the time of her admission she appeared septic. The abdomen was greatly distended, the fundus of the uterus reaching to the umbilicus. The uterus was enlarged, corresponding to a six months pregnancy. No fetal heart sounds could be heard nor could any fetal parts be felt. Owing to the weakened condition of the patient she was kept under observation and treated conservatively. On January 8, 1918, she expelled a large polycystic mass which the pathologist reported to be a hydatid mole with no signs of malignancy. The patient left the hospital against advice. On March 21, 1918, the patient was advised to return to the hospital. After being home four weeks she began to spot and immediately went to Bellevue Hospital,

where she was admitted. Her vagina was packed and she was given internal medication. At the end of three days she returned to her home. Shortly afterward she began to flow. This lasted eight days and was interpreted as her normal menstrual flow. On her return to the hospital, vaginal examination showed the uterus slightly enlarged in its transverse diameter, corresponding to a six weeks pregnancy. It was in good condition and freely movable. The patient had been asked to return within the next month for a curettage.

Dr. HERMANN J. BOLDT said that a certain percentage of hydatid moles were likely to become malignant and the question was in what percentage of these cases chorioepithelioma was likely to develop. He believed that it was most generally considered that the original condition was a hydatid mole in most cases of chorioepithelioma.

Dr. SHLENKER stated that in about 50 per cent. of all cases of chorioepithelioma, the hydatid mole was the important etiological consideration. In the treatment of these cases there seemed to be a tendency to resort to operations such as a panhysterectomy, which precedure, in his estimation, was rather radical. Recurrences of a malignant nature occurred in only 10 or 15 per cent. of these cases. These cases should be treated by a simple but complete evacuation of the uterine cavity, with a digital exploration of the same. Dr. Ries of Chicago recently reported the presence of chorionic villi in the uterus, presumably of eighteen years duration. The point to be emphasized was that these moles did occur much more frequently than they were reported, and caution should be sounded against too radical procedure for their relief.

Uterine Tumors.—Dr. HERMANN J. BOLDT presented four *carcinomatous uteri* removed during the past year. The *first* was removed from a woman 35 years of age, with typical cancer of the vaginal part of the cervix. The upper part of the vagina was slightly involved, consequently a considerable part of the vagina was also extirpated. A smooth recovery followed. The *second* patient, 58 years of age, had been losing a little blood at irregular intervals during the past few months. The condition was obviously a carcinoma of the cervix. Because of the obesity of the patient and her somewhat advanced age, a vaginal extirpation was decided upon. Recovery in this case was uninterrupted. The *third* specimen was an adenocarcinoma of the body of the uterus, removed from a patient 63 years of age, who had had a typical bleeding for about four months. The abdominal operation was done because of the size of the uterus and the consequent risk of soiling the field of operation had it been done per vaginam. From an experience covering many years, the vaginal extirpation was preferable only in patients in whom the uterus was freely movable, not so large that it could not be readily brought down nearly to the vulval opening, and then the technique should be modern, that was the isolation of the ureters as advocated by Schauta. The *fourth* specimen was removed from a woman, 49 years of age, who had been having irregular bleeding for four months, for which she had received local treatment. The pathologist's report showed adenocarcinoma. The operation was done by the abdominal route. An uneventful recovery followed.

The next specimen was one of *myoma of the uterus* with complete obliteration of the uterine cavity. He stated that the patient was 45 years of age and complained only of intense pelvic pain; there was no bleeding. The adhesions of the tumor to the surrounding structures were diffuse and firm. The pelvis was tightly filled by the tumor, and yet the patient did not complain of constipation. Technically the operation was difficult. Dr. Boldt said he recalled but one instance in which there was an obliteration of the uterine cavity in the case of fibromyoma, and an absence of bleeding as a result. The symptoms in that case, too, were those caused by pressure from the tumor. Recovery was uneventful.

Dr. Boldt next presented a specimen of *myofibroma uteri* removed by morcellement. The vaginal operation was especially to be selected when the tumors were not above the brim of the pelvis, and when the patients were very obese. In both instances profuse bleeding was the indication for operation. Of course it was true that when one was not accustomed to doing such work per vaginam, it might be found rather unsatisfactory; but each method had its indication.

A *submucous myoma* was the next specimen presented. The uterus had been treated both with radium and the *x*-rays, but no lessening of uterine bleeding was accompiished. This was evidence that no one method of treatment was adequate.

The last specimen was one of *intraligamentous myoma*. The patient suffered principally from pressure symptoms; the bleeding at the menstrual period, while quite profuse, was not so copious as one would expect from the appearance of the growth.

Dr. Boldt, after presenting these specimens, said that in operations for carcinoma of the corpus uteri, when the uterus was small, he preferred the vaginal route for he felt that in operating by this route there was less danger of trauma and of spreading the carcinoma. He also preferred the vaginal route for patients who were somewhat advanced in years. In all obese women he took the vaginal rather than the abdominal route. An expression of opinion in reference to the election of the vaginal and abdominal routes in carcinoma as well as in myoma would be greatly appreciated.

Dr. HERMANN GRAD expressed the opinion that in many of these obese patients the vaginal route was preferable and particularly in those women who were somewhat advanced in age, and in cases of carcinoma in which it was impossible to do a radical operation. The results were practically as good by the vaginal route as by the abdominal route and the mortality was less in the vaginal operation. This subject was discussed in former years before Wertheim brought out his operation, and some men felt that the vaginal route was not as satisfactory as the abdominal. He believed we should take into consideration the technical needs, and if this were done we should find that in stout women of advanced age the results were as good and the mortality less with the vaginal than with the abdominal route.

Hydatidiform Mole.—Dr. GEORGE L. BRODHEAD presented this specimen which he said he had brought as a part of the discussion on Dr. Shlenker's paper. In their last 4,000 cases at the Harlem Hospital they had had three moles. The patient from whom this specimen of vesiculæ was taken was a primipara, 26 years of age, who menstruated in August, September, and October, 1917, each time one day. In December she bled for several days. On January 5 she had a hemorrahge. From February 1 to March 19, she bled some each day, and, on March 19, was admitted to the Harlem hospital. The uterus at this time was the size of a six months pregnancy. No fetal heart sounds were heard. At the time of her admission the patient's pulse was 80 and her temperature 98.6°. After being in labor three and three-quarter hours she discharged a hydatid mole, which weighed about two pounds with no trace of the fetus. Her temperature on the day of labor went up to 103.6° Fahr. and for the last three days had been between 99° and 100° Fahr. She had complained of some pain in her back for several days, but to-day was getting along very nicely. If there was any further bleeding they would have the patient curetted and the scrapings examined.

Dr. WARD asked if any one had had a specimen of hydatid mole in which he had been able to find any trace of fetus.

Dr. SHLENKER said he had no specimen in which he had been able to discover any trace of fetus, but instances had been reported in the literature of the occurrence of hydatidiform cysts associated with twin pregnancy, one child surviving.

An Improved Murphy Drip.—Dr. H. DAWSON FURNISS presented this apparatus. He stated that in using the ordinary Murphy drip the great difficulty had been to so set it up that there should not be excessive pressure. He had seen it used in many hospitals and the overflow tube had been generally so placed that when the tube to the rectum became filled or the patient strained to pass gas there was a pressure of three to three and one-half feet. To overcome these difficulties he had constructed a simple apparatus. The first one made was all glass and much neater than this one but was difficult to clean. This apparatus consisted of a strong glass tube 1½ inches in diameter and closed

at each end with rubber stoppers. The lower rubber had two perforations, one in the center and the other eccentric. Through the central one was passed the tube of a funnel, the top of the funnel being 2 inches above the stopper. Through the eccentric opening was passed a tube, the top of which was flush with the stopper. The upper stopper was bored the same as the lower. Through the center opening passed a tube, the lower end of which was drawn so that it was 1/32 of an inch in diameter; this was the feed tube. The eccentric opening was for a small tube, the purpose of which was to prevent siphonage when the overflow was working. In order to use the apparatus it was clamped to a suitable standard or to a portion of the bed so that the top of the funnel was only eight or ten inches above the rectum. A rubber tube led from the funnel to the rectum. From the eccentric tube a rubber tube passed to a basin or pail on the floor. To the tube on the center of the upper stopper was connected the supply of fluid, and the rapidity of the feed was controlled by a suitable pressure clamp. The fluid dropped into the funnel and went to the rectum. Should the flow be too fast or the patient strain the fluid rose in the funnel overflow and passed out by the tube to the pail on the floor. A small air vent in the upper stopper prevented siphonage after filling of the overflow. Dr. Furniss said he had used this apparatus with great satisfaction. In one case the drip was given for seventy-two hours and was discontinued only when there was no further necessity for its use.

Dr. HERMANN GRAD asked whether the fluid could be kept warm with this apparatus.

Dr. FURNISS replied that he had made no provision for heating the water.

Dr. GRAD said he had practically given up the use of the Murphy drip in cases in which the rectum was intact because he found that if one put 2 ounces of fluid into the rectum every two hours it was much easier for the nurse than using the Murphy drip and it accomplished the same object; the patient got essentially the same amount of fluid as with the Murphy drip. If he found that the patient needed more fluid than could be given in this way he gave the fluid by hyperdermoclysis. It seemed to him that Dr. Furniss' apparatus provided very nicely for all details in the use of the Murphy drip.

Hematogenous Infection of the Ovary.—Dr. SOLOMON WIENER presented this paper in which he stated that hematogenous infection of the ovary might occur just as any organ or tissue of the body could become the nidus of growth for pathogenic bacteria carried in the circulating blood. The frequency and importance of such infection of the ovaries had not received due attention or emphasis. Dr. Weiner referred to the work of Rosenow and Davis (*Journal of the A. M. A.*, April 15, 1916) and said that in summarizing these writers laid special stress upon the finding of the streptococcus in the fibrocystic ovaries of a young woman with complete atresia of the vagina. In order to rigidly exclude infection by extension from the genital tract the following conditions must prevail: (1) Intact hymen; (2) no coitus; (3) no history or evidence of gonorrhea or vulvovaginitis in infancy or childhood; (4) no vaginal discharge whatsoever; (5) no local or intrauterine medication or instrumentation; (6) no focus of suppurative inflammation within the peritoneal cavity. When all these conditions had been excluded there still remained cases of undoubted hematogenous infection of the ovary. These usually occurred in pre-existing cystic conditions, especially in the remains of the corpus luteum. Thus far the best known and most frequently reported form of such infection was with the *Bacillus typhosus*. Such a case the writer had previously reported (A Study of the Complications of Ovarian Tumors, *American Journal of Obstetrics*, Vol. 72, No. 2). Dr. Wiener said he wished now to report a case of hematogenous infection of the ovary with the *Streptococcus hemolyticus*. which occurred in a high-school girl, 18 years of age. The patient gave a history of right-sided abdominal pain two months before admission to the hospital and since that time she had been troubled with constipation and cramps; these had become much worse during the past three weeks. Examination showed the adomen lax and tympanitic. In the right lower quadrant there was a large firm mass dipping into the pelvis. The hymen was intact; there was no redness of the urethra, the Bartholin ducts, or vulva, and no vaginal discharge whatsoever. Examination with a small endoscope showed no discharge from the cervix. To the right side of the uterus was a firm, slightly elastic mass, fixed, not tender, and the size of a grapefruit. There was no reaction to old tuberculin. With these findings and a normal temperature, the preoperative dagnosis was either a solid ovarian growth in all probability malignant or an unusually firm ovarian cyst. At operation the omentum was found adherent to the uterus and right adnexa. The omentum was free and a large ovarian mass was found on the right side fairly adherent to the broad ligament, the posterior surface of the uterus, and the rectum. The abscess was clamped off and removed. It was about the size of a grapefruit, filled with thick greenish yellow pus. The pathological report stated that it was an ovarian abscess probably an infected corpus luteum cyst. Cultures of the pus from the abscess showed hemolytic streptococci. Convalescence was febrile for four days and then normal. A reexamination eighteen months later showed the patient in excellent health, the scar firm, and the pelvic contents normal. The absence of inflammation of the Fallopian tube was further corroborative evidence that the infection did not spread to the ovary from below. They were unable to discover the original source of the infection. It was highly desirable that similar cases should be studied and reported so that this condition might be established as a pathological entity. Such reports would clear up the question as to the frequency of this condition. In addition to the clinical interest and importance, the possibility of such infection of the ovary was not without sociological significance in the life of the patient.

Dr. HERMANN GRAD said that the reader of the paper had reviewed the various conditions that must be fulfilled before we could say that we had a hematogenous infection of the ovary and the case he reported showed these conditions, but he did not think that was a final proof that the case was one of hematogenous infection of the ovary. Clinically there seemed no other possibility of another source of infection and yet it did not do to jump at conclusions, because a broken down neoplasm contained streptococci. The presence of these organisms might have been accidental and might not be responsible for the pathological changes found in the neoplasm, the patient not having suffered with a systemic reaction. This was an interesting problem and needed to be worked out for its scientific value.

Dr. WIENER, in closing, said he did not mean to give the impression that he agreed with what Rosenow claimed as a result of his experiments. He spoke of hematogenous infection as the cause of microcystic degeneration of the ovary, while the speaker did not believe that microcystic degeneration as commonly found, was due to hematogenous infection. As regards the case reported this evening, it must be admitted that the route of infection was still open to question. The subject had not been thoroughly worked out as yet. However, here was an intelligent girl, a virgin, who was very carefully examined and in whom there was nothing to indicate the probability of an infection extending from the external genitals, no redness of the urethra, or of the Bartholin ducts, no signs of irritation of the vaginal or cervical mucosa; no history or evidence of the introduction of a foreign body. As regarded Dr. Grad's contention that the finding of the streptococci might have been a fortuitous occurrence in a broken down cyst—two months previously this patient had been treated for acute appendicitis. When she came in her temperature was normal, the abscess being well walled off. But there were active hemolytic streptococci in the abscess; that was by no means a chance finding. The abscess burst while they were removing it and some of the pus escaped. The wound was drained but the patient's temperature was 103° to 104° Fahr. for several days after the operation. The infection was therefore an active one. It was impossible to prove with absolute scientific accuracy that this was a hematogenous infection. One could only say that in all probability it was. The hematogenous source of an ovarian infection could not be proven with the accuracy of a scientific experiment in any woman who had a patent vagina.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

THE STATE MEDICAL BOARD OF THE ARKANSAS MEDICAL SOCIETY.

Little Rock, May 14 and 15, 1918.

ANATOMY.

1. Describe the femur.
2. Fully describe the shoulder-joint, and give overlying structures.
3. Briefly describe the heart; give blood and nerve supply.
4. Name muscles of the arm, giving origin of each.
5. Name branches of axillary artery.
6. Describe the minute anatomy of the kidney.
7. Where and into what does the great sciatic nerve divide?
8. Name the spinal nerves entering into the formation of the plexuses, and state the plexus with which each is connected.
9. What structures pass through the jugular foramen?
10. Describe the urinary bladder of the male, and give its relations.

PHYSIOLOGY.

1. (*a*) Describe a pulse wave. (*b*) How is it maintained?
2. What change takes place in the diameter of the chest in inspiration and expiration?
3. What change takes place in the blood as it passes through the kidneys?
4. (*a*) What is the per cent. of solids in normal urine? (*b*) Name the organic solids of urine.
5. Differentiate between special sensations and common sensations.
6. Describe the formation of lymph.
7. What would be the result, should you place a man on a vegetable diet free from sodium chloride?
8. Describe the condition of rigor mortis.
9. How is heat production regulated in the human body?
10. Give five physiological functions of the liver.

CHEMISTRY.

1. Give difference between a chemical union and a mixture, with an example of each.
2. Name five elements and give symbols.
3. Define an element.
4. Describe two laboratory processes for producing hydrogen.
5. Describe chlorine.
6. Na plus water equals what? Give equation.
7. Describe Marsh's test for arsenic.
8. Give two tests for albumin in urine.
9. Give formulæ for the following: Calomel, salt, sulphurous acid, nitrous acid, zinc sulphate.
10. Complete the following: $Zn + HCl =$

MATERIA MEDICA.

1. Give incompatibilities and action of argenti nitras.
2. Give dose and action of jalap.
3. (*a*) Give the vulgar name for physostigma. (*b*) Name its alkaloid.
4. How would you prepare a solution of mercuric iodide for intramuscular injection?
5. Give properties and action of oleum theobromatis.
6. (*a*) What is the source of iodum? (*b*) Give its incompatibilities and action.
7. (*a*) What is the source of strychnine. (*b*) Give its action.
8. (*a*) What are glucosides? (*b*) Give an example.
9. (*a*) How are fluid extracts prepared? (*b*) What is the relative strength of fluid extracts?
10. What is the source of arsenic? How is arsenic trioxide made?

THERAPEUTICS.

1. Explain the therapeutic effect of quinine in treatment of malaria; outline proper dose.
2. Give physiological action of nux vomica; name its principal alkaloid; state its use and dose.
3. Name two drugs that increase the hemoglobin of the blood; give dose and use.
4. Discuss general principles that should guide one in the therapy of typhoid fever.
5. Discuss precautions to be taken in the use of mercury in treatment of syphilis.
6. Give uses of iodine, and name preparations most prescribed internally.
7. Give therapeutic use of: (*a*) Salol; (*b*) sodium phenosulphate.
8. What are the physiological effects of digitalis; and in what diseases would you administer it?
9. Discuss treatment of acute rheumatic fever.
10. Give physiological action of atropine; and give its therapeutic use.

ANSWERS.

ANATOMY.

1. The *femur* or high bone consists of a shaft, and an upper and lower extremity. The shaft is expanded above and below, is curved and twisted, and is concave behind and convex in front. Its anterior surface is smooth, and its posterior surface is rough and prominent; the linea aspera extends from the trochanters along the middle third of the bone, bifurcating and diverging at the lower end to enclose the popliteal space. The upper extremity presents the head which articulates with the acetabulum, the neck which connects the head with the shaft, the great trochanter which is a large, rough, quadrilateral eminence and gives attachment to several muscles, the digital fossa to the inner side of the great trochanter, the lesser trochanter, the anterior and posterior intertrochanteric lines, and the tubercle of the femur at the junction of the neck with the greater trochanter. The inferior extremity is large and presents the external and internal condyles of which the external is shorter and broader and the internal is longer; between these condyles is the intercondyloid notch; and between the condyles, in front, is the trochlea which is a smooth surface and articulates with the patella.

2. The *shoulder-joint* is an enarthrodial joint formed above by the glenoid cavity of the scapula and below by the head of the humerus. Its ligaments are glenoid, coraco-humeral, and capsular. The glenoid surrounds the edge, deepens the glenoid cavity, and is continuous above with the long head of the biceps tendon. The capsular ligament, extensive and loose, arises above it from circumference of glenoid cavity behind the ligament, is attached below to the anatomical neck of humerus, and is pierced by tendons of two or three muscles. The coraco-humeral, or accessory, is a fibrous band which extends obliquely downward and outward from the coracoid process to the anterior part of great tuberosity, strengthening the capsular ligament. A *synovial membrane* lines the joint, and forms the bursa under the subscapularis. It is reflected round the tendon of the biceps, and lines the bicipital groove. The *nerve supply* is from the circumflex and suprascapular nerves. The *arteries* are branches of the anterior and posterior circumflex, and the suprascapular.

The *muscles in relation with the joint*, are: above, the supraspinatus; below, the long head of the triceps; in front, the subscapularis; behind, the infraspinatus and teres minor; internally, the long head of the biceps. The deltoid covers the joint in front, behind, and externally.

3. The *heart* is located obliquely in the thorax, between the lungs, and enclosed in the pericardium. A line from the lower border of the second left costal cartilage (one inch from sternum) to upper border of third right costal cartilage (half inch from sternum) represents the *base line;* the *right side* will be a line drawn from right side of upper limit to seventh right chondrosternal articulation; the *lower limit* is a line from this last point to the apex (in fifth intercostal space three and one-half inches from mid-line); the *left side* from left end of upper border to left of apex. The heart lies opposite the fith, sixth, seventh and eighth dorsal vertebræ.

Its walls consist of muscle fibers, with some connective tissue to which many of the fibers are attached.

The heart is divided by a septum into a left and right heart; and each side is further divided into an upper chamber (auricle) and a lower chamber (ventricle), connected with valves so arranged that circulation of the blood only occurs in one direction. In the *right auricle* are the Eustachian and coronary valves; the former is situated between the anterior margin of the inferior vena cava and the auriculo-ventricular orifice. In the right auricle are also found the openings of the superior and inferior venæ cavæ, coronary sinus, foramina of Thebesius, the auriculo-ventricular opening, the fossa ovalis, annulus ovalis, tubercle of Lower, and the musculi pectinati. In the *right ventricle* are the tricuspid and semilunar valves; also the columnæ carneæ, chordæ tendineæ and the auriculo-ventricular opening and the opening of the pulmonary artery. In the *left ventricle* are the mitral and semilunar valves, the columnæ, chordæ tendineæ, and the aortic and auriculo-ventricular opening. The heart is about 5 x 2½ x 3½ inches, and weighs about ten ounces. It is supplied with blood by the right and left coronary arteries. The nerve supply is from the superficial and deep cardiac plexuses, and from the vagus and sympathetic system.

4. The *muscles of the arm*, are: Deltoid, subscapularis, supraspinatus, infraspinatus, teres minor, teres major, coracobrachialis, biceps, brachialis anticus, triceps, subanconeus.

The *deltoid* arises from outer third of clavicle, acromion and spine of scapula; the *subscapularis*, from the subscapular fossa; the *supraspinatus*, from the supraspinous fossa and fascia; the *infraspinatus*, from the infraspinous fossa and fascia; *teres minor*, from middle part of dorsal surface of axillary border of scapula; the *teres major*, from dorsal surface and inferior angle of scapula; *coracobrachialis*, from coracoid process of scapula; *biceps*, from coracoid process, and from upper margin of glenoid fossa of scapula; *brachialis anticus*, from lower half of front of humerus; *triceps*, from infraglenoid tuberosity of scapula, from posterior surface of body of humerus at upper part, and also below the groove for the musculospiral nerve; *subanconeus*, from lower part of triceps.

5. The *branches of the axillary artery* are: Superior thoracic, acromial thoracic, long thoracic, alar thoracic, subscapular, posterior circumflex, and anterior circumflex.

6. "The kidneys are invested by a thin, fibrous capsule, which is attached by connective tissue and bloodvessels. It is easily stripped off. On making a longitudinal section through a kidney the glandular structure will appear to be divided into two portions: (1) the outer or cortical portion, for the most part occupying the surface, except at the hilus; (2) the medullary portion, consisting of a number of pyramids separated from one another by cortical substance. (1) the cortical substance occupies the greater part of the gland, being 1/3 to ½-inch in depth at the surface, and extends into the center of the gland between the pyramids; the cortical portion between the pyramids being termed the columns of Bertini. It is of a light red color, and more or less distinctly striated in appearance, the striations being due to the interlobular vessels and bundles of straight tubes which pass from the base of the pyramids to the capsule. The Malpighian bodies may be seen as reddish points, or sometimes standing out from the surface like grains of sand. The bundles of straight tubes are called the medullary rays. (2) The medullary portion occupies the center of the gland, and consists of eight to twelve of the pyramids of Malpighi. These pyramids are surrounded at their bases and sides by cortical substance, while their apices project into the dilated portion of the ureter at the hilus, which forms the pelvis. The pyramids are divided by Ludwig into two layers or zones—the boundary layer and the papillary layer. The boundary layer has well-marked striations, this appearance being due to the vasa recta, and to the bundles of tubules passing down the pyramid toward the papilla. The papillary layer is of a more uniform dull red color. The Malpighian bodies are about 1/120 inch in diameter, and are situated in the cortical portion between the medullary rays. They consist of a tuft of capillary vessels in a capsule formed by the dilated end of a urinary tubule. The tuft is termed the glomerulus, the membranous envelope Bowman's capsule. The glomerulus receives an arterial twig from an interlobular artery, and its efferent vein joins a plexus which surrounds the convoluted tube before joining an interlobular vein. Bowman's capsule consists of a homogeneous membrane, lined by flattened epithelium, and joins a convoluted tube by a constricted neck. The convoluted tubes commence as capsules in the cortex, twist upon themselves several times, then on joining a medullary ray, take nearly a straight course. They have a distinct lumen, and are lined by short columnar cells, narrower at the lumen than at the basement membrane. The outer part of the cell is distinctly striated; their inner part is granular. They have a well-marked nucleus. The convoluted tubule passes into a spiral tubule of Schachowa, which is situated in the medullary rays; these are more or less spirally arranged, the epithelium is the same as in the convoluted tubes. The spiral tubule on entering the boundary layer becomes narrower, and forms the descending loop-tube of Henle; the epithelium is here flattened, with a prominent nucleus. The ascending loop-tube, which has re-entered the boundary layer, is wider than the descending, and is lined by a layer of polyhedral fibrillated cells. It next enters the cortex, is somewhat narrower and wavy, and passes upwards in a medullary ray. It then leaves the medullary ray and forms an irregular tubule. Its shape is irregular, its lumen small, and its epithelium consists of short, columnar, fibrillated cells. The irregular tubule passes into the second convoluted tube, closely resembling the first convoluted tube. It then passes into a more or less wavy collecting tube before it joins a straight collecting tube. The collecting tubes commence in the cortex and pass through the boundary layer into the papillary layer, are lined by columnar or cubical epithelium, and have a distinct lumen."—(Ashby's *Notes on Physiology.*)

7. The great sciatic nerve divides into the internal and external popliteal nerves, at about the lower third of the thigh; but the division may take place at any point between the sacral plexus and the lower third of the thigh.

8. The first four spinal nerves enter into the formation of the *cervical* plexus; the fifth, sixth, seventh, and eighth cervical and the first thoracic nerves enter into the formation of the *brachial plexus;* the first four lumbar nerves enter into the formation of the *lumbar plexus;* the fourth and fifth lumbar, first, second, third, fourth, and fifth sacral, and the coccygeal nerves enter into the formation of the *sacral plexus.*

9. *Structures that pass through the jugular foramen:* Inferior petrosal sinus; lateral sinus, meningeal branches from the occipital and ascending pharyngeal arteries; and glossopharyngeal, pneumogastric and spinal accessory nerves.

10. The *male bladder* is a musculo-membranous pouch, situated in the pelvis, behind the pubes and in front of the rectum. It has a superior surface, antero-inferior surface, two lateral surfaces, a base or fundus, and a summit or apex. It is retained in its place by the two anterior ligaments, two lateral ligaments, and the urachus; there are also five false ligaments formed by folds of the peritoneum. Internally, on the floor, is the trigone, between the openings of the two ureters and the urethra. The anterior part of the bladder is uncovered by peritoneum, and is in relation with the triangular ligament, the symphysis pubis, and the pubo-prostatic ligament. Above it is covered with peritoneum and is in relation with the rectum and small intestines. The base is in relation with the rectovesical pouch, vasa deferentia, and seminal vesicles, all of which separate it from the rectum. It is supplied by the superior, middle, and inferior, vesical arteries; and the pelvic plexus of the sympathetic, and the third and fourth sacral nerves.

PHYSIOLOGY.

1. "Each contraction of the left ventricle gives rise to a dilatation of the systemic arteries, with an increase of blood pressure, which is propagated as a wave toward the smallest arteries. This wave is the *pulse-wave.* The pulse-wave travels through the arteries at the rate of 30 feet a second—that is, about thirty times as fast as the blood-flow—so that it is about one-tenth

of a second later in the radial and posterior tibial arteries than in the aorta. The pulse-wave can be accurately investigated by means of the sphygmograph, an instrument which consists essentially of a button or pad, which is adjusted over the artery, a lever which amplifies the movements of the button, and a moving slip of smoked glass or paper, upon which the lever traces a curve representing the pulse-wave. The pulse-curve, or sphygmographic tracing, consists of a nearly vertical up-stroke, which represents the rise of the pulse and corresponds to the expansion of the artery, followed by a more gradual down-stroke, interrupted by a second rise—the dicrotic wave—which occurs after the systole of the heart, and corresponds with the closure of the semilunar valves. Just before this there is a small predicrotic wave, due to the vibration in the arterial wall. It occurs during the systole. The dicrotic wave is more developed when the tension of the arteries is less than normal, and when the contraction of the ventricle is strong and sudden. The pulse-wave is entirely lost in the smallest arteries and capillaries, except when the former are very much dilated, when it extends to the capillaries, and may even become perceptible in the small veins."—(*Aids to Physiology.*)

2. In *inspiration*, the diameters of the chest are all increased; the vertical diameter is increased by the contraction and descent of the diaphragm, and the antero-posterior and transverse diameters are increased by the elevation and outward rotation of the ribs and the elevation of the sternum. During *expiration*, these diameters are all reduced.

3. In its passage through the kidney, the blood loses water, salts, urea, carbon dioxide, and extractives.

4. In normal urine, the percentage of solids is about four per cent. The *organic solids of the urine*, are: Urea, urates, hippurates, creatinine, oxalates, and extractives.

5. *Common Sensations* cannot be distinctly located in any organ or set of organs; such as hunger, fatigue.

Special sensations are distinctly associated with some definite part of the body, and give us information respecting matters outside our bodies; such as sight, hearing.

6. *Formation of Lymph.*—There are three main theories: (1) Ludwig's theory, or the filtration theory, coupled with osmotic changes between the lymph and blood; (2) Heidenhain's theory of lymphagogues; and (3) Starling's theory of the permeability of the capillary walls. The subject is summed up by F. A. Bainbridge as follows: "Lymph formation is not a secretory process, but is brought about by purely physical processes, namely, filtration and osmosis; and the factors concerned in its production are (1) the capillary pressure, (2) the degree of permeability of the capillary walls, and (3) the metabolic activity of the tissues. There is no reason to suppose that in health the permeability of the capillaries alters, and therefore the formation of lymph is increased chiefly by variations in the first and third of these factors."

7. A *vegetable diet with no sodium chloride* would cause loss of strength, with diminution of physical and mental vigor and power of endurance; resistance to disease might also be lessened; malnutrition and indigestion would also follow.

8. *Rigor mortis* is a condition of rigidity assumed by the muscles after death. It is supposed to be due to the coagulation of the myosinogen. The muscles lose their irritability and pass into a condition of contraction. Heat is evolved, carbon dioxide is given off, and the muscles become acid in reaction due to the development of sarcolactic acid. Rigor mortis usually sets in first in the muscles of the lower jaw, face, and neck, then in those of the thorax, abdomen, upper extremity and lower extremity. It usually lasts for from twenty-four to forty-eight hours, and disappears in the same order as the onset.

9. The normal body temperature is *regulated* and *maintained* by the thermotactic centers in the brain and cord keeping an equilibrium between the heat gained or produced in the body and the heat lost.

Heat is produced in the body by: (1) Muscular action; (2) the action of the glands, chiefly of the liver; (3) the food and drink ingested; (4) the brain; (5) the heart; and (6) the thermogenetic centers in the brain, pons, medulla, and spinal cord.

Heat is given off from the body by: (1) The skin, through evaporation, radiation, and conduction; (2) the expired air; (3) the excretions—urine and feces.

10. *Five physiological functions of the Liver.*—(1) glycogenic function, (2) formation of urea, (3) formation of bile, (4) production of heat, and (5) production of antithrombin.

CHEMISTRY.

1. When *chemical union* occurs, a new substance is formed possessing distinct characteristics of its own; and these properties may be very different from those of the substances which enter into the chemical union. In the case of a *mixture*, the component substances still possess the characteristic properties which they had before entering into the mixture.

2. Sodium, Na; potassium, K; silver, Ag; sulphur, S; hydrogen, H

3. An *element* is a substance from which we cannot obtain other substances.

4. Hydrogen may be prepared by the action of dilute sulphuric acid on zinc; or by the action of potassium or sodium on water:

$$Zn + H_2SO_4 = ZnSO_4 + H_2$$
$$Na_2 + 2H_2O = 2NaOH + H_2$$

5. Chlorine is a greenish-yellow gas, with a penetrating odor, and is very irritant to the respiratory tract. It has a great tendency to combine with most of the other elements. A candle burns in chlorine with a faint flame and a thick smoke. In the presence of water it is an active bleaching and disinfecting agent.

6. $Na_2 + 2H_2O = 2NaOH + H_2$. That is, sodium plus water equals sodium hydroxide plus hydrogen.

7. *Marsh's Test for Arsenic.*—This test depends on the fact that arsenic hydride is formed when nascent hydrogen acts on a compound of arsenic:

$$H_3AsO_3 + 3H_2 = AsH_3 + 3H_2O.$$

A small flask fitted with thistle funnel and a delivery tube, as for the production of hydrogen, is used; pure zinc and hydrochloric acid are introduced, and after a short time the hydrogen is ignited. It is advisable to cover the flask with a cloth before igniting the gas, as an explosion may happen unless the air has all been driven out. If the materials are pure the hydrogen flame gives no deposit upon a piece of cold porcelain brought into it, but commercial zinc usually contains arsenic. When the purity of the gas is proved, a little solution of arsenite may be poured down the thistle funnel, which will produce a more rapid evolution of gas, and the flame will become larger and perceptibly colored. A piece of cold porcelain depressed upon the flame will be covered with a deposit of metallic arsenic. The films of arsenic are metallic looking in the thicker places, brownish near the edges; they are easily volatilized by heat, and dissolve in solution of bleaching powder. A portion of the glass tube from which the gas is burned should be heated to redness; the gas decomposes and a deposit of arsenic appears on the tube, which may be identified in a similar way, or may be converted into crystals of oxide by cautious sublimation in an open tube.—(Fisher's *Elementary Chemistry.*)

8. *Two Reliable Tests for Albumin in the Urine.*—"The urine must be perfectly clear. If not so, it is to be filtered, and if this does not render it transparent it is to be treated with a few drops of magnesia mixture and again filtered."

I. *The Heat Test.*—"The reaction is first observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin is present a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3."

II. *Heller's Modification of the Nitric Acid Test.*—"Place in a test-tube a layer of HNO_3 about 2 c.c. in thickness; then, with a pipette, carefully float upon the surface of this a layer of the urine in such a manner that the liquids do not mix. If albumin be present a

cloudy ring appears *at* the point of juncture of the two layers, the borders of the cloud being sharply defined. A cloudy ring may be formed by the presence of an excess of urates, but in this case it is not *at*, but *above*, the point of juncture of the layers, and its upper border is not sharply defined, but fades off gradually."—(Witthaus' *Essentials of Chemistry.*)

9. Calomel, HgCl; salt (sodium chloride), NaCl; sulphurous acid, H_2SO_3; nitrous acid, HNO_2; zinc sulphate, $ZnSO_4$.

10. $Zn + 2HCl = ZnCl_2 + H_2$.

MATERIA MEDICA.

1. "*Incompatible with silver nitrate* are: Acetates, alkalies, alcohol, antimony salts, arsenites, bromides, carbonates, chlorides, chromates, creosote, cyanides, copper salts, ferrous sulphate, glucose, hypophosphites, iodides, morphine salts, oils, manganous salts, organic substances, phosphates, sulphides, sulphates, tartrates, vegetable astringent infusions and decoctions."—(Potter's *Materia Medica*, etc.)

Action of Silver Nitrate: It is an astringent, hemostatic, irritant, caustic, irritant, and tonic. It stains the skin.

2. The *dose of jalap* is 15 grains.

The *action of jalap* is that of a hydragogue cathartic; it stimulates the intestinal glands to increased secretion, and is sometimes diuretic.

3. The vulgar name for physostigma is calabar bean. Its alkaloid is eserine or physostigmine.

4. *Mercuric Iodide for Intramuscular Injection.*—

℞ Hydrargyri iodidi rubri.....gr̄iv
Olei olivæ.....ʒij M.

Sig: Ten minims to be given as an injection once a day. The dosage may be increased to 20 or 30 minims.

5. *Oleum theobromatis* is a yellowish-white solid, with a faint but pleasant odor and a taste like chocolate; it is readily soluble in ether and in chloroform. It is a nutrient and emollient, and is also used to make suppositories.

6. *Iodum* is *obtained* from the ashes of seaweed. It is *incompatible* with alkaloids, ammonia, metallic salts, mineral acids, and oil of turpentine.

Action of Iodine: "Irritant, disinfectant, parasiticidal, absorbent, alterative. On the skin its first effect is a brownish discoloration. Its irritant action, while slow, is both penetrating and prolonged, and by repeated applications pronounced counter-irritation can be produced without deep destruction of tissue. As a result of its local application small quantities are absorbed. Minute doses have a tonic effect upon the stomach; large doses may cause gastroenteritis. In animals it has been known to cause fatty degeneration of the heart, liver, and kidneys. Its chief effects after absorption are due to its action on the thyroid gland, and the symptoms produced by its continued administration resemble those resulting from the use of thyroid extract. It is excreted chiefly by the kidneys, but also in the saliva, perspiration, bronchial secretion, and milk."—(Wilcox's *Materia Medica.*)

7. *Strychnine* is obtained from the Strychnos nux vomica and Strychnos ignatia.

Action: Strychnine is a bitter tonic, stimulates appetite, secretion, and digestion, increases peristalsis, stimulates the vasomotor centers, and so raises arterial tension, stimulates both accelerator and inhibitory nerves of the heart. All the functions of the spinal cord are exalted by strychnine, reflex, motor, vasomotor, and sensory. Large doses cause dilated pupils, irregular and jerky respiration, increased reflexes.

8. *Glucosides* are organic, vegetable substances, which on being treated with heat or a dilute mineral acid yield glucose and some other substance. *Examples:* Amygdalin, digitalin, salicin.

9. *Fluid Extracts.*—"These are concentrated liquid preparations of vegetable drugs, containing alcohol either as a solvent or as a preservative, and bearing a uniform relation to the drug used so that *one mil* of the fluid extract closely represents the activity of *one gramme* of the air-dried and powdered drug of standard quality. They are of four classes: (*a*) Those made with a menstruum of alcohol or a mixture of alcohol and water by the usual process of percolation. (*b*) Those made by using glycerin or an acid in the extraction; the first menstruum contains the glycerin or acid and the second a mixture of alcohol and water for completing the exhaustion of the drug. (*c*) Those made by the process of fractional or divided percolation. (*d*) Those made by infusion and percolation with boiling water, alcohol being added to the concentrated liquid as a preservative."—(Wilcox's *Materia Medica.*)

10. Arsenic is chiefly derived from the arsenical sulphides orpiment and realgar, and from arsenical iron pyrites.

Arsenic trioxide is made by roasting the native sulphides of arsenic in a current of air.

THERAPEUTICS.

1. "In *malaria* quinine is practically specific. In tertian or quartan malaria, about two or three hours after a large dose of quinine, the parasites in the red cells can be seen to have lost their ameboid motions, and they soon become granular and die. The quinine acts most strongly on the forms just breaking into spores and on the free-swimming organisms; and as these are present in the blood about the time of the chill, the quinine, on account of its rapid absorption and rapid excretion, is best given just at this time. Fifteen grains (1 gm.) may be administered just before, during, or after the chill, and it should be followed by 5 grains three times a day for one or two months. In malarial regions quinine is taken in large quantities (1 dram) as a prophylactic; it is rapidly excreted. There is much evidence to show that it does reduce the number of cases in a malarial community, and does not seem to do any harm to the takers."—(Bastedo's *Materia Medica*, etc.)

2. NUX VOMICA. *Physiological action:* Strychnine is a bitter tonic, stimulates appetite, secretion, and digestion, increases peristalsis, stimulates the vasomotor centers, and so raises arterial tension, stimulates both accelerator and inhibitory nerves of the heart. All the functions of the spinal cord are exalted by strychnine, reflex, motor, vasomotor, and sensory. Large doses cause dilated pupils, irregular and jerky respiration, increased reflexes. *Therapeutic indications:* As a general tonic or bitter; in indigestion, cardiac depression, impaired peristalsis, pneumonia, phthisis, amenorrhea, dysmenorrhea, impotence, some forms of paralysis, chorea, epilepsy, neuralgia, alcoholism, and urinary incontinence.

Its principal *alkaloid* is strychnine.

The *preparations* and *doses* of nux vomica and its alkaloid are: Nux vomica, one grain; extract of nux vomica, one-quarter of a grain; fluid extract of nux vomica, one minim; tincture of nux vomica, ten minims; strychnine, one-sixty-fourth of a grain; strychnine sulphate, one-sixty-fourth of a grain; strychnine nitrate, one-sixty-fourth of a grain.

3. *Two drugs that increase the hemoglobin of the blood:*—Iron and arsenic trioxide.

Iron is used in cases of chlorosis, and secondary anemias. Dose, reduced iron, one grain; or Blaud's pills, two pills (each pill containing one grain of ferrous carbonate).

Arsenic trioxide is used in cases of primary pernicious anemia. Dose, one-thirtieth grain; or three minims of Fowler's solution.

The administration of *iron* in anemia and especially chlorosis often rapidly increases the amount of hemoglobin and the number of red corpuscles. It is useless in pernicious anemia; and of little value, if any, in the anemia of leukemia, exophthalmic goiter, and Hodgkin's disease. In common forms of anemia which are secondary to some special cause, such as hemorrhage, lead poisoning, malaria, scurvy, etc., the removal of the cause is essential to recovery, but the use of iron salts is often of great service in aiding the latter. . . . To restore the amount of hemoglobin and the number of red corpuscles, small doses of reduced iron or of the carbonate, or some one of the combinations with vegetable acids, are usually the most serviceable. In chlorosis better results are often obtained from combinations of iron with strychnine or arsenic than from iron alone.

Arsenic is used to some extent in the treatment of diseases of the blood as anemia, and especially in diseases of the blood-making organs which are designated

as primary anemia, including leukemia, exophthalmic goiter, Hodgkin's disease, and pernicious anemia. In chlorosis, as well as in instances of anemia, where iron disagrees with the patient or proves unsuccessful, it is considered a valuable agent. In these disorders the efficiency of iron is at times much increased by the addition of arsenic.—(From Wilcox's *Pharmacology and Therapeutics.*)

4. *General treatment of typhoid fever:* "As soon as the nature of the disease is recognized the patient should be confined to bed. The room should be large and airy, and provided with efficient means of securing thorough ventilation. The temperature of the room should be maintained between 65° and 70° F. The bed-pan must be used from the beginning until convalescence is well advanced. The stools and urine should be rendered innocuous before being thrown out. This may be done by treating the evacuation with twice its volume of a 1 per cent. solution of chlorinated lime or a 5 per cent. solution of carbolic acid, and allowing it to stand in a covered vessel for two hours before emptying it into the closet. Soiled clothing should be thoroughly boiled. The *diet* should be liquid or semisolid, unirritating, and easily digestible. Milk alone (6 ounces every four hours) does not supply the required number of calories (2,500-3,000), but, as a rule, it should form a large part of the diet. It may be given diluted with lime water, or as buttermilk, malted milk, kumiss, junket, or ice cream. Among the other suitable foods may be mentioned raw or soft-boiled eggs, chicken jelly, milk toast, strained oatmeal gruel, potato puree, tea, coffee, cocoa, fruit juices, wine jelly, and custard. Beef tea and broths may be harmful. In the event of digestive disturbances the diet should be restricted for a time to whey or albumin water. Water, plain or flavored (lemonade, soda water, etc.), should be given in large amounts between the feedings. When the first sound of the heart becomes weak and the pulse dicrotic, alcohol is usually indicated. From 4 to 8 ounces of whisky or brandy may be given in the twenty-four hours, the amount being determined by the general effect. The *cold bath* or the *cold pack* affords the best means of controlling fever and preventing the development of severe nervous symptoms. It may be employed every three or four hours, when the temperature is 102-5° F. or over. Hemorrhage, signs of perforation, menstruation, and great prostration are contraindications."—(Stevens' *Practice of Medicine.*)

To *prevent* the spread of typhoid fever: Flies should be kept out of the house as far as possible, by means of screens or otherwise; all discharges from the sick person must be disinfected; all utensils, dishes, etc., used by the patient must be thoroughly cleansed and boiled every day; soiled linen must be soaked in a disinfectant solution before being washed; after each attendance on a patient physicians, nurses, and others should wash their hands in a disinfectant; thorough sterilization of all bedding, etc., must be performed after the disease is over. Further, each household should boil all water that is to be used for drinking or for washing dishes, etc.; milk should be boiled also; and no ice should be put *in* water or other drink or food. Prophylactic vaccination of exposed persons has been advised.

5. *Precautions to be taken in the use of mercury in treatment of syphilis:* "During the course of mercury, the patient's general health and habits must be carefully regulated; alcohol is forbidden, exercise limited, and strict instructions are given as to keeping the teeth and gums clean. An astringent mouth-wash containing alum and chlorate of potash should be ordered, and it may be necessary to remove or stop diseased teeth, but the dentist must, of course, be informed of the nature of the case. To minimize the risk of throat and mouth trouble, it is wise to stop all smoking for at least six months. The dose of mercury required varies in different individuals, being increased in robust people, and diminished in those who are weak or unhealthy. It should always be pushed until mild physiological effects are produced in the shape of slight tenderness of the gums, but salivation of the patient is undesirable. Full doses are usually required for four or five months, followed by a milder course, which should extend till the end of the first year. It is advisable, however, to insist on a three-months' course of mercury twice a year for two and a half or three years."—(Rose and Carless' *Surgery.*)

6. *Iodine* is *used* externally (as tincture) as a disinfectant, also as an irritant, counterirritant and parasiticide. Internally it has been used as an antiemetic. The iodides have been used in syphilis (third stage), pleurisy, pericarditis, rheumatoid arthritis, aneurism, asthma, and in hydrargyrism and plumbism. Iodine is used externally and internally in some cases of goiter.

The preparations and doses of iodine and the iodides are: Iodine, one-tenth of a grain; compound solution of iodine, three minims; tincture of iodine, one and a half minims; potassium iodide, seven and a half grains; sodium iodide, seven and a half grains; ammonium iodide, four grains; strontium iodide, seven and a half grains; zinc iodide, one grain; diluted hydriodic acid, fifteen minims; syrup of hydriodic acid, one dram.

7. *The therapeutic uses of salol* are: As a disinfectant, in inflammation of the mouth and pharynx, in cystitis, as an intestinal antiseptic in typhoid fever, in muscular rheumatism, in intestinal indigestion and fermentation, in cholera.

The therapeutic uses of sodium phenolsulphonate are: As an antiseptic and antipyretic, in typhoid fever, septicemia, puerperal fever, the exanthemata, and malignant endocarditis.

8. DIGITALIS. *Physiological action:* It is a gastro-intestinal irritant, it slows the rate of the heart, prolongs diastole, increases the force of the heart, it contracts the blood-vessels, and causes a rise in blood pressure, it also acts as a diuretic. *Therapeutic use:* Digitalis is indicated in diseases of the heart: (1) when the heart action is rapid and feeble, with low arterial tension; (2) in mitral lesions when compensation has begun to fail; (3) in nonvalvular cardiac affections; (4) in irritable heart, due to nerve exhaustion. Digitalis is *contraindicated* in diseases of the heart: (1) in aortic lesions when uncombined with mitral lesions; (2) when the heart action is strong, and arterial tension high. Digitalis is also a diuretic; and it is also used in some forms of nephritis, exophthalmic goiter, pneumonia, chronic bronchitis, etc.

9. *Treatment of acute rheumatic fever:* "The patient must be kept absolutely at rest in bed. He should lie between blankets, not sheets, and should wear a flannel night-gown. The diet should consist of milk, diluted with mineral water; if it does not agree, chicken broth may be given. In convalescence it may be more ample, but red meat should be sparingly used. Salicylate of soda, or salicin, is the specific remedy, the latter being the less depressant form. In severe cases, the salicylate should be given in doses of gr. xx every two hours until the pain is relieved, thereafter every four hours till the temperature falls, and then less frequently and in smaller doses, its withdrawal being gradually accomplished. In less severe attacks gr. xx every four hours may suffice. Should the salicylate disagree, other salicyl compounds (oil of wintergreen, aspirin) may be used. In the view of the majority, the salicylates shorten the course, protect the heart, and lessen the liability to relapse; but some still prefer the alkaline treatment, in which case large doses (℥iss) of sodium bicarbonate are given every three hours. The amount is lessened when the urine becomes alkaline. If the pain in the joints is severe, they should be fomented, and the limb should be put upon a splint. A lotion of carbonate of soda and laudanum, or a liniment of methyl salicylate, may give relief; and morphine is sometimes required at first. Hyperpyrexia should be treated by the cold bath.—(Wheeler and Jack's *Handbook.*)

10. ATROPINE.—*Action:* Anodyne, mydriatic, inhibits secretions, depressant of terminations of nerves, accelerates the heart beat, causes rise in blood pressure, but toxic doses cause the blood pressure to fall, stimulates the respiratory center, but large doses depress the same; it may cause vertigo, restlessness, excitement, delirium, or mania.

Therapeutic indications: For the relief of pain, to dilate the pupil, to check secretions, for diarrhea, for asthma, for shock and collapse, for colic of all kinds, for delirium, for epilepsy, chorea and migraine, for paralysis, for cough, in constipation, in chorea, spermatorrhea, or cystitis.

(*To be continued*)

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Original Articles.

NOTES ON THE SURGICAL TREATMENT OF EMPYEMA.*

By W. WAYNE BABCOCK

LIEUTENANT COLONEL, M. C., U. S. A.

Pleural effusions so prevalent in the various army camps and cantonments during the past winter have been associated with a mortality so high as to demand special consideration. The effusions for the most part have occurred after measles and croupous pneumonia, and have given an average mortality of 31 per cent., but in some camps it has reached 65 per cent., 84 per cent., and even 100 per cent. The microorganism chiefly responsible, and giving unusual features to the epidemic is the *Streptococcus hemolyticus*.

Three periods characterize the epidemic as to time and virulence: First, the period of November, December, and January, which marked the greatest intensity of the disease. At this time a typical clinical picture is that of a patient convalescent from measles, who, after exposure, develops thoracic oppression and dyspnea. There is slight lividity, deepening into cyanosis, with evidence of a rapid outpouring of serum into one or both pleural cavities and perhaps also into the pericardium and peritoneum. Loud, moist rales are heard over the chest, and the respiration grows progressively more difficult and more superficial. The effused fluids teem with streptococci, and at times the microorganism may be recovered from the circulating blood. In from 24 to 72 hours the patient is dead. At the post mortem the lungs show large areas of congestion and edema. There is some purulent bronchitis and peribronchitis. In some cases the lungs are necrotic. The effusions in the serous cavities are seropurulent. The process is so rapid that a definite pneumonic process or true pyothorax usually is not found. After the onset of the disease the patient is usually too weak to stand any formidable operation, and has an infection too generalized to be benefited by simple aspiration. Should the patient, however, survive the early stages of infection, consolidation of lung, pulmonary abscess, and purulent infection of the various serous cavities may occur.

The second period of streptococcus infection as to virulence began the latter part of February and extended into April. While serious, the epidemic had lost its intense virulence, and the patients lived long enough to develop other lesions. Usually the patient did not develop the acute and tragic symptoms, and the serous pleural effusions progressed after from several days to one or two weeks to a purulent stage. Pneumonic consolidations and pulmonary abscesses not infrequently occurred, and metastatic effusions in other large serous cavities or in the joints. In the joints the results varied from complete disorganization to spontaneous subsidence with only moderate stiffness. At times there were pyemic manifestations, including multiple subcutaneous abscesses of mild virulence containing streptococci, and promptly healing after simple incision, as in typhoid fever. The presence of streptococci in the blood, while ominous, was not always of fatal import.

In April the third stage of the epidemic was observed. While the *Streptococcus hemolyticus* was still the predominating organism, a pyothorax was the chief lesion, but it usually was amenable to treatment, and death was rare.

The virulence of the epidemic, therefore, bore a direct ratio to the coldness of the months and the microorganism also apparently progressively attenuated as the epidemic advanced. Not only were the infections more severe and more fatal in the early winter months, but they were more enduring and more resistant to treatment, so that empyemas starting in the early winter not infrequently continued to drain until spring or summer, while those beginning late in the epidemic often closed first. In part this may be the result of better management, but irrespective of the treatment it is evident that the late cases were much less virulent and much more amenable to treatment than those of the early months of the epidemic. Not only this, but patients bore the larger thoracoplastic operations or decortications much better in the spring than in the winter. Statistics on methods of treatment which do not take into consideration the rapid attenuation of bacterial virulence as the epidemic progressed have little value. To this attenuation we may largely ascribe the wide diversity of surgical opinion. Thus we find in some camps where surgeons operated promptly during the first part of the epidemic, and operated less promptly and less frequently as the epidemic progressed, the opinion that early operation was responsible for the high mortality. Again, if, during the early weeks of the epidemic, few operations were done and prompt surgical treatment was instituted only after post mortems had revealed the large pleural effusions present in similar cases, the surgeon was prone to argue that the mortality was due to delay in operating. If the surgeon aspirated early in the epidemic, and began to reset ribs at a later stage when the virulence had declined, he concluded that aspiration was dangerous and a cause of bacteremia. If, on the other

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hand, the surgeon resected first and then later, on account of the overwhelming mortality, began to do more aspirations and to practise delay, he concluded from his increasingly favorable results that aspiration was the safer and better procedure.

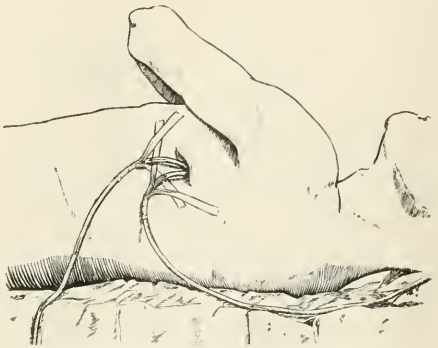

Fig. 1.—Arrangment of tubes for Carrel-Dakin treatment of empyema. Skin incised under local anesthetic and two rubber tubes introduced through an intercostal space by means of a large trocar.

Unfortunately, our results in handling these pleural effusions have been too poor, our experience too limited. to permit fixed conclusions, but the plan thus far worked out is as follows:

1. For sudden serous effusions, with cyanosis and marked dyspnea of streptococcic origin, no treatment or simple paracentesis to relieve pressure temporarily. As showing the early virulence, of eight cases treated by aspiration or puncture drain seven died, one patient recovering after a single aspiration of a small quantity of thick pus.

2. *Dakin Irrigation.*—For acute serous or seropurulent effusions a single thorough irrigation with Dakin's fluid, under local anesthesia by 1 per cent. procaine, is used. Two rather stiff rubber tubes, size 18 to 25 F, are introduced into the cavity. A large, short trocar is employed, the tubes being carried into the cavity through the cannula. The skin is incised and the trocar introduced into the cavity at two points. The tubes are introduced separately and the cannula withdrawn, leaving the tubes in place. One tube has its outlet dependent and under fluid, the other is attached to a sterile funnel containing warm Dakin's fluid. Without permitting air to enter, the irrigation is continued with a pressure head of fluid not greater than 10 inches until the faint tint of the permanganate color of the Dakin fluid is observed at the outlet. The chest is now emptied, the tubes withdrawn, and the puncture openings dressed with gauze wet with dichloramine-T in chlorcosane. The later management of the case depends upon the possible return of the fluid and on its character. Repeated *x*-ray studies are of especial value in association with aspiration and the usual methods of physical examination. Of four cases treated by a single antiseptic irrigation one died and two recovered without further operation.

3. *Continuous Carrel-Dakin Treatment.*—Empyemas with creamy or curdy pus are treated by introducing under local anesthesia by means of a large trocar, stiff rubber tubes, size 30 to 36 F., with a terminal and one lateral opening. The tubes are graduated with indelible ink before sterilization, so that their depth of introduction may always be evident. They are passed through the same or contiguous intercostal spaces to a depth just sufficient to place the lateral opening well within the cavity. One tube is fastened to a Dakin reservoir, the other empties under solution in a container placed under the bed (Fig. 1). The tubes are fastened to the chest wall by adhesive plaster (Fig. 2). The height of the surface of the Dakin should not be more than 10 inches above the chest cavity. Every two hours from 50 to 200 c.c. of the Dakin solution is permitted to enter the pleural cavity. This should not produce pain and often will not arouse the patient if asleep. About 1/5 or 1/4 more fluid escapes than enters the chest, due to the aspirating action of the drainage. As a rule the tubes remain nearly water tight where they pass through the chest wall. The method is therefore very cleanly and convenient and only a small dressing is required. Under the treatment, pus and curdy masses are dissolved, there is no odor, and the drainage becomes clear and gelatinous. In the early days of the treatment there may be rises in temperature, but the patient should rapidly improve and show a marked increase in appetite and comfort, with gain in weight. If the treatment is painful or the drainage imperfect the tubes should be promptly readjusted, reintroduced at some new point, or discarded in favor of some other form of treatment. Excessive pressure in instillation or improperly placed tubes may cause pain, extension of the pleural inflammatory process, or leakage into

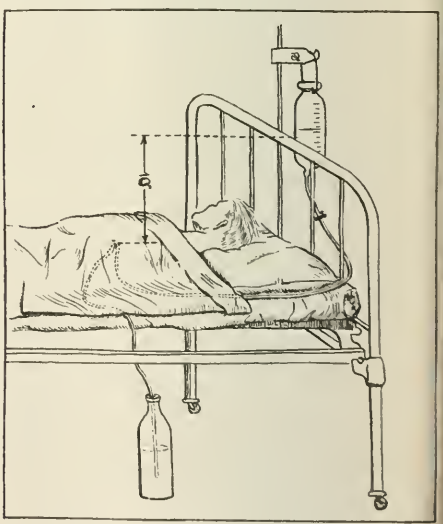

Fig. 2.—Showing arrangement of apparatus for Carrel-Dakin treatment of empyema.

the subcutaneous or muscular tissues with the possible production of an axillary or subpectoral abscess. Large tubes by pressure may also cause necrosis of adjacent ribs. To prevent leakage under the skin it is wise to make the skin incisio

distinctly wider than is necessary for the introduction of the tubes. The object is to sterilize the cavity, and the tube should be withdrawn as soon as clinical sterility is accomplished. A bacteriological count may be made by irrigating the cavity

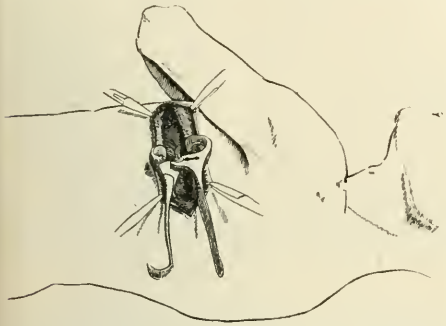

Fig. 3.—Exploratory thoractomy, with rib spreading. Long intercostal incision and rib spreader in place. Seven centimeters of separation may be obtained.

with one per cent. sodium thiosulphate solution to neutralize the Dakin fluid; cultures are made from the last washings that pass from the drainage tubes.

Of eleven patients treated in this manner, two died, six were healed without other forms of operation, one required secondary thoracostomy, one a costatectomy, one a pulmonary decortication. Five of the patients have returned to duty and one is healed awaiting discharge; three having had secondary operations are now nearly healed. This mortality of 18 per cent. compares well with the average mortality of 32.4 per cent. obtained in treating 37 cases by various methods. The duration of the irrigation in these cases was from two days to four months. After removal of the large irrigation tubes it was found wise to insert small 4-mm. Dakin tubes in the openings and to continue Dakin irrigation for two or three days to sterilize the tube tracts. The use of dichloramine-T in these openings has not been found so valuable.

4. *Double Tube Drainage.*—Simple tube drainage without Dakin irrigation, the large stiff rubber tubes being introduced by means of a trocar as above described, and carried below the level of fluid in a receptacle on the floor under the bed is usually curative in the empyemas of children. In one of our early cases healing occurred in one month from this treatment alone. As a rule it is not sufficient in adults.

5. *Exploratory Operations.*—Cases with persistent cavities and poorly draining sinuses are explored either through a long intercostal incision, with spreading of the ribs, or by costatectomy or thoracoplasty. By a simple rib spreader (Fig. 3), the ribs may be separated for six or seven centimeters, sufficient to introduce the hand and to explore the pleural cavity thoroughly. The ribs are held apart by a special rib prop (Fig. 4). In many cases, especially in old dense walled cavities, it is more satisfactory to resect freely the ribs overlying the sinus or cavity. If necessary the lung is freed or decorticated. The wound is left freely open pending sterilization by the Dakin method, or partially closed with a large valve-tube drain. It is especially important to remove bismuth paste which prevents the obliteration of cavities and is a cause of gingivitis and other toxic conditions, bits of necrotic bone, foreign bodies, to separate localizing partitions and to freely open all poorly draining pockets. These extensive operations are best carried out under properly administered gas-oxygen anesthesia.

6. *Secondary Closure* of large thoracic cavities left after operation for empyema has been successfully carried out by Tuffier by first sterilizing the cavity by the Carrel-Dakin method, then excising the wound margins and mobilizing the skin edges, which are united without drainage. The method converts the chest cavity into a pneumothorax, which is supposed to close spontaneously. Tuffier reports success in 16 out of 23 cases. In five of our cases one was successful, two partly successful, two failed. In none of our cases with a large cavity was the complete closure successful. Our present tendency is to unite the skin and underlying muscles, leaving an adequate drain.

7. *Pulmonary Fistulas* present special surgical problems. With a fistula communicating with a bronchus, irrigation or Dakin treatment cannot usually be employed. There may be a single opening, following a lung abscess or area of necrosis, or the surface of the lung may be like a sieve from multiple small openings. Often the character of the external sinus does not reveal the form of fistula. Roentgen ray studies after bismuth injection give much aid but involve the risk of filling the bronchi and alveoli with the insoluble paste. In most cases operative treatment is desired.

We have considered the following methods of closure:

(*a*) Suture of the opening with or without resection of a wedge-shaped portion of adjacent lung tissue.

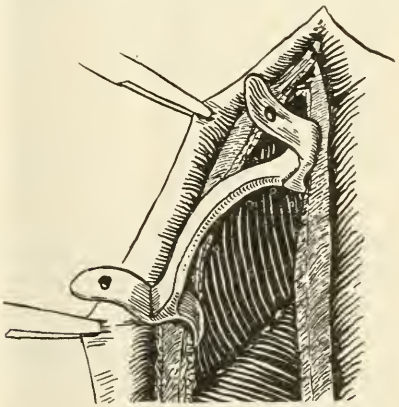

Fig. 4.—Simple rib prop for holding ribs apart in exploratory thoracotomy.

(*b*) Occlusion of the opening by suturing the adjacent lung tissue to one edge of the deep wound in the chest wall. This may be immediately effective and permit the prompt resumption of irrigation of the empyema cavity.

(*c*) Plugging of the opening by suturing into it or over it a flap taken from the adjacent soft tissues. This may consist of mobilized parietal pleura, skin, or other soft tissue. A flap of muscle is usually preferred.

(*d*) Closure of the opening by means of a purse-string suture, introduced about its margin.

(*e*) Apposition and adhesion between the surface of the lung and overlying chest wall obtained either by mobilizing the lung or by a thoracoplasty. Usually several ribs are resected and the lung is mobilized by freeing its edges and dividing adhesions. The wound is then closed except for a large valvular tube drain. We have seen extensive subcutaneous emphysema follow the lack of an air vent. In these cases the affected lung is distended during expiration and the air leakage occurs during this

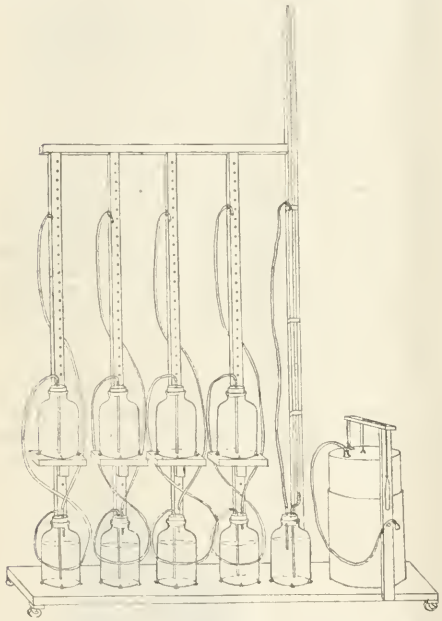

Fig. 5.—Improvised apparatus for graduated expiratory exercise. A simple manometer made of a bottle and glass tubing and a spirometer shown to the right.

time. In the operation of pulmonary decortication, surface vesicles are often opened and it is possible multiple fistulæs may follow this operation. Usually, however, such damage to the cortex of the lung is rapidly repaired.

(*f*) *Delay.*—Many fistulas heal in time by a process of granulation after free opening and drainage of the empyema cavity. The last word has not yet been uttered as to the best treatment of pulmonary fistulæ.

Of great importance in the after treatment of empyema is proper exercise. Patients should be encouraged to be out of bed as soon as possible after operation, and special exercises should early be undertaken. We found the use of a simple improvised spirometer and manometer of value. The interest of the soldier is excited by the daily records made, and the figures give him an incentive to progress with the treatment. Competition and association are of great value in this work. By blowing definite quantities of water from a lower bottle to a higher one, patients may be made to do a graded amount of work daily and a progressive increase in the distending force of the exercise obtained. Fig. 5 shows a simple apparatus which may be used by four patients at one time. It has been found much easier to develop and maintain interest by such an apparatus than by the usual Wolfe bottles. The patient is also encouraged to increase his chest expansion by exercise while sitting in a chair with fixation of one side of the chest, and by selected calisthenic movements. Finally he is permitted to do the heavier forms of manual labor; farming and gardening having especial advantages in developing the chest and in aiding to determine as to whether or not the soldier is fit to resume military service.

THE PREVENTION, DIAGNOSIS, TREATMENT, IMMUNITY AND CURE OF TUBERCULOSIS.

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THIS paper, the result of nearly five years' investigation into the subject of tuberculosis, is compiled from articles published in Australia and America.

I am happily much indebted to my former teacher, Professor Adami of Montreal, for valuable help and advice, and to Dr. Allen Thomas of New York and Dr. P. H. S. Hartley, C.V.O., of London, for kindly interest.

Practising for the most part as a surgeon, I was interested some years ago in discovering that many adults were unable to breathe efficiently through the nose. By "efficiently" is meant the power to breathe through the nose not merely for a few breaths, but constantly, and even during exertion. So many people appeared able to take perhaps two or three breaths through the nose, and were then forced to take the next through the mouth. Again others, either from inability or indifference, habitually breathed through the mouth.

Whilst this question of nose breathing interested me as a practitioner, in my capacity as Medical Officer of Health my attention was drawn to the occurrence of epidemics of a subacute form of pneumonia, which appeared at the period of our dust storms. In my further capacity as Area Medical Officer, *i. e.* medical officer for the examination of cadets aged 12 to 18 for their military service, I was surprised to find that, in spite of our perfect climate and the fact that the Australian child receives plenty of good food, the physique of the cadets was very indifferent, and their chests were often feebly developed and misshapen.

Incapacity for nasal respiration seemed, except in the case of adenoids, to be slurred over in textbooks on nasal surgery as something of only partial interest. It was relegated to the position of a symptom of such conditions as a spur on the septum or hypertrophied turbinates rather than regarded as a disorder in itself.

My attention once drawn to this frequent incapac-

ity, I found at length that, whatever its apparent cause, it could, except in the case of adenoids, be corrected by supporting or pulling outwards the lateral nasal cartilages. In other words, it was primarily dependent on weakness of the walls of the cartilaginous part of the nose, and such conditions as hypertrophies and deflections were really phenomena of secondary importance.

About the time that these subjects engaged my interest, there was considerable discussion in mining circles with reference to proposed drastic legislation for the protection of miners from miner's phthisis, and thus a further subject was added which intuitively linked itself to the others.

The occurrence of these varied problems caused me to attempt to discover if possible: (1) The reason of the poor physique of our cadets. (2) What are the effects of an incapacity to breathe through the nose? (3) Can pneumonoconiosis and allied disorders be prevented?

These three questions will be discussed in the following sections, and the conclusions they entailed will form the subject matter of the remainder of this paper.

The Effects Produced by Inability to Breathe Through the Nose.—As already stated, certain physical deformities of the face and chest are produced by rickets and obstructed nasal breathing. The importance of this will be more fully understood when attention is given to an aspect of the nose which heretofore has received very little consideration, namely, its action as a filter. Text-books on anatomy and physiology so persistently regard the nose as an organ of smell as to obscure the probabilities of its possessing other functions.

Examining the skulls of lower animals, especially in relation to the nose, the large proportion which this organ occupies of the total skull area is most striking. For example, in the hyena, the nose, irrespective of the soft parts, is equal to the combined volume of the mouth and brain. In some of the African deer the proportion the nose bears to the rest of the skull is enormous. But even more interesting are the size of the sinuses and the elaborate beauty of such structures as the ethmoidal cells and the turbinates. It is unreasonable to believe that this area, so large in proportion to the rest of that important structure, the skull, and with such elaboration of detail, is simply and solely to convey the sense of smell, and incidentally to warm and moisten air, which, in many countries, is already warm and moist enough.

A little careful consideration shows either that a large portion of the nose has no function at all, which is absurd, or it has functions which have not yet been investigated with sufficient thoroughness. Even in the human nose, which compares poorly with that of other animals, the area utilized for conveying the sense of smell is limited to the upper regions, and is small in relation to the total surface.

There is no need to emphasize that the human being develops better who breathes through the nose. Experience, common sense and intuition make this easy of appreciation without discussion.

Assuming that the next most important function of the nose after the sense of smell is to act as an organ to breathe through, to what extent does it explain the elaborate structures found in the organ?

To do this it is necessary to discover what exactly the air contains in addition to its moisture and gases. The word "impurities" embraces all these substances, and the form in which they exist is that of dust. Now, dust can be divided for descriptive purposes into (1) mehanical particles, (2) microbic elements. The object of this classification is to draw attention to the provisions made by nature in the nose for dealing with these distinctive entities. In some countries dust storms are a feature of the climate, but even in moister countries like England and France the amount of dust in the atmosphere, whether inside or outside the houses, is enormous.

Through the courtesy of Mr. Hamilton, president of the West Australian Chamber of Mines, I have had an opportunity to examine a man who, working daily in an atmosphere dense with mining dust and with his mouth covered by a handkerchief, was able to show the condition in the nose arising from such employment. On examination the hairs of the nostrils were clothed with dust. The right side of the septum, anterior to the turbinated bones, had fragments of conglomerated dust stuck to it. The left side had a considerable cake covering the same position. The dust was easily detachable by blowing the nose. Other men examined who worked in a less vitiated atmosphere showed the hairs inside the nostril coated with dust, but the septum apparently clear. In only one case, that of a man with a large cavernous nose, did it seem as if the dust reached the turbinates. With this one exception, all the men examined denied having suffered from diseases of the nose, and further, they were apparently free from pneumonoconiosis.

In fact, what seems to take place is that inspiration, which is slow, deposits a certain quantity of dust inside the nostril, whilst expiration, which is more abrupt, blows it out again.

That the opening into the cartilaginous part of the nose is set at a considerable angle to the opening into the bony part must do much to prevent the carrying of dust particles as far as the turbinates; and even very light particles of dust are apparently filtered off by the cartilaginous part of the nose, for snuff makers are said to wear handkerchiefs over their mouths at their employment.

Although observation and experience show that the cartilaginous part of the nose is capable of filtering off the grosser impurities of the air, particles as buoyant as microbes must, for the most part, be carried on in the current, and this inspiratory current, after entering the bony part of the nose, passes along the upper chambers in the region of the ethmoid, superior and middle turbinates, and in some skulls in the lower animals there is apparently a bony division separating the inspiratory and expiratory channels.

Now, the effect of such structures as the sinuses, ethmoidal cells, and the turbinates is to break up and slow down the current, and this in such a way that probably in a well-constructed nose the whole of the air is brought into contact with living structures.

A study of the different structures of the nose when regarded as a respiratory organ is fascinating. It is not, however, my object to enter too much into detail, so I will merely draw attention to the utility of the sinuses. If one takes a cylinder of

cardboard and fastens a manometer tube, closed at its outer end, into the side of the cylinder, a working model of the nose and a single sinus is produced. If now one end of the cardboard cylinder is placed in the mouth and regular respiration takes place through it, there is no movement in the manometer tube unless the distal end of the cylinder is made smaller than the end held in the mouth. By experimenting in this way it can be shown that the commencement of inspiration draws air out of the sinuses until such time as the pressure of the inspired air in sinuses and nose counterbalances. Expiration then forces the last of the inspired air into the sinuses, where it remains till the next inspiration. In this way inspired air is maintained a maximum time in contact with living tissues, and a real explanation is made why patients who inspire through the nose merely along the channel below the inferior turbinate, or again, people with very capacious noses, show a liability to tuberculosis, though less than do mouth breathers.

The cells covering the turbinates and lining the sinuses are for the most part furnished with ciliæ. It has also been demonstrated by experiment that they are capable of destroying microbes. The beautiful and elaborate nasal structures noticed in many animals now become intelligible. They represent a method not only of filtering off microbes, but of actually catching and destroying them.

But this is not the limit of their function. Stimulated by microbic destruction, they are able, as will be described later, to secrete antibodies internally.

It is now apparent how important it is that the nose be anatomically correct, and that it fulfill all its physiological functions. If the function of the nose for inspiration is annulled as a result of faulty development, then even such coarse particles as quartz dust are drawn directly into the lungs, giving rise to disorders grouped under the heading of pneumonoconiosis. But air free from grosser dust may yet be injurious, and if laden with tubercle or other bacilli it is inspired directly into the lung, it may here set up those processes grouped under the headings of the pneumonias and phthisis. On the other hand, if the air passes through the filter of the nose, the grosser particles are removed and the microbic elements are not only destroyed but actually turned to good account by their utilization in the production of antibodies, which serve to neutralize any microbes entering the system by other channels.

To summarize: The effects of an inefficient nose are pneumonoconiosis, the penumonias and tuberculosis.

The Prevention of Pneumonoconiosis, Tuberculosis and Allied Disorders.—Indiscretion in infant feeding, want of attention to adenoids, a slackness of observation and discipline in parents and teachers as regards the importance of nose breathing in children lead to the important functions of the nose falling into disuse, and in consequence our protection against dust-borne disease is inhibited, and mankind is attacked by pneumonoconiosis, tuberculosis and other disorders.

As already mentioned, more sensible attention to feeding in infancy improves the development of the face, and the advisability of operation for adenoids is so universally accepted as to need no further discussion.

But actualities are actualities, and the fact remains that a large number of people are incapable of breathing through the nose. Though abnormalities, such as spurs of the septum, deflections and hypertrophies may have to be corrected, it is certain that the commonest cause of incapacity for nasal respiration lies in the feebleness of the nasal muscles and cartilages. The usual type of nose expressing this condition is compressed from side to side.

The differences of racial type of nose, and the many reasons for mouth breathing, either from inability or indifference to nasal respiration, form a study in themselves. Especially is it difficult to understand the absence of nasal respiration in people with snub noses, or with the Mongolian type of nose. But even in these cases support of the cartilages relieves the condition.

The conventional type of nose of the consumptive is laterally compressed, and the study of the reasons for this appearance helps to a very large extent to understand other types. With the occurrence of adenoids and the impossibility of nasal respiration, there is a natural tendency for the cartilages and their attached muscles to atrophy from disuse, and further, as a result of the softness of the bony structures from injudicious feeding the face does not broaden out and carry the cartilages with it. Even when adenoids disappear, either from operation or atrophy, unless special education is given, the incapacity for nose breathing remains.

The explanation of this is as follows: The nasal cartilages are supplied with no less than twelve muscles to dilate them. If these muscles are incapable of action or merely enfeebled from disuse, then when inspiration draws the existing air out of the nose, causing thereby a negative pressure, the muscles are unable to hold open the cartilages, which become compressed toward the septum, and, as a result, nasal respiration is no longer possible.

This condition existing in youth is, I believe, one of the commonest causes of tuberculosis in latter middle life. Many people as they grow older lose the muscular power to support their nasal cartilages, and, in consequence, are attacked by tuberculosis. I have, however, seen a man of 72, engaged in laborious mining work, who, with very thin cartilages, yet maintained his nasal respiration. His nasal muscles stood out like steel bands.

Nasal respiration is dependent on the configuration and solidity of the nasal cartilages, the amount of fatty supporting structures, and perhaps most of all on the efficiency of the nasal muscles.

Experimenting with various mechanical contrivances for supporting the alæ nasi, and finding that each and all were defective in some respect or another, I was fortunate enough at last to discover in a surgical instrument catalogue a nasal prop invented by a Scotch throat and nose specialist.

They are made of silver wire, which should not be too thin, as otherwise it may cause a little soreness from pressure, and are supplied in four sizes, so as to be adapted to any type of nose. To use them they are slipped just inside the nostril, and act in a manner somewhat akin to a vaginal pessary. Invisible to other people, they are prevented from slipping out by the fold of skin and mucous membrane on the lower edge of the septum.

The proof that the right size is selected is shown

by the fact that when in place, without disfigurement, they make it possible to breathe through the nose without effort. As demonstrating the practical value of these appliances, I have patients who have worn them for three years and more. The majority, however, become careless of their use, lose and break them, and for this reason I advocate operative procedures.

A simple method of testing to what extent incapacity for nasal inspiration is dependent on weakness of the cartilages is to insert a blunt hook into the postero-external angle of each nostril, and to pull gently downward and outward. This causes a tautening of the cartilages, and if the patient is now told to shut the lips tight and take deep breaths through the nose he usually finds that he is easily able to do so.

The operation which I perform is founded on this simple fact, and consists in the excision of a crescentic piece of skin just beyond the external or posterior lower corner of the nostril. It is in a sense parallel to the natural curved line in this position. The width of the crescent at its widest part varies with the circumstances, but approximates to an eighth of an inch. The object to be achieved is to obtain permanently a similar result to that produced by the blunt hook. The wound is brought together by three horse-hair stitches, and Sir Arbuthnot Lane's cleft palate needles are used.

The accompanying diagram will assist to make the description more easily understood.

The benefits derived from the operation are:

1. It enables the patient to breathe through the nose, thus protecting him from pneumonoconiosis, and immunizing him against influenza, tuberculosis and catarrhal pharyngitis—in other words, all the disorders to which the mouth-breather is liable.

2. It improves the shape of the nose. This is easily tested in the first place by the blunt hooks or by means of the nasal props.

Disabilities are: The skin here is tough and filled with sebaceous glands. It is, therefore, a little liable to subacute wound infection, which does not, however, impair the ultimate result; possibly even strengthens it by forming a denser scar, which may, however, be a little noticeable for a short time. Later the scar seems to become hidden by the bolder outline assumed by the nostril. My patients have considered that they not only benefited in health, but that their personal appearance was improved. Suggestions have been made to me by surgeons that a simpler method would be to pass a silver wire subcutaneously from side to side in the region of the cartilaginous alæ, thus giving support to these structures. Such a procedure seems simple and feasible, but I have no personal experience.

At any stage, therefore, in life, it is in the power of the physician and surgeon to increase the resisting power of their patients against pulmonary disease. In earliest infancy unnatural methods of feeding are inadvisable. Later on, the necessity for children to eat hard though nourishing food should be insisted on, as not merely beneficial to the teeth, but also to the total welfare of the child.

With increasing age, if he learns to breathe through the nose, by operation, education and drill, the healthy development of the growing child is largely assured.

To forestall danger is to minimize risks, yet, happily, as will be shown below, even after disaster has occurred, it is possible by restoring the anatomical and physiological capacities of the nose, in addition to other treatment, to enable patients to regain and maintain vigorous health.

The prevention of mechanical irritation to the lungs, giving rise to pneumonoconiosis, is a certainty. The same can be said of microbic diseases, such as tuberculosis, when these theories are sufficiently understood.

The Actions and Reactions of Epithelial Cells.—In a former paper the statement was made that epithelial cells, *i.e.* the cells covering the turbinates and lining the nasal sinuses, produced antibodies in consequence of the microbes falling upon them. As this is a theory not yet accepted in pathology, I will describe the theoretical considerations, practical experiments and observations which have confirmed me in this belief.

When first engaged in investigating the nose as a protective organ against disease, I was limited entirely to a consideration of its utility as a filter, and by reference to the fact that its epithelium was able to destroy microbes. In my practice as a surgeon I was convinced that such conditions as catarrhal pharyngitis, the tendency to subacute pneumonia during dust storms, and also our endemic influenza could be ameliorated by enabling patients to breathe through the nose.

My first efforts to bring about nasal respiration, whether operative or by mechanical means, were but partial successes. In spite of this, there was often a marked improvement in the general health of the patients who had been under my care. I could not in honesty attribute this to my skill, and became certain that there was some unknown beneficial factor at work.

Further consideration seemed to point to the conclusion that even partial nose-breathing was capable of producing a certain degree of immunity. In other words, the inspiration of perhaps 50 per cent. of the microbes in the air on to the nasal mucous membrane was able to neutralize the harmful effects of the remaining 50 per cent. inhaled directly on to the pharynx and into the lung. This remained a vague belief until by chance a patient with advanced tuberculosis asked me whether there was any remedy which would benefit him. Unable to offer any relief, I suggested his drying his sputum in the sun and sniffing the dried powder up into the nose. I have treated many patients in this way, and for different reasons have often obtained but poor results, so it must be put down to good fortune that my first case responded in a most remarkable manner, and experimentally, at all events, made it certain that the nasal mucous membrane was capable of forming antibodies.

From this point onward through a long series of difficulties and mistakes in technique and judgment, I arrived at my present method of treatment by insufflations. This technique, which will be detailed in a subsequent chapter, is so simple that by a series of six insufflations of mgm 1/10th of tuberculin BE, it is possible so materially to benefit a patient's health that a definite diagnosis of tuberculosis can be made even in obscure cases. Thus, six insufflations onto the nasal mucous membrane

are sufficient to produce enough anitbody to improve such symptoms as loss of appetite, night sweats, tendency to headaches, and even temperature, thus showing that the antibody circulates through the system.

Even before arriving at this practical point, I had convinced myself on theoretical grounds of the capacity of epithelial cells to produce antibodies. Anticipating these theoretical considerations, it is worth while to follow another experiment, which, although it did not result in the recovery of the patient, yet showed that this epithelial capacity to form antibodies was something more than chimerical.

It seemed probable that if epithelial cells had curative properties against disease, it might be possible to utilize these in malignant disease. When serving with the French Army as Médecin-Majeure, a patient was sent to my hospital with what was said to be dysentery. On examination he was found to have a large, inoperable, malignant growth of the rectum. This patient was blistered two or three times a week on different parts of his body, and the fluid drawn up into a syringe was injected hypodermically. The case was described under the heading "Autosecretion in the Treatment of Cancer" in the MEDICAL RECORD, April 22, 1916.

It suffices here to give the report of Dr. Pettit, consulting surgeon in Paris, who saw the case on several occasions.

Décembre 16, 1916. "Lorsque j'ai examiné Piette le 15 Août 1915 j'ai constaté au toucher rectal une tumeur constituée par des saillies volumineuses reposant sur une base indurée et encombrant la lumière du rectum. Les saillies étaient dures, commes du cartilage, et le pulpe de l'index ne pouvait pénétrer au dessus de la tumeur ni-même s'engager dans le rétrécissement. L'état général était mauvais—amaigrissement, faiblesse. Je demandai une réaction de Wassermann qui fut négative. Je revois le malade le 16 Décembre 1915. Etat général bon. Forces en grand progrès. Embonpoint très satisfaisant. Au toucher le doigt pénètre facilement dans le rétrécissement maintenant plus large, et en dépasse juste la limite supérieure. Les végétations sont moins grosses et plus souples. La base indurée est beaucoup moins dure. Ces modifications sont particulièrement nettes vers la partie postérieure du retrécissement."

As already stated, this patient died later of what appeared to be a pernicious anemia. It suffices to show that experimentally, at all events, some action had been produced.

Referring back to theoretical considerations, it is patent that the epithelium of the skin and of the intestines is like that of the mucous membrane of the nose, constantly exposed to the action of microbes. It is easy to demonstrate that there is a marked difference in power to resist microbes between the epithelial cells of the intestine and the cells forming its serous coat. A mere puncture of the intestine will set up an acute peritonitis.

That the epithelial cells of the intestine have something more than a resisting power is made practical use of nowadays in the French Army, where immunity is produced by the oral administration of the products of the cultures of dead typhoid bacilli. In my paper, "Epithelial Function in Relation to Disease," published in the MEDICAL RECORD of September 18, 1915, I advocated this method on theoretical grounds as a protection against cholera.

Scarlet fever is perhaps the most striking example of the employment of the skin in the production of antibodies. In this disease, though the site of the original lesion is in the pharynx, it is not until the infective agents have been carried to the skin, and there by their reaction produced antibodies, that they are rendered innocuous to the host and the disease abates.

Really the importance of the epithelium, whether of the skin or bowels, has been empirically accepted by physicians from time immemorial. All people admit the improvement of health brought about by substances which stimulate the intestinal mucous membrane. It is the sheet anchor of our profession, whether prescribed in the hospital under the form of mistura alba, or to more wealthy patients in the form of fashionable spas. The frequent use of aspirin at the present day is due to its direct stimulating effect on epithelial cells, whether of the glands, such as the liver and salivary, or of the nasal mucous membrane or the skin. Perspiration, another empirical remedy of universal use, is an expression of the activity of the epithelium of the skin. Its presence or absence often decides the turning point of an illness.

Most vivid expressions of the utility of the epithelium in producing antibodies are to be seen in the erythemata of such affections as fish-poisoning, and again in the rashes of the exanthemata. From the time of the appearance of the rash we date the commencement of probable recovery. An abnormal rash, as in hemorrhagic measles is an expression of great danger, and every physician appreciates that a rash suppressed by chill or otherwise is a dangerous circumstance.

That nature definitely attempts to collect antibody, if such an expression is allowable, is shown by a simple observation and experiment. Most cases of tuberculosis suffer from frontal headache, which is almost certainly due to congestion of the frontal sinuses and neighboring structures. After insufflating tuberculin BE onto the ethmoidal region some half dozen times, there is almost invariably a marked decrease in the amount of headache complained of. Without too great a stretch of imagination, it is easy to believe that the nasal structures are congested to obtain antibody against tuberculosis, just as the skin is congested in scarlet fever to obtain antibody against that disease. In the case of the patient who does not breathe through the nose there is no antibody obtainable, since no bacilli have been deposited on the nasal mucous membrane, from whose destruction it may be produced. But if it is artificially supplied, then there is no necessity for the intense and unprofitable congestion.

A matter of great interest is whether different epithelia have specific action against certain diseases or whether all epithelia have similar reactions. My own opinion in this matter, unfortunately so far not sufficiently supported by experimental work, is strongly in favor of the specific action of certain epithelia against certain diseases. Thus, in tuberculosis, I believe that the nasal epithelium has very strong powers to form antibodies, that next in

importance comes the intestinal epithelium, and that finally the epithelium of the skin has only very slight, if any, antituberculous qualities.

Considering the enormous area of the skin and the slight effects it produces on the disease, as exemplified by the abortive character of the benefit received from night sweats, we may say that relative to the nose it is of small importance. That it is entirely negative I do not believe, because benefit is produced in tuberculosis by the employment of sun-baths. Again, to the reactions of the skin are probably due the haphazard improvements produced by tuberculin injected hypodermically.

Interaction between the epithelia is certain. One of the earliest expressions of benefit received from insufflations is a clearing or diminution in the muddy appearance of the skin, whilst the epithelial cells of the intestines have not without success been used to produce tuberculous antibodies by the oral administration of tuberculin.

In hot climates a chilling of the skin tends to bring on intestinal disorders, such as colic, dysentery and cholera; in cold climates it is the nose and lungs which are chiefly affected. Professor Adami in his "Pathology" expresses the law which governs this subject in the following words: "In infection the body is never involved as a whole. Coincidentally with the growth of the specific germs in individual organs there tends to be a reaction to and destruction of the same in other parts."

The Practical Application of These Theories.—It must be apparent that, whilst at the commencement of my research work my interest was engaged in such abstract problems as the prevention of pneumonoconiosis and the poor development of Australian cadets, by a gradual process my attention was focused on the prevention, treatment, and even cure of tuberculosis. If it was possible by sniffing sun-dried sputum or infinitely small doses of tuberculin BE into the nose materially to benefit and in some cases apparently to cure tuberculosis, surely this experimental work was capable of practical application.

It will not be out of place here to explain my reasons for the employment of tuberculin BE. It has been shown that my theories were of an essentially simple character. The deposition of tubercle bacilli on the nasal mucous membrane was sufficient to produce antibodies. My original experiments with sun-dried sputum were interesting in that the worst cases often did the best, which can now be explained by the probability that their sputum was richer in bacilli. However, the preparation of this snuff, whether by the sun or chemically, was revolting. Its employment three or four times daily was liable to irritate the nose. It was extremely variable in quality and haphazard in its effects.

Although I had early in my work found benefit to be derived from the sniffing of tuberculin BE into the nose, I yet determined to make a series of experiments with tablets of dead tubercle bacilli prepared for me by Messrs. Parke, Davis & Co. The disabilities of these preparations were as follows: (1) Variability of virulence dependent on the age of the growth. (2) The necessity for too frequent applications. (3) Their excessive bulk. (4) Their tendency to produce coryza and sore nose. (5) Their constant employment seemed to weary patients.

In the end I reverted to my original use of tuberculin BE, but as the result of kindly suggestions from Dr. T. P. Woo, late assistant medical officer at the Brompton Hospital, on more practical lines. The chief of these was the use of an insufflator to be described. The second was the abandonment of nasal props, which up to this time I had considered an essential of treatment. My present method is as follows:

A one milligram tablet of tuberculin BE is divided into 8, 10 or 12 powders, giving respectively doses of 1/8th, 1/10th, 1/12th of a milligram, and the dose decided on is insufflated into alternate nostrils three times a week or every second day. And, so far, no disabilities have been discovered arising from this treatment, except an occasional drying or watering from the nose, and more rarely a slight hemorrhage which can be safely neglected. I will detail its benefits:

1. Tuberculin BE is a more or less standardized preparation of dead and crushed tubercle bacilli, easy of absorption by the epithelial cells and with great capacities for the production of antibodies.

2. The smallness of its bulk prevents blocking of the sinuses.

3. It need only be employed every second day, and that in a different nostril, so that each nostril has four days' rest.

4. It further fulfills the following requirements essential for any treatment of real value in tuberculosis:

(*a*) It is easy of application by any physician. (*b*) It is not irksome to the patient. (*c*) It produces uniform results in all cases, of whatever type. (*d*) It is beneficial to all symptoms. (*e*) It is practical in that it can be employed alike with office or hospital patients. (*f*) It definitely enhances the resisting power against the disease. (*g*) There are no harmful complications from its use.

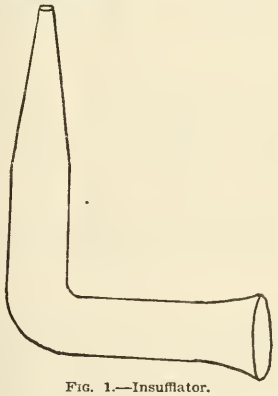

Fig. 1.—Insufflator.

The insufflator which I employ is of extreme simplicity. It consists of a glass tube bent to a right angle at its middle, and a rubber bulb syringe. The glass tube, as shown in the diagram, has certain important characteristics. Besides being bent to a right angle at its middle, the end which is passed up into the nose is tapered off somewhat to a point, so that it can be pushed up as high as possible into the nose. This is a matter of moment, as otherwise the powder may be caught on the hairs inside

the nostril or merely be deposited on some spur of the septum. A matter of extreme importance is that the point is directed straight upward and toward the frontal sinuses, and not backward toward the naso pharynx. This is best insured by the upright part of the tube outside the nostril resting against the upper lip. The other end of the tube is funnel-shaped in order that the powder when poured in shall not fall outside and be wasted. The rubber bulb syringe employed should be of a large size, like a Politzer's bag, and its nozzle should be preferably cone-shaped, so that it may perfectly fit any size of glass tube.

The method of procedure is as follows: The powder is poured into the tube, which is gently tapped to ensure it all lodging at an angle. The point of the tube is now inserted into the nostril by the patient, who is told to hold the tube firmly, so that at the moment of insufflation the point of the tube shall not be jerked and perhaps cause an abrasion inside the nose. It is, as already mentioned, all important that the point shall not be directed backward, but straight upward toward the frontal sinuses. The tube in position, and the powder in its place at the angle, the nozzle of the rubber bulb syringe is now inserted into the funnel end of the tube, and with a quick pressure the powder is blown into the nose in the region of the ethmoid and superior turbinate. I am accustomed to consider the insufflation satisfactory if it is felt by the patient in the region of the frontal sinuses or eyebrows.

A great advantage of this method is that each patient has his own tube, but that one syringe suffices for any number. This is of importance both in private and hospital work. The total time occupied by the procedure is about one minute.

During my work on tuberculosis, the reactions between the temperature and my method of treatment gave me much cause for thought, and occasionally even for alarm. At the present time I pay small attention to the temperature, which I know will fall in proportion to the improvement in other symptoms.

For purposes of explanation the effects on the temperature of the right, the too large and the too small dose will be described.

If in the case of a patient running a 102° evening temperature, an insufflation of mgm. 1/10 to 1/20 is given every day for four days running, the result is a rise in temperature of about 1° for two or three days, followed by a lengthy fall, so that on the fourteenth day the temperature stands at 1° to 2° lower than at the commencement of the treatment.

This is easiest shown on a diagrammatic chart.

Suppose now that mgm. ½ is insufflated on two to four following days. Then the rise will be higher and more prolonged, while the patient looks ill and hectic. The ultimate result is often excellent, the temperature falling 2° or more, but it is not a method which is advisable, especially in old people.

If mgm. ½ is insufflated four days running in a 99° type of case, then the excursion may rapidly rise to 103°, to be followed by a rapid fall in 24 to 48 hours, and the patient may feel much better. Again, I do not advise this, as it entails unnecessary shock.

With too small doses the result is either nil, or proportionate to the size of the dose.

My present method of treatment by tri-weekly insufflations does not produce graphic curves on the temperature chart, but the usual excursions become less marked and less frequent, and, as stated elsewhere, the temperature may be expected on the normal line about the end of the sixth week.

Puzzled for a long time by these effects of insufflations on the temperature, I venture now to offer a simple explanation. With a normal dose the production of antibodies is at its best. With excessive dosage the production of antibodies is temporarily inhibited, and direct absorption of tuberculin takes place. Finally, the production of antibodies reasserts itself, and an exceedingly good result may be produced. But in old cases the absorption of tuberculin which has already taken place may be too much for them, and lead to collapse.

Practical experience seems to show that mgm. 1/10 tri-weekly is the average dose. But in cases running a high temperature, and of hectic type, in which large quantities of tuberculous products are probably circulating in the blood, the possible danger of even temporarily adding to these products must be taken into account, more especially

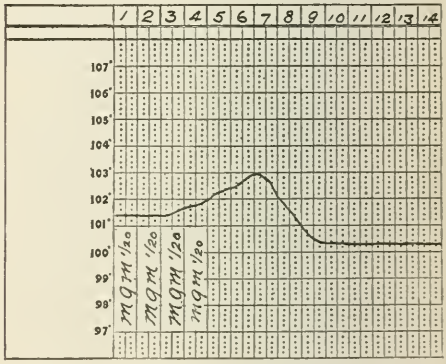

FIG. 2.—Chart showing temperature changes following insufflations of tuberculin B.E.

because the capacity to produce antibodies is perhaps diminished with fever. Therefore, a dosage which may be as low as mgm. 1/20 is used, proportionate to the general appearance of the patient, who is gradually brought to a condition in which larger doses can be wisely employed. It is more important to insure the patient's recovery than to be governed by a too rigid routine. In mild cases larger doses than mgm. ⅓ do not seem peculiarly beneficial.

That local reaction in the nose may cause an elevation of temperature is probably another phase expressing "Inhibition of production of antibodies, and direct absorption of tuberculin."

In the treatment of hectic and febrile cases the method adopted by my colleague, Dr. W. P. Birmingham, M.D., consulting physician to the Fremantle Hospital, W. A., will probably be found most suitable. He starts with 0.0001 mgm. tri-weekly insufflations, and when the patient ceases to improve increases to 0.001 mgm. When a standstill is again reached he increases to 0.01 mgm., and so on until the highest dose which the patient can stand without reaction is reached. This will be found to be about 0.1 mgm.

Insufflations should reduce temperature. If they cause a rise of temperature treatment is suspended for a few days and a smaller dose employed until toleration is established. Success is dependent on a maximum production of antibody and a minimal absorption of tuberculin. Even when excessive reaction is accidentally produced, ultimate benefit is always obtained, provided the treatment is temporarily suspended.

Actually, Dr. Birmingham considers that the physician's acumen and an appreciation of the patient's personal equation are of more importance than aiming for an increased dosage.

Explanations and Remarks.—It must not be considered that my experience in the treatment of tuberculosis is limited to the cases just noted. The number is probably nearer two to three hundred. But this series of cases definitely represents the results of a method of treatment with which I am satisfied. More important still, they are in the same sequence as they occurred in my practice, and not a mere collection of successful results.

I propose now to point out interesting features of these cases. Though perhaps not always recorded, it is certain that even in obscure cases of tuberculosis improvement will show itself at the end of a fortnight. In doubtful cases it may be advisable to continue the insufflations for another week. The importance of this is obvious. It supplies us with a simple and definite method of diagnosis.

The signs and symptoms which lead me to consider that the patient is better, and which confirm my diagnosis, are the following:

1. The patient's statement of his improved bien-être. However much physicians may dislike accepting such a statement from a tuberculosis case, it is, after all, the first question put to patients suffering from other diseases, and the reply, in conjunction with more definite facts, is worthy of credence.

2. Improvement in the insomnia, which so often accompanies tuberculosis, is definite evidence.

3. Improvement in appetite and digestion; this is a useful sign in those cases which have long suffered from peevish appetite, or who, on taking food, have been unable to digest it.

4. An improvement in the frontal headache from which so many tuberculous cases suffer.

5. An improvement in the appearance of the conjunctiva and the color of the skin. The former becomes whiter and clearer, the latter less muddy, and with a more rosy color.

6. In cases where the temperature is taken it may, if of the 99.4° variety in the evening, have settled down to normal.

7. There will very likely be some improvement in cough, and capacity for deeper breathing. The sputum may also be less in quantity and more mucous in character.

8. The determining factor of all is the willingness of the patient to continue treatment.

With this improved method of diagnosis it seems as if the number of tuberculous people in the community was enormous. They seem to drag on a sort of half-hearted existence, with visits to drug stores, the use of patent medicines, and the occasional advice of a physician.

If my work achieves nothing more than the early diagnosis of tuberculosis in the young chlorotic woman, or in the man who takes to drink because he feels his vitality failing, it will have helped many unfortunates and also the progress of medicine.

It is this early diagnosis of tuberculosis which is the important factor in the possible cure of the disease. The average case of tuberculosis is apparently not diagnosed by the average physician much under a period of two years or more, and usually not before distinct and permanent pathological changes have taken place. This is not due to want of knowledge by our profession of the prevalence of tuberculosis but to lack of a simple method of diagnosis.

If patients past the recuperative time of life, and with systems soaked—if such a description is permissible—with the causative factors and products of tuberculosis, are yet able to show marked improvement in their condition within a reasonable period of time, it is self-evident that patients in whom the disease has made but little headway will be so much benefited as probably to throw off the disease entirely.

It may be as well to make some practical suggestions at this juncture.

The majority of cases are seen by the general practitioner in the first instance, and it is not always easy for him to explain that he may suspect tuberculosis. Under such circumstances a little harmless subterfuge is not amiss, and the patient can be advised that the insufflations are primarily for the relief of headache or post-nasal catarrh, symptoms which so often accompany tuberculosis. If the patient's health is improved at the end of a fortnight or three weeks there is no difficulty in continuing the insufflations as a treatment.

Perhaps one of the most striking features of my series of cases is the improvement shown in patients past the prime of life, and who had been long affected with the disease. This indicates surely the small balance required to throw off tuberculosis. Another point is that with two exceptions the patients were able to carry on their ordinary vocations from the beginning without the relapses to ill health to which they were accustomed, or they were soon sufficiently improved to be able to do so.

This means that the treatment is essentially practical. A treatment must follow the usual custom of office attendance when rest in bed is not required.

With the gradual encroachment of the State into social and economic life, practical methods of dealing with disease become more important still. My method is equally applicable to sanatorium or dispensary.

In my studies on tuberculosis the character of this disease which has struck me forcibly is its fickleness. The physician can never feel confident as to the condition of his patient, and is perforce condemned to a most guarded attitude when questioned as to prognosis.

Now, it is not too much to say that my method of treatment will give the physician confidence. I do not say that he will always be right, since any one may be oversanguine, but it does enable him to feel that he has the case well in hand.

I pointed out above the definite influence that the insufflations have upon the temperature. I no longer employ the method of four insufflations on

following days for the purposes of treatment, though I occasionally use it in order to test the reaction of a patient.

A hectic case, though kept strictly in bed and at rest, is otherwise treated on the same lines and in the same manner as the chronic tuberculous.

This method, though it does not produce such graphic curves on the temperature chart, soon shows its steadying influence, and this modifying influence is concomitant with the improvement in appetite, cough, headache, and general malaise.

I am accustomed to regard six weeks as the average period of time required to bring the temperature to normal level, but the temperature at normal is no indication that the patient is fit to rise from bed. It is important, as in enteric fever, that a period of at least ten days be allowed with the temperature at normal, or very nearly so, before getting up.

The period of convalescence during which treatment is continued, occupies roughly a second period of six weeks. The total length of illness of a case of the hectic type is therefore three months. Even now I am not willing to believe that the patient is sufficiently well to resume his ordinary life, but consider a further three months' rest in country or sanatorium necessary, and this for the following reasons: It must be remembered that the average hectic case has been ill three or four years, or more, and that his lesions are often many and of a virulent type. So far as my experience goes, it is not possible to procure a large cumulative production of antibodies. The production can be enhanced by the employment of insufflations, and to such an extent as to enable the patient actually to throw off the disease, but this is a different matter to insuring that he will never relapse. He cannot apparently store up a supply for all future wants, though he is capable of keeping up a constant fresh supply. Now, this is very important practically, and explains much that is difficult to understand in tuberculosis.

Clinical tuberculosis is, after all, merely the expression of the resisting force being weaker than the invading force. I have developed this aspect of the question more fully in my paper, "Autosecretion in the Treatment of Cancer," MEDICAL RECORD, April 22, 1916, but it is worth while recapitulating here the main issues.

Every human is constantly attacked by tubercle bacilli, through either his lungs, his intestines, or his skin. At the same time he is as constantly resisting them by the production of antibodies. Suppose that the capacity for the production of antibodies falls 50 per cent. from disuse of such an organ as the nose, then such patient is liable to suffer from tuberculosis in proportion to the badness of his environment and the percentage of the fall in the production of antibodies. The patient, has, however, a resisting power in all his cells, and experience shows that with fresh air, good food, and rest, this resisting power may be so raised as to lead to a healing of the lesion by fibrosis.

If the lesion is not quite healed, but the production of antibody is just sufficient to neutralize its ill effects, it is obvious that the patient is in a position of equilibrium which is more or less unstable. For if the production of antibody is suddenly diminished then there is almost certain to be an exacerbation of the disease.

An illustration of this is the frequency of tuberculosis after measles. Here the production of antibody as a result of the catarrhal rhinitis is much diminished, and latent foci of disease have an opportunity of developing, since sufficient antibody is not produced to neutralize them.

The fickleness of tuberculosis is the expression of this constant fluctuation of ascendancy and lowering of capacity in resisting power. Though disease necessitates invasion, it is the lowering of resistance which brings on the attack.

My strong advocacy for a further three months' rest after the disease has been apparently cured by insufflations, can now be more thoroughly understood. It is necessary that all lesions should be completely healed before the patient can be allowed to be dependent on his production of antibody, even though this production has been restored to normal by attention to the nose.

Immunity and the Cure of Tuberculosis.—If sixtenths of a milligram of crushed and dried tubercle bacilli insufflated on to the nasal mucous membrane is sufficient to make a patient feel better who has suffered ten years from tuberculosis, it requires no effort of imagination to appreciate how beneficial to our welfare must be the daily deposit of tubercle bacilli on the epithelium of the ethmoidal cells and nasal sinuses.

As already stated in an earlier chapter, I have been surprised to observe the general improvement of health occurring in patients whose nasal inspiration has been restored. This is an experience, too, of most practitioners after operating for adenoids. That the capacity of our nasal mucous membrane for immunity is much greater than our requirements is shown by its powers for increased production, whenever it is stimulated thereto by means of insufflations.

It is advisable to differentiate, in tuberculosis, between relapse and reinfection. Relapse may be brought about, as described above, by an impossible demand on the virtues of the antibodies before existing lesions are healed. Reinfection cannot take place if nasal respiration is properly established, since the neutralizing antibodies are certainly in excess of requirements.

Immunity is the result of the anatomical perfection and the physiological activities of the nose.

It may seem as if I was too dogmatic on this point, but it is difficult to avoid being so. Five years' study of the relation of the nose to tuberculosis constantly proves to me how easily phenomena are explained which otherwise are inexplicable.

For example, a young patient has just left my office who has suffered all her life from chest troubles and malaise, undoubtedly tuberculous. Her health the last two years has been better, and she volunteered the statement that it was only within the last two years that she has been able to breathe through the nose.

If the cure of tuberculosis is discussed with physicians having a real clinical experience of this disease, they usually smile incredulously. This is no more than can be expected. Years of observation have shown them the futility of many panaceas. Further, even so-called cured cases of tuberculosis are at best cases in which an efficient fibrosis has taken place.

In spite of this I am convinced that the cure of tuberculosis can be raised from the realm of a theoretical idealism to a practical reality.

When the question of this cure is analyzed an initial insuperable difficulty arises. This is due to the fact that the average case of tuberculosis is not diagnosed until distinct and often permanent pathological changes have taken place. That this is so is shown by the circumstance that the period of malaise before a case is definitely diagnosed is apparently two years or more, depending on the skill of the physician consulted and the definite character of the symptoms and signs.

The initial necessity for the cure of tuberculosis is an easy method of diagnosis, and this is now possible.

The next requirement is a method of treatment beneficial to all symptoms, and that in every variety of the disease. This, too, has been attained.

And lastly, the patient cured, he must be able to maintain a constant production of antibodies, and thus a permanent immunity. It has been the chief object of this paper to show that nature in providing us with a nose has made special provision in this respect.

The cure of tuberculosis lies in an appreciation of the theories embodied in this paper, and a practical application of them by physicians, until such time as science and research shall further advance our lines of thought and methods of treatment.

Summary.—1. The nose is an organ of respiration as well as a conveyer of the sense of smell.

2. The nose is provided with hairs, glands, and other contrivances so that mechanical particles of dust shall not be inspired into the lungs.

3. The sinuses, ethmoidal cells, and superior turbinates are covered with an epithelium capable of destroying microbes. By their disintegration of tubercle bacilli they form antibodies which are secreted into and circulate within the system. The action of these antibodies is such that they can neutralize the ill-effects produced by tubercle bacilli existing elsewhere in the body.

4. While surgical attention can so restore the anatomical character of the nose as to enable us with certainty to prevent the occurrence of pneumonoconiosis, a restoration of its physiological functions definitely protects us against tuberculosis.

5. The cure of tuberculosis is dependent on (*a*) early diagnosis, (*b*) efficient treatment, (*c*) the restoration of immunity.

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TYPES OF INFLUENZA IN INFANTS AND CHILDREN SEEN IN THE CURRENT EPIDEMIC.

BY LOUIS FISCHER, M.D.,
NEW YORK.

A CLINICAL study of a series of cases in the present epidemic, in infancy and childhood, has shown several distinct types.

Mild Type.—In many children we find a mild rhinitis or cough and a temperature ranging between 100° and 101°, with symptoms of slight malaise, anorexia, and at times catarrhal discharges from the bowels resembling colitis. These symptoms subside without any special treatment excepting rest in bed, a good dose of castor oil, and the substitution of barley water for milk feeding. As a rule these symptoms subside within three to four days. For this type of case the physician is rarely consulted.

These mild cases in which rhinitis or colitis exists, and in which the child is apparently in good physical condition, are the most dangerous to the community because they usually are unrestricted. Frequently a child with a temperature of 100° or little more is permitted to go to school and thus infection is disseminated. I have seen two children in one family suffering with a mild form of influenza, and a third child in apparently good health infected after three days with the most severe form of the disease complicated by pneumonia.

The cases most frequently seen begin with cough, hoarseness, croup, wheezing, and asthmatic breathing. The temperature ranges between 103° and 105°. There is extreme prostration and the children complain of muscular pains. The muscles of the arms and legs and the abdominal muscles seem to be affected. Trigeminal neuralgia, sciatica, pain in the lumbarsacral region, and supraorbital neuralgia have been noted frequently. The subjective symptoms are those of marked pain of lancinating character, continuous or intermittent. The children lie cramped at times, as though attempting to relax painful muscles. These intense pains form a very important symptom of this disease. Peripheral neuritis has been met with in over 33 per cent. of all cases.

Severe Type.—There is a sudden onset of symptoms. A child in apparent health in the morning will complain of a headache, have fever, nausea, and vomiting; if neglected it will within one to four hours be in a semi-stupor or a comatose condition. Convulsions are a very prominent symptom. Marked gastroenteric disturbances simulating acute milk infection in mid-summer have been frequently met with in this epidemic. One would almost suspect acute milk poisoning, and blame the milk as the etiological factor, were we not dealing with the influenza epidemic. Where the same feeding formula is continued, and fever exists for several days, the catarrhal or mucous discharges have frequently changed to those simulating dysentery of the Shiga type.

The following series of cases will give a better idea of the types met with:

CASE I.—*Gastric Type.* Leonard F., 10 months old, had been thriving, digesting normally, and seemed to

be in good health. On October 7 he began sneezing, vomiting, had loose bowels, and cried as though in pain. His temperature was 101°, pulse 124, and respiration 30. Diluted milk was ordered, and a dose of castor oil given, but the temperature continued to rise to 103°, pulse 140 and respiration 38. This was on the second day of illness. On the third day the temperature rose to 105°, pulse 150, and respiration 60. A slight cough developed. Vomiting persisted after each feeding. No medication was retained. There was no distinct evidence of consolidation. Barley water was ordered. Cold packs, later cold tubbing, were ordered to reduce the temperature. The infant seemed in intense pain, moaning or crying almost continuously, especially on being handled. He shrieked with pain when an arm or leg was moved. The head and neck were slightly rigid. The reflexes were exaggerated. On the fifth day the temperature, which had remained at 105°, gradually came down by lysis, dropping one degree each day. The vomiting and looseness of bowels continued almost one week. The only milk retained was dry milk, of which two tablespoonfuls to six ounces of hot water were given.

The interesting feature of this case was the sudden onset of vomiting and looseness of bowels, which lasted eight days in all, and ceased suddenly.

Hemorrhagic Type.—In another series of cases I have seen the hemorrhagic type in which purpuric spots, resembling bruises, were scattered over various portions of the body. Petechial areas were noted around the arms, at the elbows and knees, along the spine, and marked ecchymoses were noted in the roof of the mouth, on the gums, and in the conjunctival mucous membrane. The stools contained bright scarlet specks of blood, in some cases mixed with mucous, while in severer forms the liquid dejecta seemed to be pure blood. I have seen almost a pint of bloody liquid passed several times a day, so that the child was completely exsanguinated by the hemorrhages.

Case II.—*Pulmonary Type.* An unusually severe form of the infection was seen by me within the last few days in consultation with Dr. S. Clurman of this city. An infant, 15 months old, whose mother had just recovered from influenza, was ill five days when seen by me. There was a history of severe convulsions during the day. The temperature reached 105°, pulse 152, and respiration 72. There was marked cyanosis. Catarrhal colitis with mucous stools had existed for two days. There were moaning restlessness, and crying on being handled. The rhinopharynx was inflamed and there was a consolidation of the right central lobe, also a lobular area on the left side. The pupils did not respond to light and accommodation. The patellar reflex was absent on both sides. There was a marked Babinski (hyperextension of the big toe). On rotating the head, sternocleidomastoid rigidity was felt. The fontanel was depressed. A diagnosis of toxic pneumonia with meningismus was made. Prognosis doubtful.

Case III.—Another interesting case seen in consultation with Dr. Lowenkopf. The child, 18 months old, showed marked dyspnea, wheezing, and disturbed respiratory rhythm. An asthmatic bronchitis was made out and while intubation was thought of it was decided not to introduce a tube owing to the weakness of the heart and the profound toxicity. Marked improvement followed the giving of calomel and compound jalap powder until liquid evacuations were produced. Dry cupping of the chest seemed to relieve the wheezing. The diet was restricted to skimmed milk. The condition cleared up within five days.

Case IV.—*Fatal Type. Influenzal Pneumonia.* A girl, 16 years old, was infected by another member of the family. The first symptoms noted were a slight temperature of 101°, pulse 110, and respiration 28. The subjective symptoms were slight malaise and slight headache, but no constitutional disturbance. The diagnosis of mild influenza was made. Eliminative treatment with a restricted diet was ordered. The following day a slight improvement was noted. I did not see the girl on the third day. On the fourth day I was called again and found the temperature rising, more systemic disturbance, prostration, evidence of toxicity, slight headache muscular pains, respiration 36, pulse 128. Rhonchi were found scattered on both sides of the chest, but no evidence of consolidation. The temperature rose to 105° and it was impossible to lower it with antipyretics and sponging. A central pneumonia was diagnosed. The inflammation spread from lobe to lobe.

When seen in consultation with Dr. Walter B. James the diagnosis of influenzal pneumonia with marked toxicity was confirmed. Prognosis bad. On the following day there was an extension of the pneumonia, toxicity still more marked, pulse full, bounding and with high tension, and very irregular. There was marked cyanosis of the lips, face, and finger-nails. The expectoration was of the usual rusty character and the specimen submitted to Dr. Frederic Sondern was reported upon as follows: "The specimen consists chiefly of frothy blood-tinged serum and mucus with relatively little pus. Staining shows numerous pyogenic cocci including some in chains, believed to be streptococci; also a moderate number of small Gram-negative bacilli, morphologically similar to influenza organisms. Tubercle bacilli are not present."

The blood count showed a marked diminution of the white cells and a low polynuclear percentage. The blood did not show the clinical picture of a leucocytosis in pneumonia. In most cases the blood showed a marked leucopenia similar to that observed in typhoid fever. The polymorphonuclear neutrophiles were also very low. (In one of my cases here reported it was 56 per cent. during the acute lobar pneumonia. In the ordinary type of lobar pneumonia usually met with the percentage of polymorphonuclear neutrophiles is frequently 80 to 90.) The blood count in the case reported showed: Small lymphocytes, 24.0 per cent.; large mononuclear cells, 2.0 per cent.; polymorphonuclear neutrophiles, 56.0 per cent.; eosinophiles, none; mast cells, none; hemoglobin, 86 per cent.

Both diagnosis and prognosis were agreed to by Drs. Arthur Hollis and George Brown, who were called in consultation. Exitus lethalis on the sixth day.

Case V.—*Meningeal Type.* M. G., a girl, eleven years old, was seen in consultation with Dr. J. Tannenbaum. She had had a mild form of influenza lasting 4 days, with symptoms of cough and disordered stomach. Three days before my seeing the child she suddenly collapsed and was in a stupor, with temperature of 104°. She was pulseless when seen by Dr. A. L. Goldwater. There was no distinct evidence of meningitis. She recovered with restoratives and on the following day had a marked delirium. Two days later she was in a distinct coma lasting several hours. When seen by me she was apparently bright in the morning, and in a distinct stupor at the time of examination. There was marked rigidity of the muscles, the pupils responded sluggishly, the patellar and plantar reflexes were absent, there was marked hyperesthesia of the skin, and a tache cérébrale was present. The symptoms so resembled those of a tuberculous meningitis that it was decided to try a cutaneous tuberculin test and also do a lumbar puncture.

The von Pirquet test was negative. About 15 c.c. spinal fluid was aspirated. The fluid was examined by Dr. Frederic Sondern, who reported a normal fluid—no tubercle or other microorganisms present. The diagnosis of toxic influenza was made. The child made a complete recovery. The collapse previously reported was attributed to a toxic myocarditis. There was no nephritis present.

Of interest is the extremely toxic character of this influenza as manifested on the heart action, and especially its effect on the kidneys. In some cases seen by me a distinct heart block was noted, and marked evidences of toxic myocarditis existed twenty-four hours after the infection was noted. The secretory function of the kidneys was greatly diminished, and the urine in many cases showed marked evidences of acute renal congestion, in

which blood cells, albumin, and occasional casts were found. The quantity of urine secreted was greatly diminished, and it frequently was necessary to stimulate diuresis with copious warm draughts, besides giving diuretics which both supported the heart and assisted in stimulating the functions of the kidneys.

Digipuratum was frequently given for this purpose, likewise caffeine sodium benzoate in gradually increasing doses until its effect was manifested.

Lack of space prevents giving detailed therapeutics. Large doses of bicarbonate of sodium, one dram every hour, and colonic flushings of the same, seemed to do considerable good in the gastric type in which acidosis existed. In the pneumonic type camphor in oil, by hypodermic injection, was beneficial.

155 West 85th Street.

SOME EXPERIENCES WITH RADIUM IN THE TREATMENT OF PSORIASIS.

By Douglass W. Montgomery, M.D.,

San Francisco, Cal.

Psoriasis is a scaly disease which occurs in characteristic patches scattered over the cutaneous surface. It is undoubtedly owing to some constitutional disturbance, but what that disturbance is has hitherto successfully eluded all investigation. Although the affection is primarily due to some constitutional disturbance, yet individual lesions may be successfully treated and the annoyance occasioned by them eliminated for a greater or less length of time. The *x*-rays are among the most successful means of achieving this result, and the similarity in action between the *x*-rays and radium naturally suggests the latter remedy in a number of instances in which the lesions are few and localized. For example, a patient had an obstinate patch of psoriasis on the back of the wrist, and therefore obtrusively observable. A circular plaque of radium, covering the patch nicely, was applied. In due course the patch disappeared, but coincidently there sprang up about its border a number of minute patches, which, because of their arrangement, were even more noticeable than the original patch.

We had another instance in the person of a middle-aged woman who formerly had lues, in whom radium seemed to increase the eruption. She had an old patch of indurated psoriasis over the right patellar tendon. She was suffering severely from flatulent dyspepsia, and as this grew better the patch, which was being subjected to radium treatment, grew worse. No reason could be assigned for this; it simply was a fact. The radium seemed to stimulate into activity a patch which for years had been quiescent.

In another instance the patient was a young man, an athlete and sportsman, who had had patches of psoriasis for years, especially of the lower extremities. His skin at one time, on a wager, was entirely cleared by rest in bed and an exclusive milk diet. The eruption reappeared promptly on his resuming an active life and an adequate diet. This treatment, therefore, was futile excepting as done to win the bet, and as an experiment pointing to the real nature of the disease as being a nutritional one. In this patient's case *x*-rays topically, and regulation of the diet, excluding alcoholic drinks and luxuries, kept the skin reasonably free from eruption and permitted the enjoyment of adequate sports without comment. As the *x*-rays acted so well, it was thought that radium might act even better by shortening the time of treatment if nothing else. It did clear off the scales, but left in place of the patches a number of red, square and circular areas corresponding to the shape of the radium plaques, which were much more startlingly conspicuous than the original psoriasis patches, and which endured for many weeks, as such radium erythemas do. The patient wished no more of this treatment.

Psoriasis patches in the scalp should not be treated with radium because of the danger of the fall of hair, a danger common both to it and to *x*-rays. Patches of psoriasis and of seborrheic eczema, peculiarly obstinate, and often most annoyingly itchy, occur in the occipital region and nape of the neck, especially in elderly women. They are frequently amenable to radium when other means fail. Again, care has, however, here to be exercised that the hair is not knocked out.

A patient, while under treatment by radium for a synovial lesion of one of her fingers, and which by the way healed without incident, showed me a psoriasis patch of seborrheic type over the left elbow tip which was annoying because of the disfigurement when wearing a party dress. These patches are often peculiarly refractory to ordinary treatment. Under radium it cleared up *cito, tuto et jucunde.*

In conclusion, I would say that generally speaking, when radiant energy is desired in the treatment of psoriasis, *x*-rays are of more value than radium. The *x*-rays cover a larger surface, and do not leave the disagreeable red marks so frequent after the application of radium, and they seem to be at least equally effective in influencing the patches. In some situations, and when the patches are of the deeply indurated seborrheic type, radium seems to act better than the *x*-rays.

323 Geary Street.

INTRAMUSCULAR INJECTIONS OF COLLOIDAL SULPHUR IN THE TREATMENT OF RHEUMATIC CONDITIONS.

By William Lee Secor, A.M., M.D., F.A.C.S.,

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The first reference to the hypodermic use of colloidal sulphur in the treatment of rheumatism that I have been able to find occurred in an article which appeared in *Le Progrès Médical* for August, 1915. In the London *Lancet* of June 30, 1917, Major J. D. Comrie, M.A., M.D., F.R.C.P., published a paper entitled "The Treatment of Trench Rheumatism and Allied Conditions by Colloidal Sulphur."

Major Comrie has a wealth of material among the British soldiers in the hospital of which he has charge and gives a carefully tabulated report of this treatment in over sixty cases. After observing the results in this first series of cases he draws the following conclusions.

"(1) Intramuscular injections of colloidal sulphur are of the very greatest value in the treatment of subacute painful conditions in the muscles and

joints. (2) The most satisfactory course of treatment consists of an injection administered every second day for three weeks (10 injections), combined with rest and with massage on the intervening days. (3) In the greater number of subacute cases, lasting several months, complete recovery may be expected after three to five weeks from the commencement of the treatment. (4) This method is also very helpful in lingering cases of gonorrheal rheumatism. (5) It does not, however, take the place of salicylate of soda in relieving the pains of acute articular rheumatism."

On August 18, 1917, *Le Progrès Médical* printed an article by A. Bichon describing the effect of colloidal sulphur in rheumatismal affections of the eye, and in September of the same year A. Cawadias published a paper in the *Bulletin de l'Académie de Médecine* on the therapeutic action of colloidal sulphur.

Upon the strength of these papers the writer became interested in colloidal sulphur therapy. From a personal correspondence with Major Comrie I was enabled to obtain detailed information and suggestions as to the preparation of the colloidal sulphur for hypodermic use and as to the technique of its administration.

I found that there was not a suitable preparation on the market, so sent the detailed instructions to one of our reliable chemical companies, who very kindly prepared us a quantity in ampules. The method of preparation and directions for use as given by Major Comrie are outlined in the following paragraphs:

"The process used in the manufacture of colloidal sulphur, 1 in 1000, is as follows: Hydrochloric acid (10 per cent. HCl), 22 mils.; sodium sulphide (Na_2S, 9 H_2O), 5 gm.; sodium sulphite (Na_2SO_3, 7 H_2O), 2-6 gm.; whites of two eggs; sterilized water to 1 liter. Dissolve the sodium sulphide and sulphite each separately in 250 mils. of the water, mix together; add the white of egg and thoroughly mix. To this solution add the hydrochloric acid, diluted with 250 mils. of the water. The solution is then to be thoroughly mixed, warmed slightly, and sufficient sterile water added to make the volume 1 liter The solution after being carefully dialyzed to remove crystalloids, is then ready for use. Theoretically, the product should contain 1 in 1000 of colloidal sulphur. The chemical action is explained as follows:

$2Na_2S + 4HCl = 2H_2S + 4NaCl$, and

$Na_2SO_3 + 2H_2S + 2HCl = 2NaCl + 3S + 3H_2O$.

"Thus the sodium sulphite is reduced by the hydrogen sulphide produced from the sodium sulphide and hydrochloric acid. The presence of the albumin appears to prevent the aggregation of the sulphur into masses. In use the dose of 1 mil is rendered isotonic by the addition of 2 decimals of 5.5 per cent. saline solution mixed immediately before injecting.

"The dose with which I have been in the habit of commencing is 1 mil. (*i. e.* about 17 minims of the colloidal sulphur solution made up to 20 minims with the saline solution) injected into the painful area of muscle. If no reaction results, the dose may subsequently be doubled, the point of injection being slightly varied each time. In a course of ten injections the affected muscle receives into its substance approximately 1/50 gr. of nascent sulphur which is gradually absorbed."

I have used the intramuscular injection of colloidal sulphur in three cases with the results shown in the following reports. I am just beginning our study of this subject and the object of this paper is not to report what I have done, but rather to stimulate an interest in the investigation of a subject which apparently possesses some merit. This apparently premature report of my work is made with a view to getting others to work on this subject as soon as possible, for if it proves as efficient in our hands as it has in those of others it may be a valuable agent in the treatment of our returned soldiers who have contracted rheumatic conditions in the trenches.

Case I.—W. S., male, age 39, had had chronic rheumatism with recurrent attacks of iritis, neuritis, and myostitis over a period of seven years. Had had four severe attacks of iritis about a year apart. These each lasted from six weeks to two months and finally subsided, with very little permanent damage to the eye.

On October 25, 1917, a typical attack of iritis began in the right eye. Two c c. of the colloidal sulphur solution was injected intramuscularly on the night of the 25th and repeated on the night of the 27th. Examination of the eye on October 28 revealed no trace of the iritis. This patient has had no further trouble with iritis to date.

Case II.—A. A., female, single, age 30, referred by Dr. George B. Lee of Galveston, January, 1918. A typical case of acute rheumatic fever, which at the time I saw the patient was showing a tendency to become subacute or chronic. All proper attention had been given to removal of tonsils, affected teeth. examination of feces, etc. Ten intramuscular injections of colloidal sulphur were given, skipping one day between injections. Aside from local reaction we were unable to note the least effect. Patient did not show any improvement.

Case III.—W. S., same patient as Case I, on January 1, 1918, two months after treatment for iritis, applied for treatment of a chronic rheumatic condition which manifested itself in neuritis and myostitis showing exacerbations at times of weather change. This patient had had the tonsils removed, teeth radiographed, etc. Every other day 2 c.c. of colloidal sulphur solution was injected intramuscularly until ten in ections were made. There was slight local reaction, no apparent systemic reaction, and while the general condition of the patient seemed to be somewhat improved there was very little improvement in the rheumatic condition.

Sulphur and sulphides have had a reputation among the laity for many years of being beneficial in the treatment of rheumatism; whether it was used in the form of a bath at some famous sulphur springs or simply sprinkled in the shoes, there are those who are ready to testify to the good results. Whether the intramuscular injection of colloidal sulphur has some specific action on rheumatic conditions or whether it is simply another instance of the action of an injected foreign protein remains to be proven.

Abuse of Enucleation in Injuries of the Eye.—Poulard follows the lead of Dranoux in calling attention to the exaggerated fear of sympathetic ophthalmia. Enucleation is a simple but fearful remedy. Subsequent prosthesis is usually unsatisfactory, and one-eyed and disfigured employees are always at disadvantages. If operation is deemed necessary, anterior amputation will prevent loss of the other eye and secure a good cosmetic result. But we now know that sympathetic ophthalmia is a rare accident; it is doubtful if it occur once in 100 injuries of the eye. A specialist of vast experience stated that he had seen but one case in a soldier since the outbreak of the war and this was the result of a cataract operation. The author himself has seen one case in a soldier which supervened *after* prophylactic enucleation.—*Journal de Médecine et de Chirurgie Pratiques.*

A CASE OF ASPIRIN HABIT.

By DAVID I. MACHT, M.D.,

BALTIMORE, MD.

THE following case is deemed interesting enough from the pharmacological and therapeutic point of view and rare enough to warrant reporting.

Mr. D. M. S., 37 years old; white; married; occupation, teacher. He complained of pain in the right leg. There was nothing of note in the previous history and family history; no history of lues.

The symptoms date back to three years ago and began with pain in the right shin bone with gradual thickening of that bone. Patient complained of a constant pain of a gnawing or aching character experienced both by day and night, and consulted a large number of physicians without much satisfaction to himself. Careful investigation of the case led to the diagnosis of a chronic periostitis and osteitis of obscure origin. Repeated Wassermann tests were always negative; *x*-ray examinations and microscopic study of a piece of resected bone excluded neoplasm (sarcoma).

The patient was found to be pale and under-nourished, very neurotic; heart and lungs were normal; blood pressure rather low, 105/70; abdominal examination revealed nothing remarkable. The right shin bone (tibia) was found to be slightly thickened, not tender and not inflamed. There were no skin eruptions. The urine was negative for albumin and glucose.

Therapy.—The most interesting feature about the above case was the treatment employed by the patient for the relief of his pain. About two and a half years ago he found that a tablet of acetyl salicylic acid (aspirin), 5 grains, gave him distinct relief and he therefore continued to take the drug for the relief of his symptoms. It was found by him at the beginning that one or two 5 grain tablets were sufficient to keep him comfortable the whole day, but very soon habituation was noted and the patient had to increase the dose. For the past two years he has been taking from five to twelve tablets of aspirin daily; in other words, 25 to 60 grains of the drug have been consumed by the patient every day for nearly two years. The writer is not aware of any other instance on record in which a patient has taken such large quantities of acetyl salicylic acid over so long a period of time. It is remarkable that in spite of the enormous quantity of the drug consumed, very few toxic symptoms have been noted by the patient himself or found upon physical examination. The only features of a slightly abnormal character found were obstinate constipation, slight digestive disturbances, and a rather low blood pressure.

Medicolegal Notes.

Right to Recover for Services.—The Texas Court of Civil Appeals holds that a physician to recover for services must show compliance with the statute regulating the practice of medicine, and declaring unlawful practice without such compliance.—Paine v. Eckhardt (Tex.), 203 S. W. 459.

Using Mails to Defraud—Sale of Compound Wrongly Labeled "Acetyl Salicylic Acid."—Error was brought to the Circuit Court of Appeals, Sixth Circuit, from the federal district court for the eastern division of the Northern District of Ohio, on account of a conviction for using the mails to defraud, in violation of section 215 of the Criminal Code. Stating only so much of the alleged scheme as pertained to one of its several branches, it was this: Defendant was a physician, doing business also as a manufacturing chemist. The drug, acetyl salicylic acid, which had been manufactured in Germany, had become rare and high priced. The defendant made a compound from other comparatively cheap drugs (one of which was acetanilid), which compound he labeled and sold under the name "acetyl salicylic acid," and, although he made it in Cleveland, he caused the labels to say that it was manufactured by a fictitious firm in Germany. He did not sell this through the mails, nor, so far as appeared, in interstate commerce; but the genuine and common drugs which he used in his composition he procured by means of a written order therefor sent through the mails to manufacturing chemists in Philadelphia. Upon the sending of this letter rested the supposed violation of section 215.

He claimed in defense that acetyl salicylic acid was not compounded by any standard formula, and that his product was, in fact, acetyl salicylic acid and had all its therapeutic effects—or, at least, that he in good faith and reasonably so believed and had no intent to deceive. This defense was tried at length, was submitted to a jury under a charge to which there was no exception, and was found to be untrue.

The Circuit Court of Appeals held that the defendant's use of the mails fell within section 215 of the Criminal Code, denouncing the offense of using the mails in connection with a scheme to defraud. The trial court rightfully refused to charge that if the defendant honestly believed that his product was rightly called acetyl salicylic acid, then the fact that he intended to sell it under labels indicating that it was made by a fictitious firm in Germany would not constitute a violation of the act. It was not denied that drugs of this class had been commonly made in Germany, and that there was a common belief that the German origin was important as tending to insure the quality and therapeutic value of the drug. Under these conditions, the claim of German origin might well be the controlling consideration in bringing about a sale; and that the defendant believed it would be a material inducement was evident from its adoption by him. It is now well settled that whether the purchaser gets something "equally as good" and whether he gets an article actually worth the full price he paid are not controlling. If it is intended to bring about a sale by misrepresenting the quality or identity of the article in particulars which would be likely to have a persuasive effect upon the purchaser's mind, this would be a sufficient defrauding.

An instruction allowing the jury to consider the fact that the compound was not labeled as required by the federal Food and Drug Act, although, as the sales were intrastate, that act had no application, was held proper on the question of intent to defraud, and not erroneous as allowing the jury to consider another offense. This act was generally familiar to druggists and physicians the country over—the final customers whom the defendant intended to reach; they commonly understood that because of the general enforcement and observation of this act, any compound containing acetanilid would disclose that fact on the label, and they would naturally believe that if a compound offered for sale was not thus labeled, they could safely use it in cases where acetanilid would be dangerous. If the defendant knew of this regulation, and hence knew of the effect it certainly had upon the purchasing trade, he would know that his conduct in omitting any mention of acetanilid from the label would inevitably lead to the deception and the defrauding of the ultimate customers for his article.

The vital question to be determined by the jury was whether the defendant actually intended such fraud and deceit by putting out his article as acetyl salicylic acid of German manufacture; and the charge was in substance only an instruction that in determining whether his intent was fraudulent or honest, they could consider the fact, if they found it to be a fact, that in the very same transaction he was intending to deceive and defraud the same people in another particular. Viewed in this way, the charge was held not objectionable, and was well within the settled rule which permits even complete guilt of another offense to be shown where the question involved is the defendant's intent, and where the other act has a direct bearing on that intent. The judgment was affirmed.—Edwards v. United States, 249 Fed. 686.

Military Medicine.

THE AMERICAN MEDICAL AND SURGICAL HISTORY OF THE WAR.

THAT Division of the Surgeon General's Office which is charged with the "collection and preparation of materials for a Medical and Surgical History of American Participation in the European War," has a task closely related to although less of an adventure than that of medical officers who throng overseas to guard the health and mend the hurts of American Expeditionary Forces.

Under the conditions of a World War, well advanced at the date of our entry into it, with at least two great nations in rightful possession of first honors, we should be satisfied if our projected history sustains the prestige of the medical history of our own Civil War. From present appearances our part in the present conflict will not be long enough to reduce materially the disparity between us and our Allies.

On the other hand, we have immense advantage in comparison with the men who made the history of the Civil War. At the end of that struggle the surgeon-general's office was not owner, or custodian even, of hospital records. It is said that medical officers were not allowed to copy the records of their own most instructive cases. Such men as Weir Mitchell and Da Costa found themselves separated by military regulations from either possession or use of records made by their own hands; though one of the two found it possible to circumvent the regulations.

There is an excellent statistical volume in that history, but the materials for the statistical volume were but a small part of the material produced by the war. The forms of record for sick and wounded were changed twice in the course of the war; required reports were sometimes not rendered; of reports rendered some were rejected as defective; and in the end it was held that the materials utilized represented about nine-tenths of the information sought.

Of medical records of recruitment for the Civil War, not a line was at the surgeon-general's command. Two statistical volumes concerning recruitment were produced in the office of the Provost-Marshal General. They concerned the medical examination of 508,000 men, approximately half the examinations actually made. The remainder were lost or rejected. The Sanitary Commission published a fine volume on the anthropometric records of the Civil War, prepared by a distinguished actuary, Benjamin Apthorp Gould. Our forbears really turned a discouraging situation into a splendid opportunity, and their credit is secure for all time.

In accordance with Special Order A. G., No. 196, of August 23, 1917, a plan was drawn up that has been followed since that date. It includes the interim reports and protocols by medical officers of the U. S. Army on duty as observers in England and France, collected from the War College and the Council of National Defense, and a catalogue giving a brief abstract of their contents has been mimeographed and circulated.

Memoranda to medical officers in the field, requesting that they collect material for this history have been printed and circulated.

Every effort has been made to collect the individual histories of the administrative divisions in the Surgeon General's Office, of the camps and of the base hospitals in the United States, and most of this material is now on hand.

Steps have been taken to secure continuity in these histories by means of semi-annual historical reports (for administrative divisions) and by medical war diaries (for camps and base hospitals).

Through a circular issued by the Hospital Division the commanding officers of base hospitals have been authorized to direct preparation of subject indices of medical and surgical cases with the tacit understanding that these become available for the use of the historical division at the end of the war; and to send in, as manuscripts or as reprints (either for records or publication), accounts of epidemics, group diseases or unusual medical and surgical cases occurring in hospital, as part of this history. In this way much of the historical material will be actually assembled during the war, and the delays occasioned by the priority of pension claims will be to some extent obviated. In England this plan is actually in process of realization through the publications of the Medical Research Committee (London).

A tabular statement concerning the movement of the preventable diseases has been made by this board each week since September, 1917. These tables based on the weekly telegraphic reports made to the Division of Sanitation concern thirty-one separate cantonments, and will be a first installment of the history of mobilization in its first year (September, 1917-September, 1918) and should be available shortly.

Arrangements have been made to take care of the historical material relating to American participation in the Western front, already accumulated in France, and for the accumulation of similar material in Italy (Southern Front).

Friendly relations have been established with the military authorities controlling the medical history of the war in Great Britain, France, and England.

As at present constituted the Division of the Surgeon General's Office charged with the duty of collecting and preparing the material for a Medical and Surgical History of American Participation in the European War consists of Colonel Champe C. McCulloch, Jr., M. C., U. S. A., Director (on overseas duty); Lieut.-Col. Casey A. Wood, M. C., U. S. A., Acting Director; Lieut.-Col. Fielding H. Garrison, M. C., U. S. A., in charge of Redaction, and Lieut.-Col. John S. Fulton, M. C., U. S. A., in charge of Statistics.

An advisory council, consisting of Col. Victor C. Vaughan, M. C., U. S. A., Col. William H. Welch, M. C., U. S. A., and Col. William J. Mayo, M. C., U. S. A., has been appointed to assist this board in passing upon applications for commission or employment, expansion of the board and other matters under advisement.

The present war, even if soon concluded, will supply many times the amount of material for history and statistics. The Surgeon General's

office, it is now certain, will have the medical records of the draft and all subsequent medical records for the use of the Division of Medical History. Perhaps it is too much to hope but it is believed that there will be as little as 10 per cent. discount on this material by reason of inherent defect or failure of transmission. Considering the early organizations for purposes of history, the scale of modern military medicine, and the facilities which American ingenuity has devised for handling historical and statistical material, the outlook for a complete, interesting, and early publication of a medical history seems bright enough. But the Division of History will have to press every advantage, if it hopes to match quite the history of '61 to '65, to say nothing of the prospect of "classing" as well as possible in the company of our Allies.

Shock and Blood Pressure.—Moreau and Benhamon related before the Société de Chirurgie that they went from case to case of shock with blood-pressure instrument in hand in the interest of diagnosis, prognosis, and treatment (*La Presse Médicale*, September 26). Using the Pachon oscillometer they noted three measurements, viz., differential pressure, index of oscillometry, and the equality or inequality of oscillations for each figure of the manometer. The three measurements jointly enabled them to estimate the force of the myocardium. An analysis showed that whenever a major wound subject had a differential pressure below 2, an oscillometric index below 1, and unequal oscillations he should be regarded as shocked and thus treated, even if the diastolic pressure was below 6—in fact, all the sooner on that account. Every shocked person with a good differential pressure (2 to 5), with good oscillometric index (1½ to 3), and with equality of oscillations will probably recover spontaneously from the shock, even if his minima is below 6. These statements hold good for all but cranial injuries. As a matter of fact these subjects never develop shock, but die with cardiac collapse. The authors make four varieties of shock from the viewpoint of treatment: (1) All the measurements are good and the patient should be taken to the operating room where he merely receives warmth and physiological serum with adrenalin. (2) The differential pressure is zero and the patient should be transfused and given camphor intravenously. Operation should be deferred. (3) The minima falls steadily and rapidly. In this class, like the preceding, hemorrhage is a marked component. These subjects should be rushed to the operaitng room, transfused and given massive doses of serum intravenously. (4) The differential pressure progressively diminishes, indicating infection or intoxication. These subjects should be rushed to the operating room where operative intervention can be carried out according to precise indications.

Septicemia During the Evolution of War Wounds.—Legrain has recently published an inaugural thesis on the septicemic component of war wounds irrespective of their severity. From an abstract in *La Presse Médicale* for September 19 we learn that the author made a study of thirty-two recently wounded soldiers and found evidence of septicemia in thirteen, or 40 per cent. No wound so slight that may not be thus complicated, but we usually expect to see them more frequently in osseous wounds. Mild and ephemeral sepsis is usually seen in slight wounds and is known only from the temperature rise. This may be left out of consideration. Acute severe sepsis represents a defence reaction on the part of the economy which lasts about ten days. The usual symptoms are hyperthermia, chills, sweats, rapid pulse, etc. In certain cases sepsis develops on a basis of shock due to traumatism and loss of blood. In such cases the sepsis pursues a fulminant course and the temperature may not ascend. A subacute form is seen which persists over a long interval and is characterized by recurrent fever. It is apt to be associated with pyemia and may also kill by exhaustion. There is a late septicemia due apparently to a period of latency. Of the author's 13 cases 5 ended fatally. All followed wounds of the long bones. The evidences of sepsis are locally the arrest of the healing process and the drying of the wound. Hence reappearance of pus in the wound or even appearance of erysipelas is an encouraging sign. Evidences of sepsis may be absent in certain cases in which suppuration goes ahead undisturbed and fever does not develop. The principal germs found were the streptococcus, pneumobacillus of Friedlander, and staphylococcus, in the order named. The bacillus, however, is not pathogenic to the extent of causing fatalities. The infection due to it was benign in all three cases and the same was true of a tetragenus case. The streptococcus is hemolytic as shown by the presence of hemorrhagic cases. The staphylococcus, despite its lower frequency, killed two of the five patients. The author brings out nothing new under treatment. If a case is not fulminant, nutrition, establishment of turpentine abscess, and serotherapy should be the mainstays. In the acute form amputation holds out the only hope by eliminating the focus of infection.

Hemeralopia in Soldiers.—This subject is shown by Danis, in the *Archives Médicales Belges* for July, to be a very ancient one and a record of it is found in the thirteenth century in connection with the Crusades, when members of the expeditionary force of Jean de Brienne suffered from night blindness while in Egypt, and at the capitulation of Damietta in 1221. The historians next find the affection mentioned in 1798 and curiously enough again in Egypt in Napoleon's army. It was also seen at about the same period at the siege of Malta. The besieged were the ones who suffered. The next mention appears to be in Russia in 1812, the author supplying no details. The affection was noted in the French expedition to Algiers in 1838 and again in the Crimean war in 1854-5. During the Russo-Japanese war it was studied in Manchuria and before the present world conflict it was studied by a French ophthalmologist in the Algerian colonial troops. In most of the garrisons in Europe, even in times of peace, cases occur and this is more marked in Eastern than in Western Europe. In the non-military population, the same disability has been encountered in unfavorable economic and hygienic sur-

roundings. Thus it has been known to prevail among the Fellahs of Egypt, the negroes on Brazilian plantations, sailors on long cruises, tunnel workers, and prisoners.

The Tuberculosis War Problem in Canada.—At the Fourteenth Annual Meeting of the National Tuberculosis Association, held in Boston June 6, 1918, Lieut.-Col. Jabez H. Elliott, C.A.M.C., gave an address on the manner in which Canada is meeting this problem. The address was published in the *American Review of Tuberculosis* for September, 1918. Among the various means adopted and carried out in Canada is the vocational training of consumptives. Elliott says that when the patient's disease is under arrest he is free to go on with reeducation if it be necessary for him to find a new occupation. In small sanatoriums only a few lines of reeducation can be properly developed. Stenography and typewriting are examples; cabinet making is another. The larger the sanatorium the greater is the number of trades and callings for which provision can be made. With the disease well under arrest, especially if the sputum is free from bacilli, the man may be allowed to begin his vocational work in one of the larger convalescent hospitals, which are completely equipped with workshops and schools. The experience of Elliott and his colleagues leads him to say that no military sanatorium is complete unless workshops and schools are provided. The post of vocational officer is an important one, second only to that of the medical officer with whom he must be in conference daily; for he must not only study the men from the point of view of the trade test and trade efficiency expert, but be a wise counsellor as well, and at all times be guided in the allotment of work by the limits fixed by the medical officer, which must of necessity vary with the patient's progress and be restricted by intercurrent infection or complications. The occupational therapy developed in the Canadian sanatoriums may be divided into (1) ward occupation, and (2) occupational therapy proper. The first is carried out in bed or on the reclining chair, and few patients are too ill to be interested in or benefited by this work. The second division is carried out in classrooms and workshop and comprises school studies, languages, civil service study, stenography and typewriting, and telegraphy, while light handicrafts are carried on in the workshops. The value of vocational work in the sanatorium treatment of the tuberculous soldier is well illustrated by the experience at Ste. Agathe. Before vocational classes were established 33 per cent. of the patients refused treatment and 15 per cent. were discharged as delinquents or incorrigibles. With vocational work well developed none has refused treatment; and only 0.5 per cent. have been discharged as incorrigibles, while 7 per cent. have asked to be retained beyond the time when ready for discharge, that they might have a further course of study or training.

Tribute to Ex-Surgeon General Gorgas.—Major General William C. Gorgas, who has just returned from an inspection trip in France, has received a letter from Secretary Baker which has been made a part of his military record, expressing the appreciation of the nation of General Gorgas' disinguished services during his long career as a medical officer of the army.

Training Nurses' Aids for Overseas Service.—The New York County Chapter of the American Red Cross announces that it has started classes for the training of nurses' aids for service in the war hospitals of France. The classes are being held at the Red Cross Teaching Center, 453 Madison Avenue, New York City. These classes were formed as a result of a call from Surgeon General Ireland, who has asked for 1,500 nurses' aids for overseas service. Application for overseas service as aids should be made at the headquarters of the New York County Chapter of the American Red Cross, 389 Fifth Avenue.

Yale Hospital Unit.—A correspondence recently made public by Yale University describes the work of the Yale Mobile Hospital Unit, which was the pioneer unit of its kind in the American Army, and rendered important service in the St. Mihiel offensive. Although 144 operations in twenty-four hours was considered the maximum, 170 were performed by the unit in the first twenty-four hours of the drive. The unit is known as Mobile Hospital 39 and has been enlarged so that it now includes 250 persons.

Mark Twain's Home a Rest Cure.—The Mark Twain estate, Stormfield, at Redding, Conn., has been given by his daughter, Madame Ossip Gabrilowitsch, for the use of convalescent soldiers and sailors of the artistic professions.

Influenza in Army Camps.—From the beginning of the epidemic to October 24 there were in the army camps a total of 296,275 cases of influenza and 48,328 cases of pneumonia, with 16,174 deaths. Camps Dix, New Jersey, and Grant, Illinois, where the epidemic has been particularly severe, have not reported any new cases, and only a few new cases have been reported from Camp Devens, Mass. Camp Meigs, Georgia, reports no new cases. There has been a marked decrease in the number of new cases of pneumonia and in the number of deaths from that disease.

Deaths in the Service.—Lieutenant Marcus Calvin Houser, M. C., U. S. Army, of Charlotte, N. C., a graduate of the North Carolina Medical College, died of pneumonia following influenza, at Camp Jackson, on October 8, aged 31 years.

Lieutenant Niel Franklin Twigg, M. C., U. S. Army, a graduate of Johns Hopkins University, in 1916, died of pneumonia at Fort Oglethorpe, Ga., on October 10, aged 24 years. In 1916 he went to England, where he served for eighteen months in a base hospital.

Lieutenant Joseph Devine Rosenthal, M. C., U. S. Army, of Rockaway Park, L. I., died of pneumonia, in the base hospital at Markleton, Pa., on October 22, aged 27 years. He was a graduate of the New York Homeopathic Medical College, in 1915.

Dr. Vivian Slaughter, a recent graduate of the University of Virginia, met death in action on the battle front. He joined the Medical Corps of the British Army in 1914 and had since been in active service. The details of how he came to his death have not been received.

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THE RAPIDITY OF PROPAGATION OF THE VENOUS PULSE WAVE IN MAN.

FOR some time past the rapidity with which the pulsatile waves pass through the arterial tree has been studied and determined with the variations that it may offer under the influence of various factors. This, however, is not the case with the venous pulse wave, either because one attributes to it too readily a rapidity of translation equal to that of the arterial pulse or because the elements of the estimate are too difficult to bring together. The literature, however, contains some researches in this direction. Morrow found that in dogs the venous wave had a retrograde translation of from one to three millimeters per second, while Frédéricq speaks of a speed of about two millimeters per second.

Clinically, in spite of the development of phlebographic studies very little has been done on the question under consideration, but quite recently Betchov (Contes rendus de la Soc. de physique et d'hist. naturelle de Genève, April, 1918) has studied the arterial and venous pulse simultaneously in two children, one with a pleural collection, the other with an endocarditis, which resulted in a dilatation of the right heart so that it reached under the sternal tip at which point the beats could be registered. Both tracings are about alike and show that the principal wave of the cardiogram corresponds to the auricular systole, the ventricular beats are weak, indicating an asystolia of the right ventricle. Therefore, this offered the means of noting the beginning of the auricular systole, while the chronographic comparison with the first wave of the jugular pulse permitted the calculation of the speed of translation of this presystolic wave of the venous pulse.

The delay was found to be 0.08 of a second in the first case; the distance between the epigastrium and jugular vein being 20 centimeters made an estimate of 16 centimeters as the maximum distance of the outlet of the superior vena cava from the point of application of the bulb of the phlebogram. It was found that the venous wave was propagated excentrically at the rate of two meters per second. In Betchov's second patient the delay of the presystolic wave was 0.07 of a second, which gave an undulatory rapidity about identical with that of the first case if the smaller size of the patient's thorax be taken into consideration.

From this it will be seen that the data obtained in man are in accord with experimental results in animals. But the venous pulse is composed of several waves and the question arises as to how they act from the viewpoint of their rapidity of transport. Do they offer differences of speed which might speak in favor of a different manner of production in the case of certain waves which might cause a revolution of the phlebogram? Betchov, no more than Morrow, found a really perceptible difference in the duration of translation of the different waves, and their manner of propagation appeared to be alike in all.

Now, as to the explanation of the great difference between the rapidity of the arterial waves (9 to 10 meters per second) and that of the venous waves at two meters per second, one might be tempted to suggest that one travels in the direction of the current, the other in an inverse direction, but this factor is powerless to cause such a great difference in the speed. The blood pressure need not enter into consideration because Morrow's work shows that he was unable to establish any relationship between the rapidity of transmission and the blood pressure in the veins. The determining factor must evidently be looked for in the conditions of extensibility and elasticity of the vessel walls. The researches of both Rocque and Grünmach show that the pressure of the fluid contents does not increase the rapidity of translation of the waves only in so far as it wears out the extensibility and increases the elasticity of the containing tube.

Applying these data to the physiology of the circulation, the conclusion seems logical that the low rapidity of translation of the venous pulse waves is due to the great extensibility of the venous walls. Their elasticity absorbs and breaks the retrograde waves coming from the heart and prevents a rapid translation, such as is realized in the arterial system.

HYDATIDIFORM MOLE AND CYSTIC DEGENERATION OF THE OVARIES.

CYSTIC degeneration of the ovaries very frequently is found in conjunction with hydatidiform mole. The ovarian process is bilateral, and although the size of the two glands may be unequal they are both of the same histological characters as microcystic ovaries arising from quite another cause, such for example as infection or gestation. In other words, there is an exaggeration of the number of follicular atresias and a hyperproduction of the luteinic cells of the theca, the organ of internal secretion of the ovary. Between a hydatidiform mole and a cystic degeneration of the ovaries there seems to be a relation of cause and effect. The primary cause appears to reside in the activity of the epithelial lining of the degenerated villosities provoking a reaction in the glandular functions.

The cystic ovary of the mole is not permanently lost to reproduction, because after the mole has been expelled the ovarian process usually undergoes a complete regression and later on may give issue to a normal ovum so that a subsequent pregnancy with a viable fetus is possible.

There is no special symptomatology pertaining to a mole with cystic ovarian degeneration, yet when a woman offers the usual signs of pregnancy but in an exaggerated form with uncontrollable vomiting, albuminuria, increased pulse rate, and early cachexia, the possibility of a hydatidiform mole must be considered. When there are serous discharges tinged with blood or even true hemorrhages which may occur very early in the process, an increased pulse rate, and a uterus inordinately enlarged, the probability approaches certainty and the certainty will be complete when the vesicles of the mole are expelled, these usually being followed by the mole itself.

All these symptoms lead to the diagnosis of a mole but not of cystic degeneration of the ovaries. The apparition of this process varies and it is not at all improbable that it may be present from the beginning of the molar pregnancy, but no case in support of this supposition has been recorded. When it is contemporary with the pregnancy and evolutes with it no clinical manifestation of its presence is evident. The symptoms of compression, such as edema, dysphoria, constipation, etc., arise only when, besides a very large uterus, the cysts in the ovaries are extremely voluminous. The pains that the patient occasionally complains of in the iliac fossæ are not of a nature to be attributed to cystic ovaries and there remain only the data to be obtained by digital examination, which are of real value. By carefully outlining the uterus, one may feel one or two rounded masses beside this organ, of a softer consistency than the uterine mass. In size and position they vary, but if they possess a sufficiently long pedicle they are forced upward by the rapidly enlarging uterus and may be found at the inlet of the true pelvis or even in the hypochondrium.

Usually these cystic ovaries are to be found on the sides of the uterus, with which they not infrequently form one body and very often one of the ovaries will be found deeply lodged in Douglas's pouch. It may happen that during the evolution of a molar pregnancy the diagnosis of cystic degeneration of the ovaries cannot be made on account of their small size or because they are hidden by the uterus, and in some cases it has only been at a subsequent operation determined by ovarian symptoms that the cystic degeneration has been demonstrated to exist.

After the mole has been expelled a regression of the cystic process usually takes place, while, on the contrary, for reasons that probably are to be found in the retention of débris or molar elements in the uterus, the ovarian cysts rapidly attain a considerable size and give rise to lumboabdominal pain, sometimes of a violent character, which may be attributed to the compression exercised by the cysts or to torsion of the pedicle. Blood-stained serous discharges or even hemorrhages are symptomatic of cystic degeneration of the ovaries and find their explanation in the persistency of the neoplastic process in the uterine cavity and not, as Pouget would have it, in relating them to the intensity of the internal ovarian secretion which would give to the uterus a vasodilating and hemorrhagenic action.

Xiphoid Crepitation.

In 1873, Galvagni described for the first time a phenomenon termed by him xiphoid crepitation, but not until 1916 did a monograph appear on the subject, by Campani. In the interim, Bernabei sought to explain the nature of this induced symptom as follows: Whenever there is emaciation, with absorption of subcutaneous fat, a crepitus is obtainable, due to the friction of the loosened skin on the subjacent tissues. From this angle there would be nothing characteristic about the symptom in its occurrence in a given locality. Galvagni had imagined the formation of gas bubbles as if a species of subcutaneous emphysema was present and he believed that the seat of these bullæ was subperitoneal rather than subcutaneous. Campani held the bubbles to be subcutaneous in site, but connected in some way with the peritoneal lymph circulation. In *Il Policlinico* of September 1, Bergoli, assistant to Professor Campani, reports 12 cases of this symptom as noted in typhoid fever subjects, all of whom were soldiers. The first case narrated was one of moderately severe typhoid in the stage of convalescence. It was found that the liver was enlarging, and in palpating its edge the phenomenon of xiphoid crepitus, with fine bullæ, was obtained. This could be elicited for 20 days, after which it could no longer be felt. In this case, late meteorism had supervened along with the enlargement of the liver. The behavior of the other cases from this viewpoint showed a decided adherence to type and the author interprets the phenomenon as associated in some way with peritoneal irritation. The liver showed a variable degree of enlargement. The crepitus could not be elicited in two cases in which peritoneal irritation and enlarged liver were present, but the association was positive in a large series of cases of this coincidence. In every case in which the symptom was present there was much meteorism in the upper portion of the abdominal cavity, and as far as the author has gone the crepitus is a phenomenon of the acute abdomen including typhoid fever. Experiments appear to show that the subcutaneous connective tissue is the seat of the crepitus, and the only hypothesis which fits the condition is that of the existence of a disturbance of the lymphatic circulation.

The Pathology of Courage.

The idea of courage implies that fear has been overcome, not that it did not exist. We can hardly conceive of courage apart from fear—such a state of mind would not be courage, but something else. Claims have been made that fear is something essentially pathological because of the character of its

manifestations. But fear is also normal, because implying the act of self-conservation. There are, of course, normal fear and morbid fear, and so one may say that some courage is natural and some pathological. The latter, according to Voivenel, in *Le Progrès Médical* for August 3, is a sort of affective drunkenness. In normal courage one has presence of mind, is master of himself. Not so in morbid courage. In the former we may speak of heroism and heroes, but in pathological courage such terms are out of place. From this viewpoint, Coriolanus, as depicted by Shakespeare, showed morbid courage, for when he became angry in battle he forgot the name of death. Voivenel seeks to explain some morbid courage by an enhanced sentiment of tribal altruism, such as is seen among primitive peoples. In the absence of an object, as when one's people have been sacrificed, the sentiment persists as *felo de se*. According to this view, the Romans, who fell upon their swords after the cause was lost, were irresponsible, and did not act in cold blood. There are other components in morbid courage, as when it is the result of ignorance of danger; this is seen in children and in inexperienced people in general. There are also lovers of adventure who cannot enjoy themselves unless they are in some peril. Morbid courage is seen at times in the unbalanced, and of course in the downright maniac. It has been claimed by criminologists that a boy who does not fear to attack a grown man on even terms is always a degenerate. Desperadoes work themselves up gradually to a state of fury before attempting to "clean out," single-handed, some resort for their kind, and the Malay who runs amuck may behave in a similar manner.

The Health of the German Woman.

A WRITER in *La Presse Médicale* for September 5 discusses this subject on a basis of data obtained from miscellaneous sources. What is true of the German woman applies even more strongly to the women of some of the overrun border countries—Poland for example. The first topic for discussion is emaciation from underfeeding. It was shown of certain women of Warsaw that they received daily but 1400 to 1800 calories. As a result the melting away of the fat of the lesser pelvis and abdominal cavity caused enteroptosis, chiefly in the form of nephroptosis. Other ptoses as those of the liver and stomach were sufficiently evident and good opportunities for palpation of viscera were plentiful. The broad ligaments relax and the perineum follows; the gynecologists perform prolapse operations nearly fourfold as frequently as before the war. War amenorrhea or rather amenorrhea in general is sevenfold more common; or, in other words, 7 out of every 100 women who should menstruate are unable to do so. Many believe themselves pregnant and some even have milk in the breasts. These cases will doubtless recover as soon as life becomes normal. The proportion of male births certainly increases, being now 116 to 100 girls, with a maximum of 122 to 100 in some statistics. Whether the predominance is a teleological phenomenon to offset the male deaths or a mere result of underfeeding must be left to the readers' own judgment.

News of the Week.

Influenza Epidemic on the Wane.—Reports received by the United States Public Health Service from 44 States indicate a subsidence of the epidemic, though the situation is still serious in some localities, particularly in the Northwest. In the states bordering on the Mississippi River there has been a decline in the number of new cases. Improvement is also seen in the South and the East, though the disease is still active in the large cities. In New York City, from the beginning of the epidemic on September 18 to October 26, there have been reported 93,297 cases of influenza, with 6,325 deaths, and 12,369 cases of pneumonia with 6,032 deaths. A comparison of the records of New York City with those of Boston and Philadelphia indicate that the mortality in New York has been much lower than in those cities. In Boston during the four weeks before the appearance of the epidemic the annual death rate was 13 per 1,000 population. In the first week of the epidemic the rate increased to 15 per 1,000; in the second week it was 33; the third week, 67; the fourth week, 100; the fifth week, 101, and in the sixth week dropped sharply to 52 per 1,000. In Greater New York the figures before the epidemic showed an annual death rate of 10 per 1,000, and in the successive weeks of the epidemic the rates per 1,000 increased as follows: first week, 12; second week, 16; third week, 29; fourth week, 50. In Philadelphia the normal rate before the epidemic was 12 in every 1,000. In the weeks of the epidemic this advanced first to 18 per 1,000, then to 36; in the third week to 97, and in the fourth week to 158 in every 1,000. Few new cases are being reported in Boston and the discharges from New York hospitals are greatly exceeding the new admissions. The figures of the New York State Health Department show that the total number of deaths for the State outside of the City of New York for the first 22 days of October was 4,543, of which 3,313 were attributed to influenza and 1,230 to pneumonia. In San Francisco a city ordinance has been passed compelling the wearing of gauze masks by every person. The masks may be removed only in homes and during meal times.

Influenza in Other Countries.—A serious epidemic of influenza is ravaging Copenhagen. No family is spared, the hospitals are overcrowded with ill, and many are dying of pneumonia. In order to stop the infection the Government has closed all places of amusement and the churches are being used as hospitals. The mortality is extraordinarily high. Medical reports show that the epidemic of influenza is striking harder in Great Britain, France, and Italy, but especially in England. Most of the deaths in England occur among those between 25 and 35 years of age. In South America the influenza epidemic is still on the increase in many localities. The disease prevails to such an extent in Brazil that the Government has issued a decree suspending official business until the epidemic is over. In Argentina it has seriously hampered business and other activities. The Government has ordered all schools closed until further notice. Eighty thousand cases of

influenza are reported in Colombia. There have not thus far been many cases on the Isthmus owing to the strict quarantine that is being maintained. The epidemic has spread to virtually all parts of Mexico and is causing many deaths in some localities. Trains on the national railroads are being disinfected by the Government.

New York State Commission to Study Influenza.—Governor Whitman has appointed a Commission to study and report on the cause, prevention, and treatment of influenza. Those asked to serve are representatives of the Army, Navy, and Public Health Service; Dr. Rufus I. Cole of the Rockefeller Institute of Medical Research; Dr. Walter B. James, president of the New York Academy of Medicine of New York City; Dr. Hermann M. Biggs, New York State Commissioner of Health, and Dr. William H. Park, director of the research laboratories of the New York City Department of Health.

New Jersey Health Department Arraigns Mayors.—The New Jersey State Board of Health recently adopted a resolution calling upon the police authorities of Newark and Jersey City to enforce an order against public gatherings during the epidemic of influenza. The mayors of these two cities lifted this ban without consulting the State Board of Health, and are now to be summoned before this body—if authority for such action can be found—to explain why they interfered with a ruling of the State Board of Health. Mayor Gillen of Newark has counter-attacked in a letter to Governor Edge demanding the resignation of the State Director of Health if the Governor finds upon investigation that the state-wide quarantine was ordered by Dr. Price without sufficient authority.

Limit Surgical Operations During the Epidemic.—Dr. Edward P. Davis, President of the Volunteer Medical Service Corps, has called upon the medical profession of the nation to perform no surgical operations except those absolutely necessary to save life during the influenza epidemic. He further advises that no medicine or treatment be prescribed by the profession which might depress the vital functions of the patient.

Red Cross Aids Tuberculosis Fight.—The Red Cross has appropriated $2,500,000 to insure the continuance of the anti-tuberculosis campaign in this country which has for some years past been dependent on the sale of Red Cross seals at Christmas time. The seals will not be sold as in former years. The State Charities' Aid Association will handle New York State's share of the appropriation.

New York Infirmary Seeks Funds.—The New York Infirmary for Women and Children began a campaign last week to raise $200,000, which is necessary if the institution is to continue its work. The infirmary was founded sixty-five years ago and has never before been compelled to appeal to the general public for support. During the past year 700 mothers and new-born babes have been cared for, 643 operations performed, and more than 53,000 patients treated in the institution and its clinics.

San Salvador Quarantines Against Yellow Fever.—Because of the prevalence of yellow fever in Guatemala the Salvadorian Government has ordered that the frontier between Guatemala and Salvador be closed.

Narcotic Drug Law Modified.—In order to facilitate the fight against the influenza epidemic, the Internal Revenue Collector in the Third New York District announces the modification of the law prohibiting the refilling of narcotic drug prescriptions. The modification reads as follows: "Prescriptions calling for morphine, codeine, or heroin, which are written by registered practitioners for patients suffering from influenza and any pulmonary or bronchial affections may, until further notice, be refilled, provided that at the time of issuance by physicians instructions are noted in the body of such prescriptions. 'Repeat if necessary,' and the druggist filling and refilling the same shall note thereon each and every date upon which such prescription is refilled."

Dr. George Chaffee of Brooklyn, N. Y., who was formerly on the surgical staff of the Polyclinic Hospital, has located in the city of Binghamton, N. Y., where he has opened an office at 100 Hawley Street.

The National Committee for the Prevention of Blindness will hold its annual meeting in the New York Academy of Medicine, New York City, on November 26, 1918, at 8.30 P.M. The chief speaker of the occasion will be Lieutenant Colonel James Bordley, whose subject will be "The Government and Red Cross Work for Blinded Soldiers."

The Southern Medical Association has abandoned its annual meeting which was to have been held at Baltimore on November 11-14 on account of the epidemic of influenza.

The German Birth Rate.—An official report prepared by the Intelligence Department of the Local Government Board in Germany which has found its way to America, shows that the total number of births in Germany, in 1916, was about 40 per cent. less than in 1913. The infant death rate during the war has at times risen to 200 and 300 per 1,000 births. In some parts of Germany infant welfare work has met with marked success and the high mortality rate has been considerably reduced. War conditions in Germany are said to have produced a new type of baby which the German doctors call "war infants." These infants are said to be not actually ill, but small, backward in growth, delicate, thin, with wrinkled skins, suggestive of age rather than infancy. It is reported that 23 per cent of the children brought to the infant welfare centers in Charlottenburg were suffering from rickets in some degree and that 43 per cent. of those brought to the welfare center at Treves were suffering from the same disease.

Obituary Notes.—Dr. DAVID WEBSTER MEYER, a graduate of the Long Island College Hospital, in 1904, died of pneumonia at his home in Brooklyn, on October 24, aged 47 years.

Dr. JOHN E. KER of Kingston, Jamaica, who was making a tour of the United States to study sanitation, died of meningitis in the Post-Graduate Hospital, New York, on October 24. Dr. Ker was a graduate of Oxford University, England.

Dr. STANLEY OWEN SABEL, a graduate of the

College of Physicians and Surgeons, New York, in 1898, died suddenly at his home in New York City, on October 20, aged 42 years.

Dr. M. S. Black, a graduate of the College of Physicians and Surgeons, New York, died of pneumonia in St. Vincent's Hospital, Williamstown, Mass., on October 4, aged 40 years.

Dr. Gerard H. Lebret, a member of the staff of the Overbrook Hospital, died of pneumonia at his home in Montclair, N. J., on October 17. He was a graduate of the University of Maryland and recently commissioned a Lieutenant in the Medical Corps of the Army.

Dr. Robert S. Topping, a graduate of the New York University and Bellevue Hospital Medical College, in 1913, died of pneumonia following influenze at the Presbyterian Hospital, Newark, N. J., on October 11.

Dr. Ernest Fly of Johns Hopkins Hospital, Baltimore, died of influenza, in Baltimore, on October 13. Dr. Fly was just recently appointed head of the Rockefeller Foundation Hospital at Pekin, China.

Dr. Abraham Korn of New York died of pneumonia at his home on October 13, aged 55 years. He was a graduate of the College of Physicians and Surgeons of Columbia University, in 1885.

Dr. Bernard William Junge, a graduate of the Buffalo Medical College, in 1900, died after a brief illness at his home in New York, aged 49 years.

Dr. Albert T. Chambers of Baltimore died from influenza at his home, on October 14, aged 43 years. He was a graduate of the University of Maryland, in 1898, for several years assistant professor at the University of Maryland, and later professor of operative and clinical surgery at the Maryland Medical College.

Dr. J. Marye Lewis of Manassas, Va., a graduate of the University of Virginia School of Medicine, in 1905, died of pneumonia, on October 14, aged 37 years.

Dr. Lawrence J. Simonton of Cumberland, Md., died at Centerville, Md., on October 12, aged 38 years. He was a graduate of George Washington University Medical School, in 1909.

Dr. Walter E. Gregory, a graduate of the University of Buffalo Medical Department, in 1889, and for many years on the medical staff of the Jackson Health Resort, at Dansville, N. Y., died of pneumonia in that city, on October 26, aged 61 years.

Dr. Emanuel Joseph Leavitt, a graduate of the College of Physicians and Surgeons, New York, in 1904, and radiologist to the Wyckoff Heights Hospital, died of pneumonia at his home in Brooklyn, on October 24, aged 47 years.

Dr. Leo Smith Petersen of New York, a graduate of the College of Physicians and Surgeons, New York, in 1911, died of pneumonia in the Lenox Hill Hospital, on October 23, aged 31 years. He was captain of the First Field Ambulance on the Mexican border, a member of the staff of the Lenox Hill and the Skin and Cancer Hospitals, and president of the medical fraternity of Chi Zeta Chi.

Dr. William A. Keeley, a graduate of the New York University Medical School, in 1888, died of pneumonia at his home in Brooklyn, on October 20, aged 51 years.

Obituary.

ROBERT COLEMAN KEMP, M.D.

NEW YORK.

Dr. Robert Coleman Kemp, whose death from pneumonia occurred on October 23, was born in 1865 and was graduated from the College of Physicians and Surgeons, Columbia University, in 1889. After serving an interneship at Roosevelt Hospital he entered on practice in this city, turning his attention early to diseases of the digestive tract. He was a professor of gastrointestinal diseases at Fordham University, visiting physician in the same branch of medicine at the Fordham University clinic, and consulting gastroenterologist to the Manhattan State Hospital. He was a member of the Medical Societies of the County and State of New York, of the American Medical Association, the American Urological Association, the American Therapeutic Society, the Gastroenterological Association, and the New York Academy of Medicine. Dr. Kemp was the author of a well known textbook on diseases of the stomach, intestines, and pancreas, of which a third edition appeared a couple of years ago.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

MEDICAL MEN FOR THE HOUSE OF COMMONS—DEATH OF DR. CLARA HIND—THE MINISTRY OF HEALTH AND LONDON PANEL PRACTICE—WORK OF NATIONAL SERVICE MEDICAL BOARDS DURING 1918.

London, October 3, 1918.

A largely attended meeting of members of the medical profession was held on Tuesday, October 1, in the Steinway Hall—before the war the fashionable London center for musical reunions—for the purpose of taking steps to secure more adequate representation of the medical profession in Parliament. The meeting was presided over by Sir Henry Morris, an ex-president of the Royal College of Surgeons of England, who was supported by, among others, Dr. Christopher Addison, Minister of Reconstruction, Sir William Watson Cheyne, member of Parliament for the University of Edinburgh, and Dr. Chapple, member of Parliament for Stirlingshire. Sir Henry Morris opened the proceedings with the obvious statement that after the war the medical profession would share in the same profound social changes that would characterize every other calling in the country, while he pointed out that the grant of limited suffrage to women had increased the electorate by six millions. In the general work of international, domestic, and social reconstruction and regeneration medical men would certainly play a prominent part, and no one could doubt that an adequate representation in Parliament would enormously increase their proper scientific influence. He laid stress on the necessity that all steps taken by doctors to obtain better representation in Parliament should be met by common effort and not by particular unions or associations, a view that was highly approved by an audience that is a little weary of group movements among its members. The new part of Sir

Henry Morris' speech was his conclusion that some form of direct representation ought to be secured in Parliament for medical men, owing to their feeble chances of securing election upon general grounds. Dr. Christopher Addison then moved a resolution that medical men ought to be more adequately represented in Imperial Parliament, and proceeded to give a sketch of the life of the private member, for, as he premised, medical men in Parliament can only expect to be private members for individual constituencies, though united by their common profession when subjects of public health are on the *tapis*. Dr. Addison supported Sir Henry Morris in the position that profound social changes having distinct medical bearings must be expected in the immediate future, and roused the curiosity of his hearers, who thought that he was going to give to a purely medical audience some forecast of the provisions which will be included in the coming bill for the creation of a ministry of health. Dr. Addison, however, while suggesting that the public ought to place greater confidence in doctors, withheld his confidence from his professional brethren, whereby his presence at the meeting greatly lost its significance. Dr. Arthur Latham seconded Dr. Addison's resolution, and his clear and able speech secured its unanimous adoption. But from this point the proceedings did not go quite so harmoniously. A second resolution was brought forward for the constitution of a provisional committee whose duty it should be to advance the claims of medical men who desired to become candidates for parliamentary honors, and the meeting grew restive under the idea that the committee, if selected, intended to support certain medical men already before their constituencies while neglecting the claims of other medical men. Verbal alterations in the resolution at length secured its adoption, but in a form which may lead to considerable inconvenience. For the resolution appears to bind the committee to support medical men in their constituencies regardless of the fact that there might be, as there certainly will be in the case of one of the best-known universities, two medical men contesting the seat from different political points of view. When the terms of reference of the committee had been settled the committee was elected, its composition being (1) representatives of a large group of public medical bodies, (2) the editors of the *British Medical Journal* and the *Lancet*, and (3) a group of unofficial members selected by the suffrages of the meeting. The probability is that the committee will not find much to do at the general election which is believed to be imminent, inasmuch as the official candidates of the recognized parties will most likely obtain the votes of the constituencies under the old-fashioned party system, and all such official candidates have already been chosen, and do not include many medical men. No medical man can expect to get into Parliament on the mere claim that he is a doctor. His position should be that he is a member of Parliament, qualified generally by his admission to a learned profession to show judgment in general affairs, while qualified particularly to assist the House in coming to a conclusion in particular and important provinces of sociology. As long as the system of party government prevails in this country the medical man must obtain his votes upon the general ground, and here he requires the assistance of party organization. Having got into Parliament upon the general ground, his particular gifts can be used by the House of Commons. The probability is that in the near future many constituencies will recognize the fitness of medical men for Parliament, but no such recognition exists at the present moment, while the appalling waste of infant life, the general problems of sanitation and rehousing, and the special problems of the care of the wounded and disabled of the war will be among the most pressing subjects for parliamentary debate. There are at the present moment in the House of Commons, out of 670 members, 300 following the various commercial callings, or business men, 170 lawyers (which many people think 165 too many), and 10 doctors, only two or three of whom are in active practice. It is obvious that a medical voice of such tiny volume is practically unheard.

The death has occurred of Clara Hind, one of the pioneers among English medical women. She began as a nurse. She specialized in obstetric nursing, and became matron of a maternity hospital. While so employed she entered as a medical student at the London School of Medicine for Women, and qualified some twenty years ago, doing her clinical work at the Royal Free Hospital. From that time she devoted herself to the open-air treatment of phthisis, and at the time of her death had managed for fifteen years the Ockley Sanatorium.

This much has transpired from the recent speeches of public men—the ministry of health is to be instituted in the coming session of Parliament if the pressure of public affairs admits, and it is to be, in the first instance, a collation and coordination of existing activities and not the creation of any state or regimented medical service. The London Panel Committee, speaking for medical men who minister, or who in times before the war were ministering to the medical needs of some 3,000,000 persons, have recently passed the following resolution, etc., while heartily approving of the scheme of the British Medical Association for the constitution of the ministry of health:

"We nevertheless think that the method proposed for the appointment of the medical members of the Advisory Council is not conducive to 'keeping the minister in living touch with those bodies and classes of persons on whose cooperation the success of the new ministry would depend,' and we therefore recommend that the following resolutions be sent to the Minister of Reconstruction, the Local Government Board, the Insurance Commissioners, the Board of Education, and the Ministry of Pensions: (a) That this committee are of opinion that (1) the members representative of the medical profession upon the Advisory Council should consist of not less than one-third of the total membership, and (2) that a majority of the representative members of the profession should be nominated by the statutory medical committees. (b) That this committee are strongly of opinion that the medical functions of the Board of Education and of the Ministry of Pensions should be incorporated in the ministry of health.

These recommendations of the London Panel Committee are full of wisdom. That the ministry of health, whatever its shape and scope, will be

guided by an advisory council on which medical men will have seats is certain; but unless the medical voice is a strong one it may be ineffective, and a powerless medical minority be credited in the public eye with having acquiesced, from a medical point of view, in proceedings of an unscientific character. Further, and in regard to resolution (b), there can be no doubt that time and money will be saved by grouping the activities of school medical officers, and of the men in charge of the wounded in the war, with the common medical center.

In the course of the eight months—January 1 to August 31, 1918—the number of medical examinations conducted by National Service Medical Boards in Great Britain amounts to the large figure of 2,080,709; during this period 28,035 (1.34 of the examinations) applications were made to Appeal Tribunals for medical reexamination, and of this number of applications less than one-half were considered by the tribunals to rest on grounds sufficiently substantial to justify the granting of leave to be reexamined. Further, of the applicants who were granted leave to be examined by the Medical Assessors of the Local Government Board, the grading of 50 per cent was unchanged. In other words, in less than 0.4 (or between 3 or 4 cases in every 1,000 examined) of this enormous number of medical examinations is there reason to believe (so far as the evidence afforded by the organization of Appeal Tribunals goes) that the grading by the National Service Medical Board did not correctly represent the degree of physical fitness of the individual. Converted into practical terms, this result is expressed by the statement that a National Service Medical Board, working full time, and examining 25 men per session of 2½ hours, graded one man per week incorrectly. This deduction must not, however, be drawn without reservation, for mistakes are only recognized and rectified on appeal, and a good many patriotic people refused to appeal in any circumstances.

It will probably be a surprise to any one who considers these results to realize the vast bulk of the work which has been done by the medical profession since the beginning of this year, and it should be remembered that this has been done with administrative machinery which was not created until November, 1917, and during a period in which unprecedented strain has been thrown upon the profession to meet the heavy and persistent demands of the fighting forces of the crown for medical personnel, and in a country opposed to conscription as a distasteful novelty. Moreover, all the difficulties of recruiting and grading were constantly aggravated by the recurrent changes in army orders, raising the ages in response to official anxieties. No one could have any experience in grading under such circumstances, so that medicine may be congratulated on an exploit.

But there is another and less satisfactory aspect of this work, and that is the large percentage of men examined who were found not to have attained the normal standards of health and strength or to be capable of enduring the physical exertions suitable to their age. It has been suggested that the large proportion of unfit men among those examined during the indicated period could be explained by the fact that only an already fully sifted population was being resifted. But analysis of the records available contradicts this comfortable need. As a matter of fact, the men examined constituted a fair sample of the male population between 18 and 43 and a smaller proportion of the more fit between 43 and 51.

It appears that the experience of the boards medically examining women for the corps is broadly similar to the National Service Medical Boards examining men. These results, therefore, indicate unmistakably the existence of a deplorable state of national health.

It has, of course, not yet been possible to work out the details of this great mass of medical examinations, but the preliminary results indicate clearly that preventable disease is responsible for the bulk of these physical disabilities, and demonstrate the appalling ravages which our industrial activities have made upon our real national capital—the health and vigor of the population; too little food, too long hours of work, too little sleep, too little fresh air, too little play, too little physical comfort in the home, are evidently the principal factors concerned in bringing into existence this mass of physical inefficiency, with all its concomitant human misery and direct loss to the state. To take effective measures on the broadest lines to remedy this condition of things is the first and urgent duty of the state directly the war ends; no consideration is more important than the physical welfare of our human stock, and though real improvement can hardly be expected for two generations, the foundations of this improvement must be laid at the earliest possible moment.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

SOLDIERS' MAIL—LIBRARY FOR THE ARMY IS GROWING—FRENCH GENERAL PRAISES AMERICAN RED CROSS WOMEN—SHOWER BATHS ON THE BATTLE LINE—KNIGHTS OF COLUMBUS ACTIVITIES—DIFFERENT VARIETIES OF COURAGE.

PARIS, September 10, 1918.

THERE has been no end of trouble and of complaint since the first soldier landed in France over the wanderings and delays of mail addressed to the troops, many of the boys being months without a word from home, and on one occasion a soldier showed me seventeen letters received in a bunch, some dated seven months previously. Congressman Siegel has come to France expressly to look into the cause of these delays and correct them. In a recent talk he not only pointed out some faults that lie with the writers of letters at home, but equally gave some most excellent advice to these writers and voiced a complaint that is not infrequent among the rank and file. Part of the trouble, he said, is due to the fact that letters are misdirected. He added that the people at home must be brought to realize the importance of interesting and cheering news. This "I am worrying to death because I have not heard from you" stuff doesn't help the morale of a soldier, he said. Delivery of letters from chaplains, members of the American Red Cross, and others to families of American soldiers killed overseas, re-

counting the circumstances under which the men died, is to be expedited under a plan announced by General Pershing. Hereafter such letters will be marked with a small cross, so that they can be distinguished immediately and forwarded to the Adjutant-General's office in France. After verification of the deaths by the casualty section, they will be forwarded to the addresses.

The Overseas War Service of the American Library Association has been developing steadily, and reports submitted to the Commander-in-Chief show that up to August 1 more than 400,000 books have been shipped from America for the use of A. E. F. Of these 69,000 have been placed in Y. M. C. A. huts, Red Cross hospitals, Salvation Army cabins, Y. M. C. A. hostess houses, officers' clubs, on hospital trains, and directly with individual units—a total of more than 300 points having been served in this way. In addition to this, approximately 100,000 books have been brought ashore from the transports by the men themselves, 25,000 volumes have been delivered to the Red Cross, and about the same number to the navy for the equipment of naval stations. American troops in England are also being served. The chief difficulty has been, of course, the question of transport, but this is being adjusted, and within the last few days more than 500 cases of books have been delivered to the warehouses, so that the outlook for an increasingly valuable service is very bright. The aim to build up for the A. E. F. in France an organized library service, which will consist not only of an adequate supply of lighter reading, but will enable any man wishing to pursue special studies to get the books he needs to do so. One feature of this special book service will be its extension to American prisoners in Germany, at whose disposal 1,100 books have already been placed.

General Gouraud, commanding the Fourth French Army, has sent a letter to the American Red Cross, paying this high tribute: "The battle affords me the opportunity of extending you my deep appreciation of the great services rendered by the American canteens in my Fourth Army. No small share of the success of our arms is due to the comfort, moral and material, they have brought to our soldiers. I refer not only to Miss Knott's canteen for permissionnaires at Châlons, but also to Miss Ely's canteen at Saint-Rémy-sur-Bussy, whose beneficial influence is felt throughout the Army Corps. Kindly express my gratitude to all those whose generosity has supported the canteens, and accept my distinguished salutations."

For the first time in the war the fighting men have been provided with means for bathing, even on the edge of the battlefield. This feat has been accomplished by the medical organization of one of the American Expeditionary Force Divisions which was most hotly engaged in the July-August fighting. A report from the division urologist, after describing the equipment, consisting of forty-eight shower heads and a disinfector by which the soiled and vermin-infected clothing is sterilized, says that even with this meager equipment we have been able to keep the fighting men in good condition. At the bathing center we can bathe 1,200 to 1,500 men per day. During the present offensive we averaged 1,027 men per day. As they were relieved from the line they were either marched to the baths or transported by camions, and every man was given a good hot bath and change of clothing. The last four days of the week 5,643 men and 137 officers passed through the baths, 28,679 pieces of clothing were issued, 11,967 pieces disinfected, and 2,700 shipped to the laundry. The effect on the men was wonderful. They came back, worn out, dirty, clothing torn, and left the baths splendid, bucked up, both physically and mentally. As most of these men had to go back into the line a few days after coming out, one can appreciate the value of a bath and complete change. During the artillery preparation for the attack the barracks and trucks were struck by pieces of bursting shells, but were not materially damaged. A further development of the battlefield bathing is contained in the concluding paragraph of the report which forecasts the day when an automobile-carried shower bath will be as familiar a sight in fighting areas as the Red Cross Ambulance is now.

After a tour of the Western front to observe conditions, with a view to enlarging the scope of work of the Knights of Columbus with the United States Army, Dr. Edward W. Buckley, supreme physician of that order, and James J. McGraw, a supreme director, have returned to America. Before leaving France the two officials of the K. of C. stated that they had made arrangements for placing workers in many sections of France, and also at some of the camps in England and in Italy. Every effort will be made to help the men at the front first, as it is realized that they are the ones who should be aided before all others. More secretaries and supplies will be rushed over to carry on the work here. Mr. George Clemenceau, the French Premier, received Dr. Buckley and Mr. McGraw during their visit. They visited the most active sectors of the fighting fronts and some of the largest military hospitals. Both men expressed their admiration for the spirit shown by the American troops.

Dr. Buckley said he had never seen greater fortitude displayed than by the American wounded. In his visits to the hospitals he had talked with many of them, and the predominant idea with all appeared to be to get back to the front as speedily as they could for another try at the Boche.

At the hospital yesterday a lieutenant who has lost both his legs in the battle received a package from his wife. In it were six pairs of socks. Raising himself as best he could in the cot, the lieutenant said: "Say, boys, what am I going to do with these now?" A few minutes later Commissioner Joseph Scott, of the Knights of Columbus, who was working as a volunteer stretcher-bearer, lifted up a stretcher with a badly wounded man on it. The "blessé" opened his eyes for a minute and said: "Say, am I dreaming or are you Joe Scott, of Los Angeles?" The wounded man was Private William Kelly, a college mate of Mr. Scott years ago back in far-off California.

The men in those hospitals are the gamest I have ever seen. I have never heard a whimper from one of them yet, and it takes a lot of pluck

and courage to deny yourself a grouch against your luck and a complaint against your suffering. There are several varieties of courage, and one of the greatest is that kind found in the hospitals. In my three and a half years' hospital service I have seen many men die and I have yet to see the first one who made a fuss. One or two instances will fairly illustrate the conduct of all.

A sergeant was brought in at two o'clock in the morning, walking from the ambulance with the aid of the two orderlies to the operating room. When he was stretched upon the table I found a half-dozen small perforations made by shell fragments in his back. They looked superficial, he asserted that he did not feel badly, and with a first dressing was put to bed to await an *x*-ray examination in the morning. Not being content with the condition of his pulse, I told the nurse to keep an eye upon him, and went to my camp bed. At about four-thirty the nurse awakened me, asking that I come and look at the patient. "Does he complain?" "No, I asked him if he would like a drink or anything and he said 'No, thank you,' but I don't like the way he looks." I went to the bed, which happened to be the end bed in the corner, and found my soldier with his face to the wall. Placing my hand on his shoulder I inquired how he felt. No reply. Bending over and looking in his face—he was dead. The following day, examination disclosed a perforation of the kidney and liver in this man who did not complain. It is a wholly different quality of courage in action on the field, and in bed, in the dead of night, alone with God.

The ambulance rushed a young soldier to the hospital with a ragged hole in his abdomen. He was operated upon immediately; we have come to think no case too desperate to try to save. The boy was intelligent, knew his desperate condition, and brought all of his will to bear in the effort to win; but late in the evening the nurse came to say he asked to see me and by her face I knew—strange how these nurses get to read the unfailing signs on the human countenance. As I came in sight of the bed the boy held out his hands for me to hurry. I took his hands and bent over him, looking in his eyes, holding that light that comes but once. "Tell them, Major, I did my best"—"I will, my boy." His hands relaxed and for one moment his eyes looked far beyond, then with one convulsive effort he sat up, brought his hand to salute—"Au revoir, mon Major," and he was gone.

146. Avenue des Champs Elysées.

Progress of Medical Science.

New York Medical Journal.

October 19, 1918.

1. Errors in Diagnosis of Pulmonary Tuberculosis. Abraham Trasoff.
2. The Endobronchial Treatment of Bronchiectasis and Bronchial Abscess. Emil Mayer.
3. Neurotic Symptoms Referred to the Eyes. C. P. Oberndorf.
4. Paget's Disease of the Bones. B. Stivelman and E. L. Ray.
5. Intestinal Stasis. Ileocecal Valve Incompetency, and Chronic Appendicitis Roentgenologically Considered. Joseph S. Diamond.
6. A Treatment for Acute Anterior Gonorrhea. Charles B. Adams.
7. The Functional Re-education of the Wounded. R. Talt McKenzie.

2. The Endobronchial Treatment of Bronchiectasis and Bronchial Abscess.—Emil Mayer describes a method of treating hypersecretion in the bronchi by suction, by washing out the abscess and applying medication through the bronchoscopic tube. The apparatus employed was devised by Dr. Sidney Yankauer and consists of a double tube, the outer one to be attached to the suction apparatus on the left and the inner one to the irrigating apparatus on the left. The method of treatment is as follows: A hypodermic of half a grain of morphine with atropine should be administered half an hour before treatment is begun, followed by thorough cocainization, with cotton applicators, of mouth, tongue, pharynx, and larynx, from ten to twenty per cent. The patient should lie on his back with his head supported by a trained assistant, the bronchoscopic tube inserted, and a spray of two per cent. cocaine and adrenalin thrown into the bronchus to allay coughing. The excessive secretion in the bronchi is then withdrawn through the tube, by the suction apparatus, and ten ounces of warm salt water slowly introduced through the inner tube is at once withdrawn through the outer one. This method is to be used in the first or second bronchoscopy. The patient, showing no intolerance to the introduction of the fluids, finally receives a solution of iodine and carbolic acid (iodine two drams, carbolic acid fifteen mm. to one pint of water) in place of the salt water. This method of treatment was repeated twice weekly in each case, with no serious results. As it may be necessary in some of these cases to continue treatment for years and in view of the danger of developing drug habits through the repeated use of morphine and cocaine, Mayer gives the treatment once instead of twice weekly. He has also drawn up a form of chart which shows the treatment given in each case, the number of patients treated each day, and the number who receive a given form of treatment. Dichloramine-T in the form of chlorazene tablets, beginning with a solution of one tablet in ten ounces of water, was given in a few selected cases, the bronchus being first washed out with the salt water. The cases reported have been under observation for three months; there has been almost complete cessation of odor, especially after the use of iodine, and a diminution in the amount secreted—at least, expectoration is very much easier. Moreover, a decided improvement has been noted in the physical condition of the patients. Mayer adds that the report submitted is one of distinct progress and he believes that the ability of the bronchi to withstand the introduction of quantities of fluid without harm has been demonstrated. This preliminary account of the work has been made in the hope that some other drug or method may be suggested that will prove even more efficient.

Journal of the American Medical Association.

October 19, 1918.

1. Insanity Versus Mental Diseases: The Duty of the General Practitioner in Psychiatric Diagnosis. E. E. Southard.
2. Cerebral Edema from Pressure. W. A. Jones.
3. Etiology of Thrombo-Angiitis Obliterans (Buerger). Willy Meyer.
4. Relationship of Focal Infections to Certain Dermatoses: Further Observations. M. L. Ravitch and S. A. Steinberg.
5. The Etiology of Lichen Planus. Ernest Dwight Chipman.
6. Roentgenographic Studies of Tissues Involved in Chronic Mouth Infections. Arthur D. Black.
7. Malaria Endemicity of the Rice Districts of Louisiana and Arkansas, with Some Observations on Types of Mosquitos Breeding Therein. J. C. Geiger, W. C. Purdy and Lou Ina Bates.
8. Disinfection of the Knee Joint. Robert B Cofield.
9. Orthopedic Operations on the Hand. Arthur Steindler.
10. Venereal Diseases in the Thirty-ninth Division. Lloyd Thompson and J. R. Bolasny.
11. A Successful Venereal Prevention Campaign. W. Ray Jones.
12. Descriptive Picture of Beriberi. Nagib T. Abdou.
13. Importance of Blood Cultures in Pneumonia. J. E. McClelland.
14. Selective Action of Dilute Sodium Hydroxid on Certain Races of the Pneumococcus. Andrew Watson Sellards.
15. Convoys and Their Care: The Admitting Section of an Evacuation Hospital During Combat. George de Tarnowsky.
16. Pneumonia at Camp Meade, Maryland. Henry M. Thomas.
17. Serum Treatment of Type I Pneumonia Occurring in Association with an Epidemic of Influenza. Lesley

H. Spooner, Andrew Watson Sellards, and John H. Wyman.
18. Treatment of Influenza Pneumonia by the Use of Convalescent Human Serum: Preliminary Report. L. W. McGuire and W. R. Redden.
19. Dermatology in a British General Hospital in France, Including the Differentiation of "I. C. T." (Inflammation Connective Tissue). Frank Crozer Knowles.

2. Cerebral Edema from Pressure.—W. A. Jones discusses general cerebral edema as a frequent accompaniment of many of the somatic disorders, the most common probably being a chronic nephritis or the triad of heart, kidneys, and blood vessels. He then takes up the various theories of edema of the brain and the occurrence of localized edemas. This author cites at some length three cases in which recovery resulted from a decompression operation and points out that: (1) There are undoubtedly many cases of local or generalized edema that are unsuspected; (2) Patients who give a history of an injury, however remote, provided it is localized, may have a local cerebral edema from pressure and from a fracture of the internal table of the skull, or from simple concussion of the brain, or a blow on the head, with or without infection; (3) Occasionally cases exhibiting focal symptoms may be wholly due to a localized edema, and too few cases of epilepsy, acute and violent but with transitory mental excitements, justify an exploration for a suspected edema; (4) There are many cases of hard, thick skulls, obstructing free circulation in the pia-arachnoid and in the cortical veins and perivascular spaces, which may be temporarily or permanently relieved by decompression operations. Dr. Jones's paper, which was read before the Section on Nervous and Mental Diseases at the Sixty-ninth Annual Session of the American Medical Association, was discussed. Replying to the discussion, the author stated that, in his opinion, decompression was absolutely justified in ill-defined conditions in the cortex and meninges. It was possible that local troubles might be responsible for epileptiform attacks, and such cases might safely be decompressed.

3. Etiology of Thrombo-Angiitis Obliterans (Buerger).—Willy Meyer. (See MEDICAL RECORD, June 29, 1918, p. 1142).

The Lancet.

September 21, 1918.

1. A Lecture on the Prevention and Arrest of Lice-borne Diseases by New Methods of Disinfection. Colonel William Hunter, C. B.
2. A Combined Embarkation and Boat Distribution Scheme for Hospital Ships and Ambulance Transports. Major Henry Hemsted.
3. A Case of Sudden Death After an Anesthetic in a Latent Case of Shell Gas Poisoning. Major Philip Turner.
4. Typhus Fever: Observations on a Serological Test (Weil-Felix Reaction). Capt. C. M. Craig and Major N. Hamilton Fairley.
5. Notes on the Intestinal Protozoal Infections of 1,680 Men Examined at the University War Hospital, Southampton. Doris L. Mackinnon.
6. Trench Fever in England: a Case with No History of Exposure to Infection. F. H. Mosse.
7. Note on Two Gunshot Wounds. Major J. J. M. Shaw.
8. A Case of Jelly-Fish Sting Simulating an Acute Abdomen. Robert E. Lord and S. L. B. Willis.

3. A Case of Sudden Death After an Anesthetic in a Latent Case of Shell Gas Poisoning.—Major Philip Turner reports a case in which sudden death took place, after operation, in a patient who had been gassed. The patient was admitted to hospital suffering from an infected wound of the right foot received the previous day. His general condition appeared satisfactory, though there was slight anemia and pyrexia; there was no mention of gas poisoning, nor did the patient complain of any such symptoms. *X*-ray examination revealed a metal fragment in the wound, and operation—which was a trivial one—was done the following day; anesthesia was light. After the operation, when the patient was about to be removed from the operating room, it was noticed that he had become cyanosed and was straining as though about to vomit. The anesthetist remained with him and he recovered, sat up, and spat out some mucus; pulse was unaffected. Instruction was then given to take the patient back to his ward, but within three minutes he collapsed. Attempts at resuscitation were commenced immediately and kept up for an hour, but there was no response. Post-mortem examination made the following day showed that the whole heart was dilated, especially the right auricle and ventricle; valves were competent. There was no evidence of any vomiting having occurred and no obstruction in air passages. Tracheitis was present and was especially marked just above the bifurcation. The lungs were slightly congested and edematous, particularly at the bases. The stomach was nearly empty and other viscera normal. The whole appearance was characteristic of gas poisoning, probably phosgene. Death was due to primary cardiac failure. The author considers it probable that the patient made some slight muscular effort and thus threw too much strain on a dilated, weakened heart. He points out the lesson to be learned, that where there is any suspicion of gas poisoning, patients should be kept strictly in the horizontal position after an anesthetic and that every movement should be checked.

The Lancet.

September 28, 1918.

1. Report on the Essential Characteristics of Successful and Unsuccessful Aviators, with Special Reference to Temperament. Captain T. S. Rippon and Lieut. E. G. Manuel.
2. Some Remarks on Chronic Intestinal Stasis. Sir W. Arbuthnot Lane.
3. The Diagnosis and Treatment of Malaria. Some Practical Hints for Practitioners at Home, with Notes on 750 Cases Treated in Scotland During the Past Year. Major D. G. Marshall.
4. Notes on the Symptomatology and Morbid Anatomy of Socalled "Spanish Influenza," with Special Reference to Its Diagnosis from Other Forms of "P. U. O." Captain E. Rivaz Hunt.
5. Observations on a Case of "Loose Body" in Knee-joint. Paul Bernard Roth.
6. Meningitis Caused by the *Micrococcus Flavus*. John H. Teacher and A. M. Kennedy.
7. Cases of Cerebrospinal Fever Definitely Traceable to Infection by a Particular Carrier. Captain J. A. Glover.

1. Report on the Essential Characteristics of Successful and Unsuccessful Aviators, With Special Reference to Temperament.—Captain T. S. Rippon and Lieutenant E. G. Manuel, a medical officer stationed at an aerodrome and a pilot of 600 hours' experience respectively, give the results of their first-hand observations as to the characteristics of a successful aviator. They have studied the life history of efficient pilots and have found that they possess the following characteristics: resolution, initiative, presence of mind, sense of humor, judgment; almost without exception they are keen sportsmen, of an alert, cheerful, optimistic happy-go-lucky disposition, full of animal spirits and vitality, and frequently lacking in imagination. Their favorite amusements are the theater, music (ragtime), cards and dancing, and the authors believe that a riotous evening once or twice a month is necessary for the average pilot. The fit pilot requires no stimulant and is fully aware of the danger of taking too much alcohol; he therefore rarely touches it. Older men with "nerves," however, take it freely, and the authors state that it is beneficial in so far as it enables a man to sleep after an exciting day and promotes good fellowship in the mess. Marriage, because of the sense of responsibility and consequent fear of accident, is a disadvantage to the pupil under instruction and, in most cases, to all flying men. One of the most important characteristics in successful aviators is "hands"; the pilot with good hands senses unconsciously the various movements of the aeroplane and rectifies abnormal evolutions; he anticipates "bumps" and invariably is a graceful flyer. Good hands appear to be congenital and cannot be acquired. The authors have produced a mechanical contrivance for the purpose of demonstrating the difference between light and heavy handed pilots, with which they are experimenting. The fighting scout is usually the enthusiastic youngster, full of the joy of life, of average intelligence, keen on flying, and with little knowledge of his machine or engine, little imagination, no sense of responsibility, a keen sense of humor, "hands," and quickness of thought. The less he knows about the mechanism of his machine the better, as a realization of the strain put on the machine at times might cause him to lose his nerve. Rippon and Manuel suggest that every medical examination of a prospective aviator should be preceded by a few minutes' conversation to ascertain the temperament or make-up of the individual. A healthy mind is the first essential. The possession of a suitable temperament is

the criterion of the individual's ability to fly, while the possession of a suitable physique is the indication whether he can fly to great heights and stand the strain of continuous flying. A suitable physique without the temperament required means failure, whereas many men physically unfit have become successful aviators. The following physical disabilities have been noted in temperamentally unfit pupils: stammering, minor defects of vision, adenoids or nasal obstruction, poor peripheral circulation, loss of tone (soft and flabby muscles, moist and cold hands, pale complexion, stomach splash, etc.); the authors, however, do not suggest that any one of these defects necessarily disqualifies a pilot. Lieutenant Manuel adds a note on the strain of flying, especially in cross country flying and at the front. He points out that inability to stand heights is often due as much to psychological causes as insufficient oxygen.

British Medical Journal.

September 28, 1918.

1. Observations on the Production of Meningococcus Anti-endotoxin. M. H. Gordon.
2. The Value of X-Rays in the Treatment of Malignant Diseases of the Breast. Claude Saberton.
3. Gunshot Wounds of the Knee-Joint as Seen at a Base Hospital. Captain H. H. Hepburn.
4. Some Aspects of Military Ophthalmology. Colonel S. Hanford McKee.
5. A Case of Fatal Jaundice. Lt.-Col. Rawdon A. Veale and Captain B. H. Wedd.
6. A Case of Successful Cesarean Section for Eclampsia. E. W. G. Masterman.
7. The Treatment of Irritant Gas Poisoning. Captain J. M. Lazenby.
8. The Administration of Anesthetics to Soldiers. Captain Arthur Mills.
9. An Apparatus to Facilitate Thomas's Suction Treatment. W. Johnson Smyth.
10. Whooping Cough and Lymphemia. Robert Craik.
11. A Suggestion for a New Shape of Rubber Drain. A. W. M. Sutherland.

2. The Value of X-rays in the Treatment of Malignant Disease of the Breast.—Claude Saberton considers first the case of the patient sent for prophylactic treatment following operation. Such cases should be sent to the radiologist as soon as possible and it is essential that large doses of *x*-rays be administered, the rays being measured after filtration through 2 or 3 mm. of aluminum. The scar area, axilla, supraclavicular and post-scapular areas should all be treated and, with careful technique, the doses can be repeated to the same skin areas once a fortnight. This method enables a large quantity of rays to reach the mediastinum. Radiation is facilitated by introduction of the Coolidge tube. The first course of treatment lasts about three months; a second shorter course is given after two or three months, and subsequent radiations are administered at gradually lengthening intervals, the patient being kept under observation for two or three years. During this time blood tonics and, in some cases, thyroid extract should be given, and the patient cheered and encouraged as much as possible. Saberton emphasizes particularly the importance of optimism. The results to be obtained from this treatment are: (1) The patients are less likely to have a recurrence than those not so treated; (2) Local recurrence in the scar area is rare; (3) Supraclavicular deposits do occur, but, as a rule, can be controlled; these deposits never break down or ulcerate; (4) Mediastinal recurrence appears to be less frequent; (5) The general health of the patient is improved. In view of these facts every case of scirrhus mammæ should be subjected to efficient *x*-ray therapy as soon as possible after operation. The author does not consider operation advisable in slow-growing atrophic scirrhus mammæ in patients about 50 years of age. In recurrences the special circumstances of each case must be considered, but the results of radiology are often unexpectedly good. Saberton then discusses the treatment of inoperable growths, all of which should be given the chance of deriving benefit from *x*-ray or radium therapy. He points out that it is impossible to tell how a patient will respond to radiation. For cachectic patients little can be done beyond giving relief from pain. Blood examination is helpful, and the thorax should be examined from time to time for secondary deposits. Malignant growths are affected by radiation directly and indirectly through the reaction of the patient, and research has shown that cells in process of rapid division, lymphoid tissue, and the endothelium of the blood vessels are especially vulnerable to radiation. It is essential that treatment should be pushed in massive doses to the limit of, or even beyond, skin endurance, as small doses stimulate cell growth. An important guide is the amount of constitutional disturbance following intensive therapy; the author has known patients have a temperature of 102° or 103° for weeks. In conclusion, Saberton draws attention to two rare conditions which arise as a result of radiation. They are: (1) Late *x*-ray reaction, when the skin and subcutaneous tissue become very tough and finally slough. This may develop weeks or months after patient has ceased treatment, and is very painful and slow to heal. (2) Anemia, which is probably of the same type as that which sometimes develops in *x*-ray operators, as it is known that *x*-rays have a profound effect on the blood. In inoperable cases, therefore, the *x*-rays are of undoubted therapeutic value. Life is prolonged, and growths robbed of their most distressing features; pain is relieved or alleviated, secondary infected glands can be controlled and prevented from ulcerating, and the primary growth often shrivels or remains *in statu quo*. Inoperable growths occasionally become operable and the mental comfort derived by the patient would alone justify the treatment. In some cases, Saberton considers that surgeons might with advantage employ electrothermic coagulation.

7. The Treatment of Irritant Gas Poisoning.—Captain J. M. Lazenby describes a method of treating cases of irritant gas poisoning with symptoms of acute catarrh of the mucous membranes of the eyes and of the respiratory tract. He has found that success depends entirely on the care with which this method is carried out and the frequency of the treatment. A warm solution of sodium bicarbonate—10 grains to the ounce—is made, and a compress of gauze wet with this solution is placed on the eyelids in severe cases when the eyes are closed through photophobia or dried secretion. When the eyelids are unsealed, the margins of the lids are bathed till all crusts can be wiped away. A Carrel syringe is then filled with the solution, a few drops instilled into the eye, and the lids closed. This is done about four times, till all secretion has been washed away; the skin is then dried with cotton wool. In mild cases the eyes may be left uncovered except by the eye shade; in severe cases another compress covered with jaconet is bandaged on lightly. A little vaseline is smeared on the skin to prevent irritation from the discharge. In respiratory cases a spray is half filled with solution. Patient sits up and gargles his throat and mouth with the solution; he then opens his mouth wide and breathes in and out, the spray nozzle being held an inch from the mouth and the jet directed to the back of the throat. (The patient must sit up and respire during spraying). Spraying must cease when the patient wants to spit out, and the operation must be repeated four times. Patients should be treated every three hours, and when cases are numerous they should be instructed to carry out the treatment for themselves, using a bath for the eyes instead of a syringe. It is advisable to isolate patients suffering from gas poisoning, as other patients near them always suffer from irritation of the throat and cough. The procedure described diminishes or completely relieves photophobia, and greatly relieves pain, although catarrh of the eyes persists. In throat cases, purulent mucus is expectorated, the dry cough becomes loose and pain in chest is lessened. Soreness of throat usually persists. The chief benefit is relief from cough and, consequently, possibility of sleep. The best results have been obtained in cases from three to six days old. As the treatment has been carried out only on board ship, the author is unable to say whether the results are permanent; he believes, however, that if this treatment were given continuously from the beginning, the period of convalescence would be materially shortened.

Berliner klinische Wochenschrift.

August 12, 1918.

Wounds and Surgical Affections of the Kidneys.—H. Kümmell passes in review the modern procedures of renal exploration. He particularly insists on the use

of cryoscopy of the blood (consequently adopting the teachings of the French school). War surgery has shown Kümmell that renal lithiasis is more common than was formerly suspected and operation is the only way to cure it, on the condition that local anesthesia is made instead of general narcosis. Vesical tuberculosis is *always* the consequence of renal tuberculosis. But when tuberculosis of the bladder and genital organs exist together there is a primary renal lesion and also one in the genital organs.

An Epidemic of Diphtheria from Food Infection.—Gobernheim and Nagel report an epidemic in a military camp, the development of which would seem to indicate that the infection was conveyed by means of food because several kitchen hands had suffered from the disease before it assumed an epidemic form. Two other regiments, stationed some distance off, were also infected. Their food was sent them from the same kitchen.

Berliner klinische Wochenschrift.

August 19, 1918.

Radiological Experiments with the Antituberculous Remedy of Friedmann.—M. Immelmann offers an article essentially consisting of a series of cases summarily reported, showing the patient's status before and after this treatment. From *x*-ray examination, he thinks, it results that the action of the remedy is very efficacious, both in pulmonary tuberculosis and tuberculous bone lesions.

Follicular Dysentery and Cystic Colitis.—M. Löhlein replies to Orth's paper (see MEDICAL RECORD, p. 604). He denies the majority of Orth's conclusions and is particularly fierce in his argument against Orth's division of superficial cystic colitis and deep-seated cystic colitis. Löhlein has never met with a purely typical case of the former process and maintains that it is always deep-seated.

The Formation of Grafts in Destructive Wounds of the Fingers.—Guetsch endeavors to form a graft for two fingers, the thumb and auricular, by excision of the three middle fingers and their metacarpal bones. A double flap assures the covering over of the wound. The muscular structure of the first and fifth fingers is to be particularly preserved because after the operation it will permit the patient to seize objects such as pencils, broom-handles, etc.

Münchener medizinische Wochenschrift.

August 13, 1918.

The Reliability of the Wassermann Reaction.—K. Ziegler considers the reasons why the medical profession no longer believes in the reliability of this diagnostic means. Confidence has been shaken as much by research work, which has shown its lack of specificity, as by articles which have shown the discord which exists between the results of different laboratory findings for the same sample of blood submitted for the test. The writer refers more particularly to the technical side of the question, to the original rules laid down by Wassermann and which are not strictly adhered to by many laboratory workers, as well as the changes in technique advocated by some, as Kaup, for example.

The Effect of Turpentine Injections on Suppuration and Inflammation.—V. Klingmüller has continued his essays on the therapeutic utilization of turpentine injections (20 per cent oil solution, intragluteal injections of ¼ c.c. of the pure drug). He has obtained appreciable results in gonorrheal complications, furunculosis, various forms of dermatoses, and renal and pyelitic affections. Turpentine causes a marked polynucleosis in the blood. The writer's discussion of the probabilities of the mechanism of the action results in highly speculative considerations of no practical value.

Sauerbruch's Artificial Arm.—Biesalski makes his amputation patients exercise with Mosso's apparatus before applying a prothesis. He has noted that the most difficult movement to execute is the slow and complete relaxation of the muscles of the arm. This relaxation is just the necessary one for patients to acquire a more extensive field of motion when the prothesis is applied. His experiments have led the writer to add a mechanism to Sauerbruch's artificial arm (an already very complicated awkward apparatus) which puts the muscular stumps on the stretch, thus attempting to realize certain conditions of normal muscular work.

Deutsche medizinische Wochenschrift.

August 15, 1918.

Wassermann's Reaction and the Biological Phases of Syphilis Considered from the Therapeutic and Prophylactic Viewpoint.—A. von Wassermann points out the importance of dealing with syphilis during its local stage which is characterized by the absence of the author's reaction. This biological phase is in opposition to the phase of metastatic reaction, characterized by a positive result. Wassermann believes it necessary to do away with the confusion often made between the biological phases and the clinical phases of the disease (primary, secondary, tertiary), which do not correspond to any special reactivity of the organic fluids.

The Malignancy of Cancer.—F. Blumenthal offers an interesting study on the present knowledge of the reactions occurring between cancerous and normal tissue. Recent studies have shown that cancerous cells secrete atypical ferments, and these ferments explain the destructive evolution of the so-called malignant growths. Blumenthal refers to certain peculiarities of cancer cells, for example, their resistance to peptic digestion while the pancreatic juice digests them perfectly. The writer considers the process of cancer as an anaplasia consisting of an autonomous change in the physiological properties and vital manifestations of the cell.

Is Ovarian Transplantation of Practical Value?—F. Unterberger believes that there are two indications for transplanting ovaries, namely, (1) in benign bilateral ovarian tumors in which resection of the growth is impossible, and (2) in serious chronic affections of the adnexa, particularly pyosalpinx with adhesion of the ovaries, when conservative treatment cannot be resorted to. The writer grafts bits of ovary in the anterior abdominal wall between the rectus muscle and its anterior sheath. The effect of the procedure is the return of the menstrual function and at the same time to establish an equilibrium of the various endocrine secretions.

Wiener medizinische Wochenschrift.

August 17, 1918.

A Procedure for the Relief of Irreducible Hernia.—J. Neumann proposes in cases of irreducible inguinal and femoral hernia to proceed with the reduction of the intestinal loops as far as the neck of the sac by pressure with a finger introduced into the vagina or rectum. A sort of aspiration of the gas contained in the gut is thus produced. Neumann thinks that every case of irreducible inguinal hernia should be treated by this procedure.

The Treatment of Gonorrheal Ophthalmia with Milk Injections.—L. von Liebmann does not hesitate to declare that "this procedure allows us to cure, with a probability almost attaining certitude, all cases of ocular blenorrhea without any durable damage and in a short time, as well as to free the patients from all contagiousness." The effects of the treatment are: (1) Disappearance of the gonococcus; (2) cessation of the discharge often after a single injection; (3) an arrest after one or two injections of the chemosis while at the same time the ulceration resulting from the chemosis is prevented from developing, or if already present is arrested in its progress, and (4) conjunctival hyperemia may persist for four to five weeks after the injections. In certain cases, the writer even claims to have observed a very noticeable improvement in the genital status.

Clinical, Etiological, and Epidemiological Observations on the So-Called "Spanish Disease."—L. Schmidt states that he has been able to grow a bacillus possessing the characters of Pfeiffer's organism. On the other hand, he has noted the frequent presence of an ocular catarrh containing the Koch-Weeks bacillus, which leads the writer to assume the identity of both bacteria and a common etiological part played by them in the pandemic of influenza which is now raging throughout the world.

Book Reviews.

DISEASES OF THE HEART. Their Diagnosis, Prognosis, and Treatment by Modern Methods. With a Chapter on the Electrocardiograph. By FREDERICK W. PRICE, M.D., F.R.S. (Edin.), Physician to the Great Northern Central Hospital; Assistant Physician to the National Hospital for Diseases of the Heart, London; Late Lecturer on Polygraphic Methods at the Medical Graduates' College and Polyclinic; Physician and Honorary Pathologist to the Mount Vernon Hospital for Consumption and Diseases of the Chest, and Examiner in Medicine at the University of St. Andrews. Price, $7.50. New York: Oxford University Press, American Branch, 1918.

OUR knowledge of the heart and its actions in health and disease is advancing with such rapid strides that a new book, if well written by one of ability and authority, is welcome. Dr. Price is well known for his work in this branch and by this work has earned for himself a position in which he can command the respectful attention of all fellow workers in the field. It was with pleasurable anticipation therefore that we opened this new book, and we were not disappointed.

The book is eminently practical, even though treating of so theoretical a subject as much of the modern graphic study of heart disease is, for it not only deals with the newer knowledge for which the medical world is so largely indebted to Sir James Mackenzie, but also treats of the older methods of diagnosis and treatment the value of which has in no way been impaired by the modern methods of study. There are chapters, of course, on the pulse and on blood pressure, and an excellent one at the end of the book on electrocardiography. Dr. Price has written a work admirably adapted to the needs of the student and general practitioner and one from which even the specialist in cardiology can get suggestions that will aid him in his progress in this difficult though fascinating field of study. The book is clearly printed, sufficiently illustrated, chiefly with pulse tracings and cardiograms; well bound, and of a convenient size for study and reference.

MILITARY SURGERY OF THE ZONE OF ADVANCE. By GEORGE DE TARNOWSKY, M.D., F.A.C.S., Surgeon to Cook County and Ravenswood Hospitals, Chicago; Major, M.C., U.S.R., American Expeditionary Force, France, 1917-8. Medical War Manual, No. 7. Price, $1.50. Philadelphia: Lea & Febiger, 1918.

THIS little volume comprises twenty-eight chapters devoted to such varied subjects as general pathological processes, as shock and tetanus; local injuries, as those of the cranium; causal agencies, as projectiles and gas; non-bloody traumas, as burns and freezes; diagnostic subjects, as bacteriology and radiography; general and special treatment of injuries and wholesale military surgery, at regimental first aid stations. There could be but one objection to this elastic method of grouping, to wit, the likelihood of repetition; but that is readily avoided and not to be thought of in a work intended for a concise pocket manual.

THE DIAGNOSIS AND TREATMENT OF VENEREAL DISEASES IN GENERAL PRACTICE. By L. W. HARRISON, D.S.O., Lieut.-Colonel, R.A.M.C.; Lecturer on Venereal Diseases and Officer in Charge, Military Hospital, Rochester Row. Price, $7.50. New York: Oxford University Press, American Branch, 1918.

HOWEVER interesting may be the subject matter of a book, much of its charm is lost by a jumbled arrangement of its contents. In this work the reader's attention is pulled hither and thither by a lack of sequential discussion of each of the venereal infections. The chapters on syphilis are comprehensive and instructive, and especially commendable are the chapters on syphilis of the nervous system. Chapter XVI on technique of taking specimens and the methods of their examination and Chapter XVII on the interpretation of laboratory reports are praiseworthy because of the lack of presentation and discussion of these important subjects in contemporary works. In those chapters dealing with gonorrhea the author omits many acceptable instrumental methods of diagnosis and treatment, such as the posterior urethroscope and cystoscope, nor does he mention those occasional annoying sequelæ of chronic gonorrheal prostatis such as sexual impotence, defects of ejaculation, etc. In all other regards the teachings therein contained are orthodox and acceptable. The illustrations have been judiciously chosen and mechanically well executed.

NURSING TECHNIC. By MARY C. WHEELER, R.N., Superintendent of Illinois Training School for Nursing. Price, $1.50. Philadelphia and London: J. B. Lippincott Company, 1918.

FOR those unfamiliar with the subject it may be stated that nursing technique comprises housekeeping (wards and private rooms), beds, baths, care of the patient, medicine and nourishment, dressings and the dressing room, collection and preparation of specimens, emergencies, and unclassified—the latter comprising fire prevention, admission and discharge of patients, night nursing, handling of groups of injured, etc., etc. Certain subjects, like cooking for the sick, menus, recipes, etc., find no place here. The information in the present work is conveyed wholly as discrete memoranda and agenda in the attempt to standardize the subject matter. This arrangement doubtless facilitates memorizing and automatic performance of duties.

L'UTILISATION MÉNAGÈRE DES FRUITS SANS SUCRE. Par A. TRUELLE, Publiciste Agricole, Membre de l'Académie d'Agriculture de France. Price, 2 Francs. Paris: Masson et Cie, 1918.

THE subject matter of this pamphlet of 96 pages is as follows: Simple conservation of fruits without preservatives; use of sulphurous acid; preparation of fruit juices; dried fruits; fruit jams and the like; brandied fruits; "raisined" fruits; fruit syrups; fruit jellies; ciders, etc. The closing chapter is devoted to fruit growing as it bears upon home conservation of fruits. The American reader will doubtless be struck with the slight reference to berries, which play so large a rôle in the home canning industry.

THE ESSENTIALS OF MATERIA MEDICA AND THERAPEUTICS FOR NURSES. By JOHN FOOTE, M.D., Assistant Professor of Therapeutics and Materia Medica, Georgetown University School of Medicine; Instructor in Materia Medica and Therapeutics, Providence Hospital Training School for Nurses. Third Edition, Revised, Enlarged, and Reset. Price, $1.75. Philadelphia and London: J. B. Lippincott Company, 1918.

THIS, the third edition of a very useful reference book for nurses, has been thoroughly revised in conformity to the standards of the U. S. Pharmacopeia IX. Revision. Also a good deal of new matter has been added, notably condensed information concerning the newer antiseptics used in European military surgery. The drug classification has been rearranged and in every respect the work has been brought up to date. It may be recommended as a practical text-book for nurses of great merit.

THE SERIOUSNESS OF VENEREAL DISEASE. By SPRAGUE CARLETON, M.D., F.A.C.S. Price, 50 cents. New York: Paul B. Hoeber, 1918.

THIS tiny volume is a reprint of a limited edition arranged by Dr. Carleton as a gift for the use of Base Hospital No. 48. It consists of twenty-six illustrations, with explanatory paragraphs of venereal infections in their most violent forms. It is a pictorial warning to venereal sufferers to obtain competent, early, and persistent treatment.

DIABETIC COOKERY. Recipes and Menus. By REBECCA W. OPPENHEIMER. Price, $2. New York: E. P. Dutton & Company, 1918.

THE author is a diabetic who has spent eight summers at Carlsbad and Neuenahr, where many diabetics have been successfully treated. Her book is based on the dietetic plans carried out at those resorts, somewhat modified for the American public. It will be found useful by those whose difficult task it is to care, in their own household, for patients who are weary of the monotony of their diet and who would welcome a variety in the mode of preparation of their food, even if they cannot have a great variety in the foods themselves.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held October 17, 1918.

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

THIS meeting was devoted to an informal discussion of influenza and of the present epidemic.

Dr. ROYAL S. COPELAND, Health Commissioner of New York City, opened the discussion by describing the measures adopted by the Health Department to meet the exigencies of the situation. He said it was meet and proper at a critical time like the present that the Commissioner of Health should appear before the Academy of Medicine to submit to the judgment of its members, who were among the foremost in the medical profession in this city, a report of the activities of the Health Department, and a statement of the reasons that had guided him in determining upon certain procedures and in omitting certain others which had been suggested from time to time. The Health Department had been handicapped by the fact that in consequence of the urgent necessities, warships had been admitted bringing persons affected with influenza as well as carriers. The department was further handicapped by the large number of enlistments in the military service of doctors and nurses of the Health Department staff. Notwithstanding these handicaps, the situation had been promptly and energetically met. Every function of the department which did not contribute to the prevention of the disease or to the care of sufferers had, for the time being, been suspended or subordinated. The department had taxed every available resource for the skilled and unskilled workers necessary for the operation of emergency hospitals, and was daily supplying nurses, nurses' aids, orderlies, and other helpers where they were needed. The measures adopted by the Department of Health had been widely approved and many offers of cooperation had been received. The press had been most generous in serving as a medium for the education of the people. Attempts had been made through placards, circulars, and verbal instructions in the public schools to apprise the public of the danger of close contact in public places, of sneezing, coughing, and spitting. As a result of the various measures adopted by the department, Dr. Copeland presented the fact that New York City, with its five and three-quarter million population, had had a much lower mortality rate from influenza and pneumonia during the past four weeks than was reported by any other American city at the same stage of the epidemic. The City of New York had thus far, tragic and serious as the consequences of the epidemic had been, fared very much better than other municipalities. In conclusion, Dr. Copeland stated that the Department of Health stood ready to help the medical profession in every possible way. It welcomed all helpful suggestions, all information of value, and all constructive criticism, but it required in return the assistance of the medical profession, principally in reporting cases. If any physician needed a hospital bed for a patient, or a nurse, he would save time by applying directly to the department where a clearing house had been established and from which help was being sent to all parts of the city. The department had bent every effort to make the reporting of cases on the part of private physicians complete so that it might be in possession of all the facts which would enable it to concentrate the combined attack of its own staff and that of the social agencies in those districts in which the disease was most prevalent. An Emergency Advisory Committee had also been appointed consisting of representatives of the New York Academy of Medicine, the Red Cross, the various nursing activities, the Merchant's Association, and other organizations interested in social welfare, which would assist in solving problems connected with the epidemic as they arose.

MAJOR DUDLEY ROBERTS, M.C., U.S.A., of General Hospital No. 1 (Columbia War Hospital), said he was very glad the President of the Academy had spoken of this as an informal discussion because it was impossible at a time like this to form positive conclusions so we must hazard tentative opinions. The present epidemic of influenza was important not only because of what it was just now but because it was likely to recur after it had subsided, that having been the experience abroad; also because we might expect that influenza would be more or less endemic and would therefore complicate diagnosis in many cases. It was important that we should get an idea of just what the disease was like and how pneumonia following influenza differed from ordinary lobar pneumonia. We were at first inclined to take the disease rather lightly, but as time had gone on we had changed our minds. We had not since 1889 seen a form of disease which resembled the present epidemic of influenza. It was characterized by sudden onset, dullness, headache, backache, congestion of the pharynx, and coryza. Tonsillitis was but rarely present. The patient was dull and apathetic, approaching the typhoid state, and the leucocyte count was low (between two and ten thousand), which was a valuable point in differentiating it from conditions presenting somewhat similar symptoms. There was a temperature of 102°, 103°, or 104° F. for two or three days. A case having an elevated temperature after 48 hours was suspicious of bronchopneumonia and if a high temperature persisted for over three days one might be almost certain that he was dealing with bronchopneumonia. A large series of cases had been radiographed and this had definitely settled that these cases having a continued temperature were cases of bronchopneumonia. The normal course of simple influenza was exceedingly short. The signs of bronchitis were almost always lacking. The cases that developed bronchopneumonia might be grouped as follows: (1) Cases resembling a simple influenza in which the temperature subsided in forty-eight hours and the patient did not seem to be very sick. In these cases the radiograph showed consolidated areas. (2) Cases that acted like those of group one, but after a few days had a rapid rise in temperature, a rapid extension of the process, and went on sometimes to a fatal termination. It was these cases that emphasized the importance of keeping influenza patients in bed protected from secondary infections. (3) Cases starting out like a severe influenza, with great congestion, cyanosis, and severe nosebleed, or bleeding from the vagina or rectum, or gastrointestinal hemorrhage. Some of these congestive cases improved after a few days or the process again lit up and progressed rapidly to a fatal termination. Patients with red, flushed face, or cyanosis, were very apt to get up an acute condition of the lungs, and those with cyanosis and then an apparent improvement should be regarded with suspicion, as they were particularly likely to terminate fatally. (4) Cases that from the onset were evidently fatal. He had been told of cases where a man under the eyes of a good regimental officer had died on the way to the hospital. Such patients died from the influenza infection and its effects on the circulation and the heart. (5) An important series of cases in which empyema complicated the condition. At first they did not see these patients but now they found that some were patients who lived long enough, got up empyema at the apex or in the upper part of the chest, which was difficult to diagnose except by radiograph. Major Roberts emphasized the importance of recognizing pneumonia and said that it had been their experience that physicians did not recognize influenza pneumonias because they expected the physical signs of lobar pneumonia. A high temperature persisting for more than forty-eight hours, a peculiar redness or dusky pallor, and rusty sputum, were almost pathognomonic of pneumonia. The definite physical signs of pneumonia appeared late. The first sign for which to look was the prolonged, high pitched expiration. Dullness was in itself an exceedingly unsatisfactory sign. One obtained a better idea of the condition of the lung by slapping than by percussion; with percussion there was not much difference between the sides of the chest. Crepitant râles were not heard so early or so constantly as in lobar pneumonia, since we did not have the early pleurisy as in lobar pneumonia. The first definite sign was a slight change in the whispered or spoken voice approaching bronchophony and perhaps

later a change to bronchovesicular breathing. In many cases there was not much that pointed to the presence of pneumonia until the patient was very far advanced in the disease. The process not infrequently was missed in the middle lobe. The frequency of involvement was first the lower right lobe, then the lower left, next the upper right, and then the upper left. He had seen a few cases, however, in which only the upper lobes were involved, there being no demonstrable lesions in the lower lobes. All were familiar with what had been advised in the way of drugs, and they had found nothing in the line of drugs that was of particular value. They gave digitalis to their patients at the beginning of the pneumonia and thought that was a wise plan to adopt. They had tried the vaccine because they did not know what else to do and because there were theoretical grounds for believing that it might be effective. Major Roberts exhibited charts showing series of cases treated with the vaccines and without, which afforded apparently conclusive evidence of the value of the intravenous vaccine treatment. In one series of 86 cases without vaccine the mortality was 35 per cent., while in a series of 153 patients treated with the vaccine the mortality was about 8 per cent. He felt sure that the mortality could be brought down to 9 per cent. by the use of the vaccines intravenously. The most striking fact brought out by the study of these series of cases was not that the mortality was so low, but that after the first injection of the vaccines, in cases in which there had been congestion and nosebleed, the latter stopped and there was less dyspnea and very little cyanosis except in the very severe cases. The vaccines were given in three to four doses of one-half, one, and two c.c., at 24 hour intervals. In closing Major Roberts said he felt like apologizing at this time when every one took such a serious view of the epidemic for presenting such a hopeful plan of treatment because possibly he might be wrong, but the results seemed to justify their belief in the vaccines if properly used.

Dr. ANNA M. WILLIAMS said that in making their microscopical and clinical investigations at the laboratory of the New York City Health Department to determine whether they could demonstrate a specific microorganism which was responsible for the present epidemic of influenze they had studied the germ flora from two sources. First, they had taken cultures from the upper air passages, the nose, tonsils, and pharynx, and from the blood the living patient; and, second, they had taken cultures from cases examined at autopsy. They had looked for the influenze bacillus, for a hemolytic strepticoccus, for Gram-negative, and any other organism that might be present in large numbers. In four cases at autopsy the influenze bacillus was found in large numbers in the lungs and in eight instances the influenza bacillus and the pneumococcus were found in the lungs. In three instances the influenza bacillus and the streptococcus were found in the lungs, in three cases the pneumococcus alone, and in three the streptococcus alone. In two cases the influenza bacillus was found in the heart's blood. In summarizing Dr. Williams said that the influenza bacillus had been found in large numbers in the nasopharynx of 100 per cent. of the cases diagnosed as influenza and running a severe course. It was estimated that from 10 to 20 per cent. of the cases diagnosed as influenza which ran a mild course contained no influenza bacilli. If this was true and if the *Bacillus influenzæ* was the irritating cause of the disease, these cases were diagnosed wrongly; if the cases were diagnosed correctly, then either the influenza bacillus was not the initiating cause or our methods of detecting it needed to be improved. Whether or not the influenza bacillus was the initiating cause their study gave evidence that it had a marked pathogenic action, being the only apparent cause of death in 20 per cent. of the cases examined at autopsy, and assisting in the cause in 50 per cent. more, and the evidence was sufficiently strong to warrant making a trial of the effect of a vaccine on the prevention of the disease or at least of the prevention of the severe forms of the disease.

Dr. DOUGLAS SYMMERS spoke on the pathology of influenza as observed during the present epidemic, basing his remarks on the study of 18 cases coming to autopsy in Bellevue and Willard Parker Hospitals. All of these had been acute cases, the patients dying within two or three days from the onset of the disease. The most noticeable changes were those in the lungs. He pointed out that the pleura was seldom involved as shown by exudate and that the pleural cavities almost never contained pathological excess of fluid. The lungs themselves were of a deep slate blue color and were markedly congested. In every instance both lungs were involved, the lower lobes showing more advanced changes than the upper lobes. The lesion was that of a confluent exudative and hemorrhagic lobular pneumonia. Petechial or splotch-like hemorrhages were found both in the pleura and in the pulmonary substance. The cut surface was of the smoothness of velvet, not a trace of fibrin being apparent either to sight or touch, and the trachea and bronchi were intensely congested. On microscopic examination the alveoli were found to be free from fibrin and were filled or partially filled by blood serum or a mixture of blood serum and red blood corpuscles or polynuclear leucocytes. In the upper lobes, partially or completely consolidated lobules in the process of fusion alternated with area of acute vesicular emphysema. Similar areas of acute vesicular emphysema in small numbers were found scattered through the consolidated lower lobes and were practically constant at the free edges. Dr. Symmers pointed out that these areas of vesicular emphysema were of great clinical significance. For example, in two cases rupture had occurred, producing infiltration of the subcutaneous tissues above the clavicles. In another case rupture resulted in the production of a left sided pneumotherax. Another feature which, according to Dr. Symmers, occupied a prominent place in the pathology of the prevailing pandemic influenza, was to be found in the form of diffuse acute perenchymatous degeneration of the kidneys attended by desquamation of cellular débris into the lumina of the convoluted tubules. The kidneys, like practically every other organ in the body, were intensely congested. In several cases Dr. Symmers said that he had seen jaundice due to extreme congestion and swelling of the mucous membrane of the duodenum so that it was impossible for the bile to escape freely from the larger bile ducts, being thus retained in the intrahepatic ducts and in the liver cells, and finally being diverted into the intercolumnar capillaries and thence into the general circulation. Moreover, the bile capillaries were obstructed as a result of excessive cloudy swelling of the liver cells. In two of his cases there were signs of hemorrhage from the intestinal mucous membranes caused by diapedesis of red cells associated with intense congestion. Dr. Symmers pointed out that in most of the cases of fatal influenza the right side of the heart was greatly dilated, thus accounting in part at least for the marked cyanosis which not infrequently was observed during life. He stated, moreover, that those cases of influenze which were attended by delirium were characterized anatomically by marked edema and congestion of the brain. In one of the cases observed at Bellevue Hospital the brain was the seat of an acute diffuse purulent meningitis of pneumococcal origin.

Dr. HENRY W. BERG said that they had at Willard Parker Hospital during the last five weeks about 700 cases of this epidemic. They came in at first at the rate of on one day, as many as 70 cases; more recently not in such large numbers, and certainly at the present time a larger number were being sent out cured than were being admitted. He had, however, few statistics to present at this time owing to the lack of help. The speaker was able to recall his experience in the epidemic of 1890 and it was interesting to observe the relative clinical differences in the cases. The first thing that struck one was that these cases had very few catarrhal symptoms. Attention had been called to this feature, but it was so important that it ought to be repeated that very few cases showed predominant catarrhal symptoms. All showed slight conjunctivitis and rhinitis, but the vast majority showed only congestion of the throat and upper respiratory tract. Such obviously prominent organs as the tonsils showed absolutely no inflammatory enlargement, simply redness, and they lay deep between the anterior and posterior pillars of the fauces. They showed no follicles outlined by a white area and they could not be palpated from the outside. If one found inflamed, bulging tonsils with

follicles, influenza was as a rule not present, and this was an important clinical differential feature. There were three groups of cases. One of these showed simply catarrhal symptoms, but these were in the minority. A second class showed a vast amount of pulmonary involvement, pneumonia in many cases, or scattered rales crepitant and subcrepitant, preceding pneumonia, thus showing serious trouble, and these cases all ran a temperature curve. The simple catarrhal cases ran a temperature for about five days and then subsided by crisis or pseudocrisis. The cases of bronchopneumonia never subsided absolutely to normal at this time, but subsided gradually or developed a septic curve continuing for eight, ten, or twelve days, then declining by lysis. Bronchopneumonia was most frequent, but lobar pneumonia could be made out in some cases, involving the entire lung. Third, there was a class of toxic cases which came into the institution with pneumonia well developed. Some of these came in on the third or fourth day and some on the fifth day. These cases were intensely toxic, many of the patients were delirious and all were intensely sick. These should be considered in a group by themselves. Dr. Berg said he had not seen those acute cases in which death occurred within five or six hours, but he had seen patients die on the third day. There was one symptom present in almost all cases and that was an acute agonizing pain below the sternum, the kind that patients having Asiatic cholera complained of having in their bowels, and which might be due to a toxic involvement of the sympathetic nerve ganglia in the thorax. The headache was almost exactly like that of typhoid fever, but the pulse rate and respirations were nowhere near so high as in patients suffering from other types of pneumonia and not so high as one would expect them to be to correspond with the temperature curve. The temperature curve in these pneumonia cases might be 100° to 105° F., and the respiration rate not more than 20 to 30. The respiration rate might remain below 40 until the day before death, when it would go to 60 or 70 or higher. The low respiration rate did not exclude the diagnosis of pneumonia in the presence of more or less characteristic physical signs. The most important physical signs from the diagnostic standpoint were those obtained by percussion; auscultatory signs were simply confirmatory.

Dr. William R. Williams said he had not had the opportunity of treating as many cases of influenza as Dr. Berg or Major Roberts, but he had been very much impressed by the fact that this epidemic presented a real disease entity. When one struck a disease that appeared new to him it was a good thing to go back and look up his old notes. That the speaker had done, going over notes on Dr. Delafields' lectures, and he had found that this was not a new disease but the same disease that Dr. Delafield had described. The striking point was the way in which the disease attacked the circulartory system. It was noticeable that the one condition mentioned most frequently in the discussion of the evening was "congestion" and that was emphasized in connection with whatever symptoms were noted, and at autopsy congestion was the most striking feature. There was congestion of the intestinal tract and a tremendous congestion of the skin, and other parts. What impressed one most forcibly was that the gravity of the cases often could be guessed by simply looking at the condition of the skin. On his service in the New York Hospital they had had about 100 cases and they had come in rather late, later than the cases at Willard Parker Hospital and later than those at camp. The first two cases were of soldiers who came about the middle of September. Most of the cases gave chest signs or the x-rays showed consolidation, so that one was convinced that consolidation of the lung was present. Up to the present time the mortality had been fairly high in their institution, 22 of the 100 patients having died thus far, which struck him as a tremendous mortality. Cases that were autopsied all showed most marked congestion for which there seemed to be no adequate therapeutic remedy. The condition seemed to be a generalized paralysis of the of the vasomotor system for the control of which we should have to look to some biological method and hence he was much interested in Major Robert's presentation regarding vaccine, and hoped that he was opening out the way.

Dr. Hermann M. Biggs said there was much to be said because in a way we did not know enough about the situation to say anything very definite. In a way we all realized that we were having the most severe epidemic that had visited the civilized world in a century. It was a very serious indictment to public health education if we were unable to suppress such an epidemic as this. It was known that discharges from the nose and throat contained myriads of germs and we had taken no precautions to prevent the careless dissemination of such discharges. Twenty years ago the Board of Health adopted a regulation for its Sanitary Code forbidding spitting, yet spitting was not as dangerous as sneezing and coughing, and still 90 per cent of the people did not cover their noses or mouths before sneezing or coughing. It had now been made a misdemeanor to cough or sneeze without covering the mouth or nose. Such an epidemic as the present one could be limited to a large extent by taking this precaution. In one hospital in London they were treating a variety of contagious diseases in one ward under the care of the same nurses and the same conditions, and they had no secondary infections during a period of more than two years. The diseases treated in this way included measles, diphtheria, chickenpox, etc., in which the bacilli were contained in the discharges from the respiratory tract, and if the spread of the infection could be prevented in these diseases there was no reason why it could not be prevented in other diseases of the respiratory tract which were disseminated in a similar manner, by proper measures of cleanliness and decency. In this State, just as in New England, some districts were very heavily invaded by influenza while in others there were very few cases.

Major Winders, in charge of Embarkation Ports, said that he had been from camp to camp and hospital, so he had not had the opportunity to make to study of the serious cases, but he had been to see the cases reported in Major Roberts' second series and had examined a few of them. It was very apparent from the charts and the histories of the cases that the treatment had a marked influence on the course of the disease, though he was not satisfied that the result was due entirely to the vaccines. The striking feature that he had noticed was the difference in the general appearance and condition of the patients compared with those cases seen in other camps and ports of embarkation. The toxemia and the cyanosis were not so marked, the respirations were less rapid, and the dyspnea was not anything like as marked as in other cases. The vaccines held out sufficient promise to make it worth while to follow up the matter more closely.

Major Cary of the Laboratory of Base Hospital No. 1 said that most of the cases that he had investigated at that hospital had been lobular or bronchopneumonia and not lobar pneumonia. Type IV pneumonia had been found in quite a number of cases. In some cases the hemolytic streptococcus was found. One of the very striking features was the leucopenia and the very scant leucocytosis which probably accounted for the rapid spread of the process and the diffuse involvement of the lungs. He felt that the vaccines might help; they evidently raised the leucocyte count.

Dr. Louis Faugères Bishop said he wished to say a few words which he considered very important in connection with the treatment of the circulatory disturbances of this group of pneumonias. He was an interne in the hospital at the time of the former epidemic of influenza and at that time they had this same kind of pneumonia extending throughout the lungs, characterized by intense engorgement, terminating by lysis, and very fatal. At that time it was the custom to treat it by giving the "trinity pill," of which the active principle was aconitine. This treatment was given to every patient until the heart was slowed and the pulse rate diminished, and the patients did well under it and in many cases the fever terminated by crisis and the involvement of the lungs was lessened. Dr. Bishop said he had just returned from the meeting of the First District Branch of the New York State Medical Society, where he heard several men who had large practices and wide experience in dealing with pneumonia speak most eloquently of veratrum viride. They

had unanimously agreed that given in full doses early in the pneumonia it effected a termination of the fever by crisis and the inflammation of the lungs did not extend so widely. Dr. Bishop's own experience had been only with aconitine. The men who were neglecting these old remedies were making a mistake when it came to the treatment of intense congestion of the lungs. Another point worthy of mention was with reference to edema of the lungs and the use of heart stimulants such as adrenalin which caused the arteries to contract and forced the blood into the veins. When they administered a drug that produced this effect they did no good. If they began early to employ a remedy that kept the blood in the arteries and relieved the lungs they benefited the pateint. Forty years ago the homeopaths took up aconite and used it indiscriminately and injudiciously and as a result it fell into disfavor, but unquestionably it had a useful field particularly in the treatment of pneumonia. The early use of full doses of digipuratum, as recommended by the Rockefeller Institute, was founded upon sound reasoning. He said that as a heart specialist he was being called to patients in the latter stages of the pneumonia and his impression in the present type of pneumonia was that these young vigorous hearts of the victims were not helped by excessive stimulation as they were already overstimulated by the presence of the disease, but that the rational need was the relief of the pulmonary inflammation. Under the aconitine treatment the heart symptoms at the time of depression were indeed very alarming, but the heart responded and most of the patients pulled through while practically none recovered from the general edema of the lungs that existed when the inflammation became general. Dr. Bishop said he would rather be called to help to sustain a heart that had collapsed at the crisis than one that was exhausted during the course of an increasing edema of the lungs. He knew that this was a reversion to the old idea of an antiphlogistic treatment but it seemed to him that the circumstances justified it.

Dr. E. Libman asked whether the cases of influenza that were treated without vaccine were under observation at the same time as the series which were treated with vaccines, or whether the two sets of cases overlaped.

Major Roberts said the two series overlapped.

Dr. Libman expressed the opinion that this had an important bearing on the results. There had been, during the last week, a change for the better as regards the severity of the cases of pneumonia. In addition to the cases seen in the hospital, Dr. Libman said he had seen between 300 and 450 cases of pneumonia following influenza since the beginning of the epidemic. During the first two weeks the mortality was very high. At that time there was one type of case very frequent, which had not been met with so often during the last week; this type was characterized by the expectoration of thin bloody fluid which was not frothy and contained no mucus. Nearly all of these cases ended fatally. During the past week he had been able to make a more favorable prognosis in a very large number of cases. While the results of the vaccination at the base hospital looked good, it was of great importance that further studies should be made immediately, running a series of cases without vaccines at the same time that an equal number of cases of the same type were treated with vaccines. In one of the training schools for nurses connected with one of the New York hospitals it was reported that the results of prophylactic vaccination were so poor that it had been discontinued. Possibly the failure in this instance might lie in the technicque. While there were many points to discuss in connection with the subject, only two occurred to the speaker at the moment. Cyanosis in this disease sometimes occurred early before there was any marked involvement of the parenchyma of the lung and before there was any evidence of the heart becoming markedly insufficient. He suspected that the cyanosis, in some of these cases at least, might be toxic in origin, especially as it had been found that the pneumococci could produce methemoglobin from the red blood cells and could interfere with their ability to take up oxygen. Major Roberts had referred to the atypical emphysemata and the difficulty of recognizing them. As was pointed out by Fraenkel many years ago, the emphysemata following the pneumonia of influenza were very likely to be interlobular in situation. If one could prophesy through the experience of others there would be found later in the epidemic more cases manifesting abdominal symptoms and more cases would have symptoms simulating appendicitis. It was important to be on the lookout for these cases and not to operate too early, because as a rule they should not not be operated on, though at the same time one must not for this reason overlook cases of true appendicitis occurring during an epidemic of influenza. It was probable that the pains simulating appendicitis were due to the effect of the toxin of the disease upon the sympathetic nervous system.

Major Roberts said that one c.c. of the vaccine contained one million influenza bacilli and one million pneumococci of types I, II and III, one million streptococci and one million staphylococci. They started in with one-half a c.c., and at the end of 24 hours they gave one c.c., and 24 hours later two c.c. As a rule they did not get much reaction with the one-half c.c., though there might be a rise in temperature. As a rule from the one c.c. dose they got a fairly definite reaction which was different from a non-specific protein reaction. As to the two series of cases over-lapping: As he recalled in the first 60 vaccine cases there was not any difference from the first group; then there was a period lasting for a few days when they seemed to get milder cases, and now they were getting sicker cases again. He felt that an improvement in the method would be to make the initial dose 1 c.c.; the second, 2 c.c., and the third 4 c.c. In the last few cases this had seemed to give a much quicker response.

Dr. Robert J. Carlisle called attention to the fact that for many years there had been a capsule on the market containing acetanilid and phenacetin that was widely used in the treatment of influenza. Very frequently when they got patients with cyanosis this condition was the result of treatment with these drugs and not the result of pneumonia. In this epidemic it was all right to use these capsules for a few days but they should then be discontinued.

Dr. Max Einhorn stated that he had had quite a good deal of experience with influenza at the Lenox Hill Hospital and had observed a class of cases that were quite severe and yet the patients did not complain much, but on examination one would find symptoms of lung involvement. They had also a severe type of cases with cyanosis, toxic symptoms, vomiting, and sometimes abdominal distention, which gave the impression that the patient had ascites. In some cases delirium was also present. The prognosis was bad in this type of cases. There seemed to be a sort of paralysis of the intestinal tract and some tympanites. For these cases they had tried all kinds of remedies and had come back to whiskey, and they found that many patients improved in whom it seemed that the improvement might be attributed to the whiskey.

AMERICAN ORTHOPEDIC ASSOCIATION.

Thirty-second Annual Meeting Held in Washington, D. C., April 22 and 23, 1918

Dr. John L. Porter of Chicago, President.

Orthopedic War Hospitals, Their Requirements and Equipment.—Lt. Col. Clarence L. Starr, R.A.M.C., presented this address. These organizations, he said, should be termed "orthopedic" not "reconstruction" centers. It had been found that an orthopedic hospital connected with a general hospital was satisfactory, as it enabled orthopedic surgeons and neurologists to cooperate. The administrative work of both was combined to secure economic results, and one inspector supervised both hospitals. One assistant surgeon cared for 500 patients, with one junior surgeon and anesthetist to each 100 patients. Functional cases were sent to the orthopedic surgeon for diagnosis and to detect malingering. It was found a mistake to put an orthopedic surgeon in a general hospital, as his work was sidetracked. His services could be put to good use in the clearing station behind the lines, to treat joint

lesions. In the postoperative treatment of the wounded, massage, electro and hydrotherapy had a useful place. The gymnasium was a very active part of the whole scheme. Games were found to effect the patient's cure, unconsciously, while the curative work shops tended to raise the morale of the patient. This branch of the treatment bridged the gap between hospital and civil life. The men were employed on artificial limb making, machine shop work, boot and clothing work. For this work the men were allowed to wear uniform; the hospital "blue" being simply used to discipline a refractory patient. Prolonged hospitalization and the hospital blue had a depressing effect, and the use of the uniform and the sense of accomplishment went far to restore confidence to the wounded man and to enable him to return to useful citizenship.

A Brief Description of the Work at St. Katherine's Lodge in Hyde Park, London.—Captain F. C. KIDNER, M.R.C., A.E.F., presented this paper. This beautiful roomy house, with spacious grounds, was loaned to the British Government by Mr. Solomon of New York. The hospital, although used for British soldiers was under the American Red Cross. It contained 50 officer's beds and there was always a long waiting list. The American Red Cross had entire supervision, except as regards disability decisions. The patients proved very willing and anxious to carry out treatment. The masseur employed was a blind soldier who had become expert at this work. This gift of Mr. Solomon, by placing English officers under control of an American staff, was serving as a most efficient link in the promotion of good understanding between the two great English-speaking nations.

Major J. A. HORNSBY, M.R.C., said that in the civil hospitals in this country the unanimous conclusion had been reached that when the patient entered the hospital he was entitled to treatment for whatever might ail him. If any complications arose in his condition he should receive treatment for the same. The hospital therefore had to be a general hospital. Major Hornsby said it was unthinkable that a patient with an eye condition should have to be moved to an eye hospital, yet that very thing happened lately in the large cities in this country. He knew of a case that developed pneumonia, the patient had to be moved because he could not be treated in the general hospital. In the new field upon upon whcih they were now embarking it would be found necessary to change this phase of the question. At first when it was found necessary to create an army, it was decided to take only able-bodied men. A little later certain remediable defects were noted, and the men were required to submit to operation. Later still another ruling took effect. He was more than pleased to hear Colonel Starr say that these defectives should not be operated upon. The profession should be outspoken about that and not attempt to turn the army into a curative establishment for defectives. He had been in many camps in this country and had seen men operated upon again and again to cure defects, without result. Before attempting to reconstruct defectives for active service, the available supply of men should be exhausted. The general hospitals now were for the care of diseases and injuries that had come upon men after becoming part of the military force, and the same thing should be true when they come back again. Then, if ever, they would be liable to complications of all sorts and and the hospitals should be qualified to take care of them. The hospitals did not consist in equipment or bed capacity, but in the personality of its staff. It was not a collection of instruments and beds, but a place where men were competent to take care of the sick. It was easier to get equipment than to get competent men. It had been said that only in the special hospital did one find such personnel. That might be true, but Major Hornsby said that he had taken over three or four hospitals, amounting to a capacity of 2000 beds. These would be used as general hospitals, and it was expected that the trend of the hospital would follow the capacity of the men working in it. They would be great only if associated with prominent medical men.

Major W. G. ERVING, M.R.C., said that this subject of orthopedic war hospitals introduced by Lt. Colonel Starr was a tremendous one. He thought the orthopedic hospital should be absolutely separate from a general hospital. In England experience had shown that those orthopedic centers which were doing the best work were those separated from work of other kinds. Hospitals at Hammersmith and Leeds, which were entirely orthopedic and which were equipped with 2000 beds were getting the best results. The next best plan was an orthopedic center, united to the general hospital only from an administrative point of view. This was an economic advantage; the services of specialists in various branches could be interchanged, without any interference in the actual orthopedic work. It was necessary for the orthopedic center to take charge of many chronic cases, and many adjuncts would have to be called in, such as electrotherapy, the gymnasium, and the curative workshop which could be connected with the center in colony form. The work shops necessarily had to be very elaborate and complicated and it would be impossible to have these in a general hospital.

Major S. C. BALDWIN, M.R.C., did not agree that it was a good plan to have the work of the orthopedic hospital in connection of that of the general hospital, as the orthopedic man would then be an assistant to the general surgeon and his special value would be lost.

Lt. Colonel STARR in concluding said it would be a great disaster in this country to use the orthopedic hospital as a subsidiary to the general hospital. The plan to put the orthopedic hospital under the same administration as the general hospital had its advantages and disadvantages; the former being the chance to co-operate with members of the staff in other branches. There were also economic advantages. In Canada the units were large separate hospitals and the patient was under control of the orthopedic man, except for questions of discipline and administration, which the orthopedic surgeon was not concerned with.

The Special Training Battalion of the Twenty-sixth Division.—Captain Z. B. ADAMS, M.R.C., said this battalion was established in March, 1917, with the object of the reclamation of as many men as possible by means of special training. Many serious physical defects were remedied and the men put into such physical condition that they could perform some service behind the line. It was found that 86 per cent. of the cases could be thus improved; 14 per cent. showed defects that entirely unfitted them for military service. The cases were divided into four groups with regard to seriousness of the defect. The classifications were: (1) men with faulty posture and slight pronation; (2) men with metatarsalgia; (3) men with acute strain or contracted tendons, faulty posture, and back strain; (4) serious defects requiring operation. The camp was in no sense a rest camp. All work was done out of doors and was of a military nature. The men were gradually advanced through five companies and the fifth company did really hard work. Three hundred and seventy-three men had been under training and in six weeks the battalion had been able to return 88 men as fit to carry on military duty and not likely to break down.

The Value of Casual Detachment as Tested at Camp Cody.—Captain E. R. RICH, M.R.C., read this paper. He said that the tendency was now to turn from hospital treatment to camp training. At first the man with flat feet was turned over to the hospital and he was apt to pass the good word along to his companions, so that the hospitals were filled with men with flat feet. It was found necessary therefore to deal with these cases outside of the hospital. Since the establishment of the first Casual Detachment work in Mexico, 8 out of 11 camps had followed suit. Such names as the "soldiers' salvage school" and the "orthopedic-back-to-duty class" had been bestowed on this work. The object of the work was to build up weak structures which were the cause of static foot defects. It was found better to have a line officer to maintain discipline; he could do this better than the medical officer. To give the best result, the soldiers must be segregated. Military habits were not relaxed so that the men might be impressed with the reality of war.

Major W. C. PETERS, M.R.C., said he had not had experience of men returning from the war. He had supervision of camps in the Middle West and he wished to speak of fundamental principles involved. Major

Hornsby had said that he did not consider this a time for the rehabilitation of the defective individual. Still, it was found that many cardiac cases could be treated by suitable exercise and many tuberculous cases could be made more fit. Even granting that operation was undesirable, many men could be made fit for the line, many more for limited service, and then there was the important point of equal justice. It was not fair that one boy should give up his position to go to France and get shot while the other boy should stay with his family and friends and keep his position just because he had flat feet. In the Middle West intensive training was used more than operative methods and the end was found to justify the efforts.

Major EMIL GEIST, M.R.C., said he was not a camp orthopedist, he was connected with the general hospital, and these problems were rather different. He had watched the work of Major Corbusier and it seemed to him that if one eliminated men from the army because they had flat feet they were going to waste a lot of good men, who at least were fit for selected service.

Captain MARSHALL, M.R.C., said that there were several very commendable features in this work of Captain Rich. In experience gathered as camp orthopedist at Camp Taylor he felt that many difficulties could be overcome by co-operation with hospital management. It was a big mistake to put a premium on disability. Many a malingerer would go from one ward to another and be seen by different consultants. A rank malingerer would thus pass his time surrounded by all the comforts of the Red Cross and it was impossible to play the detective continually. This occurred frequently and it was only by segregating these men that the plan could be worked out. Simulation of ankylosis of the knee was a favorite plan and these men would put in several months in the hospital. The plan advocated by Captain Rich was by no means a pleasure cure and was highly commendable in these malingering cases.

Captain TRUEHART, M.R.C., of Camp Cody said he had seen a whole camp suffering from psychic flat foot. The cure was made extremely strenuous and it entirely eliminated the psychic side. The real flat feet were left. The strenuous training was then let up and it was found that many of these men would never be really fit for military duty. Many of them made excellent bakers, but they could never march. Old empyema cases were put under a course of exercise to prevent scolioses which often developed after empyema. In this way one could clean out four or five hundred men from the hospital, and leave only 50 or 60.

Captain WHITBECK, M.R.C., said that he believed that this provisional regime was of the utmost importance. In the beginning of the war enlisted men were rejected for foot conditions which did not come up to the regular army standards. But it would be found impossible to preserve the standard of perfect feet. The second draft had picked up a lot of men who were passed by on the first draft and eight months had thus been lost. therefore it was of the utmost importance that good judgment should be used. If the men were examined in camp and referred to the casual detachment, the class could be placed under a supervision of an orthopedic man and many cases could be made fit by graduated exercises.

Dr. S. TWINCH of Newark said he would like to ask the members for some instruction in the examination of foot cases. The ideas were not uniform on the subject. One man rejected a foot that could not go into an ordinary shoe. Dr. Twinch said that many cases besides this were not fit and he rejected them, irrespective of the orders.

Captain TEST, M.R.C., of Camp Dodge, said the use of plaster would make no difference to the psychic foot, but with the really sensitive foot considerable relief could be gained by immobilization in plaster. Flat feet were of two kinds, the static flat foot, and the arthritic flat foot with history of rheumatism. There was little to do for the latter kind, the *x*-ray showing lipping of the edges of the tarsal bones. The static flat foot with stretched ligaments should be put up in plaster for four weeks to allow of subsidence of inflammation, and then it could be strengthened by exercise. Probably there were many perfectly good flat feet. There was strain observed with high arch also. The Scandinavian showed a thin foot with a high arch. This type of foot did not stand marching well. Putting pads under the matatarsal heads helped somewhat and increasing the size of the shoes helped more.

Captain RICH, in conclusion, said that he thought that any case bad enough to be put in plaster of Paris ought to be discharged. It was found difficult to get the casual detachment started in camps. The orthopedic man had to get in touch with the line officer and sometimes it was necessary to telegraph to the Surgeon General's office.

Organization of Division of Orthopedic Surgery in U. S. Army with Expeditionary Force.—Major JOEL E. GOLDTHWAITE sent this paper. Briefly stated the points covered were as follows: The chief work of the orthopedic surgeon is the salvage of men for duty; this consists of two parts: (*a*) proper physical training; (*b*) restoration of wounded. Under the first heading falls the general postural care, inspection of shoes and clothing, and special supervision of training. The second part involves the treatment or assistance in treatment of cases in which the bones and joints are injured, or in which the muscles, tendons, or ligaments which are involved in the control of these parts are damaged; it includes also proper supervision of splints and transportation.

Orthopedic Surgery in the Zone of Advance.—Major KENDALL EMERSON, M.R.C., presented this paper. In organizing an orthopedic unit, he said, the work was under a line officer and four orthopedic surgeons. It included two parts: First, under proper physical training men were trained to become fit for full combat duty; 80 per cent. of the men were enabled to reach this standard. The second part of the work dealt with the restoration of the wounded and included the splints used for their transportation and their subsequent hospital treatment and reeducation. It was felt that the orthopedic surgeon had a special duty to perform in the advanced areas of warfare. A stationary hospital with a permanent staff, five miles back from the line of battle, and equipped with 500-1000 beds could cover a great deal of active work. Different small staff units could be detached from this and be detailed to other points where the staff was overworked. Such small teams were mobile and could be added to or taken away from a unit. They should be equipped to do all kinds of surgery. A permanent orthopedic unit with detachable teams could be created under the supervision of a first-class orthopedic surgeon. A general surgeon could act as assistant and anesthetist. The orthopedic surgeon should be broad enough in spirit and ability to assist the general surgeon, when necessary in chest and abdominal cases. In fractures and joint injuries the trained judgment of the orthopedic man was necessary in the first instance.

Demonstration of Splints Applied.—Captain W. J. TAYLOR, M.R.C., made this demonstration. Appliances for the upper limb were shown—the elbow metal splint, the triangular bandage, the Thomas traction arm band. The more simple the apparatus was the better it worked at the battle line. The forefoot splint and the Jones long leg splint were shown. In injuries of the tibia it was found of more comfort to the patient to leave a side splint and a posterior splint together in use. A pad was placed under the Achilles tendon to support the foot.

The Treatment of Chronic Osteomyelitis Due to Gunshot Injuries.—Captain C. F. EIKENBARY, M.R.C., presented this subject. It was stated that sequestra might be left and thus persistent sinuses be formed which would remain for years and finally result in amputation. From a five months' experience at Ballahouston Hospital in Glasgow the author concluded that palliative operations in chronic osteomyelitis were of no avail. Treatment followed the lines of making a radical incision including as much of the sinus as possible. Sequestra were removed, together with much healthy bone, an inch above and below the diseased area. The chisel was slanted to leave a smooth-edged, shallow trough of healthy bone. This was packed with dry gauze, the skin being held by one suture at either end. The aim of the operation in such cases was (1) to get rid of all necrotic bone; (2) to avoid leaving any cavity at all; (3) to avoid leaving spicules,

rough areas, etc. Postoperative improvement was marked, healing taking place within four weeks.

Primary and Delayed Primary Suture in the Treatment of War Fractures.—Major WILLIAM S. BAER, M.R.C., A.E.F., presented this paper. American surgeons, he said, had arrived on the scene when the principles of general war surgery had been established. Since August, 1914, wonderful strides had been taken from the old painful prolonged treatments to the present methods with the almost complete restoration of function. These hard and costly lessons had been learned by our Allies. The principles of war surgery so far established were: (1) all wounds were to be considered infected; (2) it was necessary to remove all projectiles, clothing, and devitalized tissue if possible before the 12th hour after the injury; (3) when removed within this period such wounds could be considered aseptic in character and a primary suture made, thus converting compound fractures into simple fractures. In skilful hands primary suture could be performed (before the 12th hour) in 80 to 95 per cent. of the cases. When primary suture was not found possible, the socalled secondary suture, in which the wounds were closed on the second, third, or fourth day, would be found successful in 80 to 87 per cent. of the cases.

The Pathology of the Peripheral Nerves in Gunshot Wounds.—Captain SYDNEY M. CONE, M.R.C., presented a report which included observations upon two hundred cases of nerve injuries, both severed nerves and those involved in scar tissue. It dealt with the pathology of degenerating nerves and stated that proliferation took place at both proximal and distal ends and that bulbous terminations of severed nerves were composed chiefly of actively growing nerve tendrils and comparatively little inactive tissue.

Orthopedic Treatment of Nerve Lesions.—Major WILLIAM G. ERVING, M.R.C., presented this paper. The problems of this subject he said were numerous and complicated. Each step was important and the treatment might be divided into three groups (*a*) supporting and protecting, (*b*) operative, (c) non-operative. In connection with the first it was found necessary to have splints to overcome the defects produced by sensory nerve lesions, such as wrist-drop. To prevent stretching of muscles a light papiermaché model was used, and various other appliances were used to prevent contractions or malpositions of hand or foot. The manipulation of adjacent joints was necessary to prevent deformity. The operative treatment consisted of (1) freeing muscles and tendons from scar tissue; (2) freeing nerves from scar tissue; (3) suture of divided nerves; (4) tendon transplantation; (5) arthrodesis. Non-operative treatment consisted of faradic stimulation, diathermy, hydrotherapy, massage, passive and active exercises, workshop training, and mechanotherapy. The mind had to be trained to help to train the muscles. The proper sequence and coordination of these methods required the supervision of the patient by one surgeon throughout, who would take into consideration all the problems involved and give to each step of the treatment its proper place in the general scheme.

Operative Technique in Contracture of the Hand.—Major ALLEN B. KANAVEL, M.R.C., gave a lantern demonstration. In injuries of the median nerve, he said, the annular ligament was an important structure. Injury to the ligament caused necrosis of the nerve. Increase of anemia in the parts hastened nerve destruction. In studying the relation of the nerves to the wrist joint, where the os magnum, the unciforme, and the trapezium were destroyed, the removal of the distal row of bones was not sufficient. Care should be taken not to mistake the fibers of the median nerve for the tendon. Great help could be obtained by following the nerve fibrils with a magnifying glass. A picture of the hand of a pianist was shown, in which restoration of function was complete after injury. Continuity of the nerve was restored, the nerve wrapped with a pad of fat, and the tendon sutured with silk.

Reeducation in the Functional Disabilities of Actual War Service.—Captain WILLIAM W. PLUMMER, M.R.C., presented this paper, which was the result of experience in the 2nd National general hospital under Dr. W. C. Morton of Leeds, England. Before reeducation the history and conditions were carefully analyzed. The patient was convinced by demonstration that the wound was not responsible for the symptoms. The degree of functional disability was noted. Treatment was made to include passive and active exercise, faradism, and voluntary efforts on the part of the patient. The patient was allowed to feel his troubles were real and that no stigma was attached. The patients were not segregated and the general tone was good and spirits high. The reeducation was given in private until the patient acquired confidence and the idea of what his muscles should do was always held before him.

A System of Orthopedic Instruction.—Major R. W. LOVETT, M.R.C., made this presentation. Experience had shown that in the intensive training of military surgeons, teaching to be effective must be more fundamental. The work was seen from a new angle and consisted of graduate instruction pure and simple. In the present war the mistakes of the surgeon would not be shown on examination paper, but his failures would be demonstrated on the soldiers in camp, therefore the training of the camp orthopedic surgeon must be fundamentally thorough. It was of no use to talk about a tuberculous joint to a man who did not understand what a joint was. The study of the normal joint must be undertaken before the study of joint disorder. The vulnerability of the joint and its reactions to trauma and irritants should be taught. All subjects allied to orthopedic surgery should be covered and the instruction should be as largely clinical as possible. Points of instruction should be (1) diseases of the neuromuscular mechanism; (2) passage of the nervous impulse from the cortex down; (3) lesions in the synapse, in the brain cortex, after leaving the cortex; (4) muscular lesions and disturbances of motor function explained; (5) explanation of lesions in weakened muscles and the relation of flexors and extensors (the former being stronger than the latter and more apt to cause deformity) being demonstrated; inhibition, due to cerebral lesions is analyzed; (6) peripheral nerve lesions studied; thus covering all points of the neuromuscular mechanism. The second part of the course would deal with static deformities and the causes of muscular depreciation, foot strain, scolioses, etc., would be considered. This study would include mechanical peculiarities of the different joints and results of taxic invasion of joints. Here would be considered the indications for operation on general pathological and functional grounds. Tuberculosis, arthritis, and syphilis would be considered in this connection. Growth of and function of bones and bone lesions would next be dealt with. The last part of the course should cover the question of apparatus and artificial appliances, the reasons for application of apparatus and the suitability of plaster, iron, or leather being shown. Under this subject would be included (1) fixation; (2) traction; (3) support; (4) correction of deformities. Students would work out for themselves the mechanical need of the apparatus. Dr. Lovett said that the students responded extremely well to such an intensive course. The whole aim of the work was to use education in its real meaning, that is "drawing out" instead of "putting in."

The Camp Greenleaf School of Clinical Orthopedic Surgery.—Major EMIL S. GEIST, M.R.C., made this report. At present it was stated that 1000 doctors were in course of training at Camp Greenleaf. A course of four weeks was spent in intensive training in subjects necessary for every medical military man. This included drill, physical training, military hygiene, and orthopedic surgery. The chief points aimed at are (1) making the army fit for service; (2) keeping it fit. The camp was near a large hospital where clinical material was easily accessible and the patients were soldiers. Osler had said that "if a man understands typhoid well he has the foundation for internal medicine" and it could also be said that if a man understands a tuberculous joint he has the foundation for orthopedic surgery. The main point was to avoid deformity and the treatment of the tuberculous joint lent itself to this study. An outline of the day's studies at the camp was given: drill 7.30 to 9 a. m.; the men began school at nine. Courses included anatomy, neurological and pathological; *x*-ray diagnosis; nerve surgery; history taking and recording; a special course

on foot ailments, as applied to the soldier was given. The importance of the latter could not be overestimated. There was also a literature course and the students were encouraged to abstract and discuss the best available literature on military orthopedic surgery. One important item of the training was the making of models of braces and apparatus, the simpler the better, and a great deal was done with simple wire models which the graduate was able to carry about with him so as to be ready to apply the instruction in the first emergency.

The Moving Picture as a Method of Teaching, with Special Reference to Post-Graduate Work.—Major R. T. TAYLOR gave this presentation. The great need of illustration in post graduate instruction having been felt, the Surgeon General's Office had undertaken to equip a Medical Art Department of the Army Medical Museum. This would furnish a postgraduate research library of the highest value and the work of the Government should be enthusiastically supported by the profession in order to make this work a treasury for all specialties. The Government had to meet great demands, coming from all the camps, for moving picture illustration. Colonel Owen was at the head of this work and he had undertaken to supply the illustration of such subjects as war neuroses; tendon and muscular transplantation; intestinal anastomoses; application of deep sutures, etc. These subjects were brought home to the student and fixed in the memory better by illustration than by any other means. In combination with suitable lectures this teaching gave a higher average for the students than any other method.

The Problem of the Chronic Disabilities of the Soldier.—Captain FRED J. FASSETT, M.R.C., A.E.F., presented this paper. It was stated that the chief hindrance to successful orthopedic surgery was found in sepsis. The time for treatment of compound fractures was therefore before infection had set in; if not, modern orthopedic methods could do nothing in the way of restoration of function. In the military hospital the surgeon had to encounter a certain attitude of resistance among the patients. The men wanted nothing better than to be let alone. This inertia was a psychic factor difficult to explain, but necessary to combat. It was the reaction after two or three years of abnormal trench life and the wounded man had lost connection with the military side and had not yet reestablished it with civilian life and duties. Mental readjustment would take time, and the men do little to help themselves. The inspiration must come from the doctors and nurses. Prolonged hospitalization was found to have a depressing moral effect and a man unfit to return to military life should be at once put in relation with the outside world, and helped to find his new industrial station. An Out-Patient Annex Department could bridge over the gap and care for these patients in their new start in life. Without this help at the difficult point of readjustment the returned soldier was apt to remain a moral as well as a physical cripple.

Some Aspects of the Military Massage Problem.—Miss MARGUERITE SANDERSON, read this paper by invitation. This problem the author said was not so much a technical one as it was a question of administration. The types of cases to be treated were largely comparable to injuries in civil life, but the treatment was necessarily more intensive. A knowledge of anatomy was imperative and an individual study of each case was necessary as the same lesion in two different patients could not always be treated alike. The patient's cure might be said to depend to a great measure on the moral force of the masseur or masseuse. Women of thorough and special training and with education and intelligence were needed for the work. The massage was coincident with reeducation and a knowledge of anatomy, physiology, and medical gymnastics was essential. The support of othopedic surgeons was necessary to give the proper status to the kind of women needed for the work in the military hospitals. To keep the standard of the work high the position should be made dignified and responsible and proper compensation be allotted. This would be brought about by the influence and cooperation of the orthopedic men.

Electrotherapy and Hydrotherapy.—Lt. Colonel R. WILSON, R.A.M.C., Ottawa, Canada, said he would devote the time allotted to speaking of his experience in England and France. The American Medical Reserve Corps seemed to be groping for information of all kinds which had a practical bearing on military questions. Therefore, though his remarks might be somewhat rambling, he hoped that some of the things they might gather would be helpful. Electro- and hydrotherapy were only two of the many methods used in the cure of wounded and disabled soldiers. In regard to hydrotherapy,—in England there had been installed what were called "au courant baths"; that is, those in which the water was kept continually in motion by means of nozzles of compressed air. This was similar to the "Whirlpool bath" in which two nozzles forced the water in opposite directions. In the still bath there was always a layer of cooler water forming next the body and the whirlpool bath did nothing more than keep an even temperature round the limb. The addition of compressed air to the bath was supposed to keep up a certain definite massage of the limb by the pressure of air bubbles, but the speaker said he was not convinced that the results claimed, justified the extra expense of this apparatus. Where water was scarce, however, it was cheaper than a continual flow of running water. In addition to hydrotherapy massage was given and this was thorough and specific in regard to the patient's disability. The treatment by the au courant bath cut down the time necessary for massage by one half, by relaxation of the muscles and loosening of the lymphatic circulation. When one came to the question of electrotherapy, one was upon debatable ground. There was great dispute among the authorities as to what effect electricity had upon the tissues. The effect was not really known. Col. Wilson said it was his custom to give a continuous current from above down for half the time and then to stimulate the muscle by other means for half the time. A common mistake was to suppose that a muscle severed from its nerve would respond to Faradic stimulation. This was impossible. The properties of electricity were the same, no matter where obtained, whether 3000 volts or 20,000 volts, whether it went backwards or forward, up or down, the important point was the effect upon muscle tissue; the severed muscle tissue could not respond. For treatment of a paralyzed muscle, in conjunction with massage, the galvanic current was used. It must be remembered that the weak muscle would not do as much as the strong muscle and that nothing should be done to suddenly jerk the weak muscle. One could not insult a damaged muscle.

Bedside Occupational Therapy as Proposed for the Military Hospitals.—Major HENRY R. HAYES, M. R. C., said this was by no means a new procedure. The experience of civil life was being applied to military hospitals. In the Walter Reed Hospital, Washington, D. C., the principles of occupational therapy were being tried out. Hitherto, the army had been solely concerned with the return of the soldier to active duty, but there were many who would only be fit for restricted duty and some for civil life. Ward occupations were instituted for those patients still in bed and in chairs, and was to be considered as pre-vocational, intended to stimulate the patient to return to regular work later. One essential of the treatment was that the work should be continuous. It was of the greatest consequence that the work should not flag or lapse owing to lack of material. Such occupations as weaving rug and mat making, wood carving, basketry, and bead work could be well handled by patients. The work should be simple, easily finished and have commercial value. This would afford the patients training in concentration and coordination.

Foot Problems and Treatment with Unseasoned Troops.—Captain CLARENCE B. FRANCISCO, M.R.C., presented this paper. One of the first difficulties he said was to secure shoes large enough to meet new demands. The ordinary man in civil life walked little and the muscular development of the foot was prevented. A No. 9 foot usually tried to wear a No. 7 shoe. The strain of marching with the addition of the heavy pack on the back necessitated wearing of a shoe two sizes larger than in civil life. Trench foot had now come to be considered a preventable disease.

The Thomas heel and the French marching strap had proved very useful in prevention of foot strain. The ordinary commercial arch support should be legislated out of the market. Men with marked deformities of the foot, such as hallux valgus, hammer toe, rigidity, and flat foot should not be sent abroad. Such cases were sure to break down under the unusual strain and to take up space in hospital needed for more sick patients.

Foot Prophylaxis in the Soldier.—Major J. T. RUGH, M.R.C., in this paper dealt with the recognition of the potentially weak foot and its restoration to full strength and efficiency. This might sound in theory an easy matter, but its practical application was very different in the service. The problem might be divided into four headings: (1) feet; (2) shoes; (3) officers; (4) soldiers. Emphasis was laid upon the necessity of instruction to the officers in order that they might be able to detect in time the potentially weak feet. In the examination of 50,000 soldiers 27.5 per cent were found to have functionally weak feet. In regard to the shoes, need of proper care in drying the shoe when wet was pointed out. The sock should be worn inside out, or with the smooth side next the foot, on a long march. Oiling the shoe would prevent its becoming stiff and hard. The Munson type of shoe would be found to fit 98 per cent of the men satisfactorily and would save eight out of ten foot inefficients. The foot of the young soldier up to 25 years of age was very adaptable, but after that it became less elastic. Factors of weakness were: short heel tendons hypertrophied scaphoid, supernumerary tarsus, congenital valgus, bad shoes, improper posture, muscle weakness, overwork. The chief prophylactic measures employed were: (1) detection of weak cases; (2) proper alteration of shoes; (3) instruction as to walking; (4) exercises; (5) protection from strain.

The Orthopedic Service at Fort Riley.—Major J. T. LORD, M.R.C., read this paper. When the examining boards began their work it was a matter of surprise that there were so many potential cripples. Among 5000 men 76 per cent were found with foot inefficiency in some form. A number of malingerers were always to be found and there was a certain psychology behind this (often very persistent sham) that needed special measures to deal with it. In regard to foot disabilities, there were an extraordinary number of cases of the following: over-and under-riding toes, exostosis of os calcis, of internal cuneiform and of first and fifth metatarsals. Other disabilities noted were abnormalities in hip-joint or knee-joint, disturbances due to excessive drill, arthritides and mouth infections, primary minor ailments, plus the psychoses, metastatic joint infections.

(*To be concluded.*)

Nasal Leprosy.—According to Leñon, the frequency and early appearance of lesions in the nose give rise to the belief that the inoculation occurs at that region with especial preponderance. The appearance of crusts in the nares with an ozenous odor is often accompanied by nosebleed—indeed nosebleed as a forerunner of leprosy has in certain localities where the disease prevails almost as much significance as hemoptysis as a forerunner of pulmonary tuberculosis. When the first eruptions manifest themselves there is an aggravation of the intranasal symptoms. The chancre-like lesion in the nostrils may be followed by the development of leprous nodules in the alæ nasi. The skin here is also analgesic. The leprous manifestations in the nose have to be differentiated from several conditions, as syphilis, tuberculosis, and ozena. In both ozena and nasal leprosy there are fetor, crusts, and hemorrhage. The parallelism here is so close that a diagnosis must be made by collateral symptoms unless open ulceration is in evidence (this excludes ozena). The presence of anesthesia of the nose readily makes the diagnosis. In old cases there should be no confusion, for the atrophy produced by ozena has of course no counterpart in leprosy and with the development of the disease other symptoms of the latter are in evidence. Diagnosis between leprosy on the one hand and syphilis and tubercle on the other can be facilitated by bacteriological and serological tests.—*El Siglo Médico.*

Miscellany.

Effects of the War as Shown by Vital Statistics.—Sir Bernard Mallet, in a lecture delivered at the Royal Institute of Public Health recently and published in the *British Journal of State Medicine* for August, 1918, referring to the decline in births occasioned by the war, says that the loss in potential lives in the United Kingdom represents 1.63 per cent. of its total pre-war population. Serious as is this loss to the coming generations in Great Britain, there is reason to believe that the other belligerent nations have suffered more. In terms of percentage of loss it may be assumed that Germany has lost in potential lives the equivalent of 4.5 per cent. of its total pre-war population, Austria over 5 per cent., and Hungary 7 per cent. For France it is more difficult to form any estimates, as the reliable material at disposal is small, but it is probably over 3 per cent. For Russia, Italy, Belgium, and the Balkan States Mallet is not in a position to attempt any detailed estimate of loss in potential lives. He thinks, however, he may safely hazard the statement that in its first four years the present world war, by the fall in births which it has occasioned, has cost the belligerent countries of Europe no less, and probably very many more than twelve millions of potential lives.

It will be seen, then, that the negative results of the war on human life have been as far-reaching as the positive, that the loss of the populations of Europe is probably no less serious from the decline in births than it has been from the deaths on the battlefield. At the present time every day that the war continues means the loss of 7,000 potential lives in Great Britain, France, Italy, and the Central Empires. These figures are appalling, but it is probable that they fall short of the actuality.

The losses, however, are not confined to belligerents. It is stated in the "Annuaire International de Statistique "that the neutral countries of Europe have also suffered a decline in varying degree in the number of births recorded. For 1915 the births in Switzerland show the remarkable decline of 16 per cent. on the average of the preceding triennium, a decline considerably in excess of that shown in the United Kingdom and more than two-thirds of that in Germany. This decline is naturally due in great measure to the exodus of foreigners from Switzerland after the outbreak of the war, but probably it is attributable to a very much greater extent to the mobilization of so large a proportion of Switzerland's citizen army.

In 1915-16 Sweden shows a decline of 7 per cent. on the average of 1912-14, Norway one of 5 per cent. for 1915, Denmark 4 per cent. for 1915, the Netherlands 2 per cent. for 1915-16, and Spain 2 per cent. for 1915. The smallness of the fall in the Netherlands may to some extent be explained by the presence there of some hundreds of thousands of Belgian refugees. Taken together these three Scandinavian and the two other neutral countries show a loss, for the year 1915 only, of nearly 50,000 potential lives through the fall in the numbers of births.

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Original Articles.

A NEW OPERATION FOR HALLUX VALGUS.

BY LT. COL. J. TORRANCE RUGH, M.C., U.S.A.,
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THE surgical treatment of hallux valgus has been rather extensively considered by many different writers and the various procedures advocated have each some points of advantage and also some points of disadvantage. The ideal type of operation is that which corrects the deformity, removes the exostosis from the lower end of the metatarsal and yet preserves the normal functions of the joint with the function of weight-bearing beneath the great-toe joint. If the osseous hypertrophy is not excessive and the deviation of the great toe not over 30°, exposure of the joint by a curved logitudinal incision and removal of the exostosis from

FIG. 1.

FIG. 2.

the inner side of the lower end of the bone (Fig. 1) will prove all that is necessary, though care must be had to leave no sharp edges or points on the bone as these will cause trouble later through pressure of the shoe on them. No interference with the function of the joint and no loss of the weight-bearing surface underneath the metatarsal will occur here and the results are satisfactory.

If there is more than 30° eversion of the great toe or if there is marked hypertrophy of the lower end of the metatarsal, some more corrective procedure should be employed. First, the hypertrophied portion should be removed, and then one of two methods has usually been followed. A cuneiform osteotomy may be done back of the great toe joint and the toe brought over to a straight line and so held until union has become firm (Figs. 2 and 3). Or the posterior portion of the proximal phalanx of the great toe may be removed and the remainder of the toe set over to a straight line in front of the metatarsal (Fig. 4). Both of these methods preserve joint function and the support under the metatarsal head. Radical removal of the distal end of the metatarsal (as in the Mayo operation) brings disability in many cases and has not infrequently been followed by ankylosis.

FIG. 3.

Some one has said "what is new is not true and what is true is not new," and I hesitate as to claims of a new operation for this condition, but to the best of my knowledge the following method of operating has not yet been reported and so far

FIG. 4.

as I know it was first done by myself in the fall of 1916.

The joint is exposed by a curved, longitudinal incision (Fig. 5) and the flap (base down) is dissected free to the lower edge of the joint (Fig. 6).

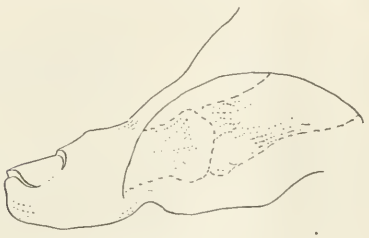

Fig. 5.

A tongue-shaped flap is then made (base backward as in the Mayo operation) and should include the bursa and the internal portion of the capsular ligament back of the base of the proximal phalanx of the great toe (Fig. 7). This is turned backward and the lower end of the metatarsal freed of ligamentous attachments. With a sharp osteotome or

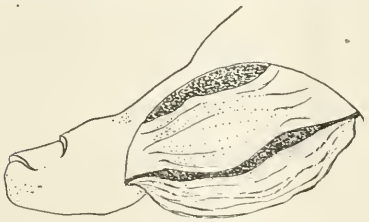

Fig. 6.

chisel, sufficient of the epiphysis of the metatarsal is then removed to allow straightening of the great toe. This usually amounts to about one-fourth inch. This cut also is made slightly diagonal from within outward and from behind forward (Fig. 8). The inner sharp and hypertrophied corner is next removed with the osteotome and if this instrument is properly sharpened a mallet is unnecessary, as

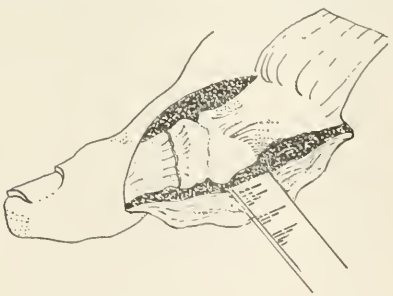

Fig. 7.

the edge can be pushed through the bone with the hand alone. The top and under parts of the epiphysis are then taken off to make a wedge-shaped end on the bone (Fig. 9). The slant on the top can be made very much greater than underneath so as to leave as much weight-bearing surface as possible. There will also remain the supporting surfaces of the sesamoid bones on the under surface of the joint. The tongue-shaped flap of Fig. 7 is then passed across the end of the bone,

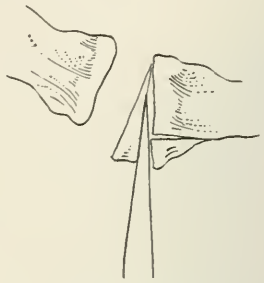

Fig. 8.—Top view.

covering in the wedge and secured with sutures if necessary. Sutures are then passed from the base of the tongue-shaped flap on the inner side to the base of the proximal phalanx, sewing back and forth to hold the toe toward the inner side. The skin incision is next closed and dressings applied to hold the toe inward. The bandage should make a figure-of-eight about the toe and foot and hold the toe horizontal and slightly adducted. In some

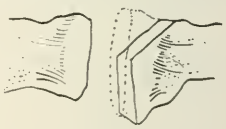

Fig. 9.—Lateral view.

cases a splint of wood or plaster may be advisable, but this is seldom necessary. After two weeks time the use of the foot is permitted and weight-bearing advised.

Ankylosis is practically impossible because of the hinge-joint which is secured, weight-bearing is preserved, and the deformity is removed. The operation is simple of performance and the results in twelve cases done thus far have been excellent.

BIOLOGICAL FACTORS OF THE WAR PSYCHONEUROSES AND COMPLEMENTARY PHENOMENA.

By HOMER WAKEFIELD, M.D.,

NEW YORK.

In a recent article on war shock,[1] we endeavored in a running commentary on some of the current literature on the subject to point out a few apparently neglected facts that seemed to have direct bearing on the live issues presented by the great war. It was, however, not until a monograph by Dr. Stewart Paton, entitled "Mobilizing the Brains of the Nation," was placed in our hands that we were brought to a full realization of the real demands of the occasion. This has led to the preparation of the present paper in an endeavor to supply as best we can the higher standard of biologic analysis and elucidation called for by Dr. Paton.

Did space permit we would like to quote his entire article, but we will suffice with the following as expressing the present situation and its demands upon Americans collectively to meet: "We cannot without sacrificing conditions essential for the preservation of personal and national sanity hide the fact that many of the attempts made to face the actual issues of life are at the best half-hearted efforts; while the recognition of critical situations or events is interfered with by the tendency to compensate for defects in perception by introducing a vague mysticism. . . We need to go to the root of the trouble and get accurate information as to the structure and function of the machine we are trying to operate. How do we expect to control temperament and character if we are ignorant or indifferent in regard to the nature of the biological mechanisms regulating temperament and character? . . It requires both courage and intelligence to face the fact that comparatively little is known of the laws governing human behavior, but when once the admission is made, then it is our first duty to accept the privilege of working hard to add as rapidly as possible to the present stock of information. . . The present catastrophe which threatens civilization is one of the tragic results of attempting to organize society in order to satisfy theoretical conceptions without taking cognizance of the fundamental laws that govern human nature. If we had been familiar with the biologic mechanisms controlling the personality, we might have been alive to the danger lurking in any conception of duty which carries with it the idea of 'special dispensation of Providence,' or missions to reform for which others are unfitted. . . Man has been so absorbed in trying to discuss life in abstract terms that he actually forgot to inform himself even as to the principal events taking place in the life of any one person in the effort to adjust successfully to meet the daily needs. . . Eventually, as the result of insisting upon the value of biologic methods in the analysis of all forms of social, national or racial activities, we should be less inclined to promise permanent peace until something more is known of the actual conditions regulating the genesis of motives and impulses or limiting the sphere of voluntary control of actions."

The specific endeavor of the present paper is an elucidation of effects exhibited in the war neuroses, and especially to bring those elements usually classed within the domain of the *psychical*, as well as the neurological into an unbroken contiguity with the well-known phases of the *physical, biological* and *physiological* sciences. So long as ignorance or a vague perspective bedims the view, the clinical picture of all the war neuroses, including shell shock, and their interrelations will be obscured and the nature of the causative factors will be misinterpreted. So long as any human maladies are pronounced *psychical*, and as such metaphysical or non-physical, their pathology will be enveloped in vagaries, their therapy will languish for sustenance and victims of their derangements will become delinquents and public charges through neglect of proper treatment.

There is nothing mental which is not also physical. There is no *psychical* which is not the *physical* product of the somatic physical body. Sensation, the muscular sense, and all the five special senses are more or less highly specialized and complete organic functions which narrow the range of characters of the stimuli, to which they are reactions, as response phenomena of the inherent irritability, that vital character, more than any other, by virtue of which the primitive unicellular organism lives and has its being, as completely traceable by man. This property, irritability, we shall trace in its many elaborations in the phases now before us.

Even emotion, which is by some writers, of all human manifestations held most supernatural, is most closely connected and allied to *physical* phenomena in general, and is *per se* the most clearly expressed as motor phenomena and by contractile phenomena of muscular and other less contractile tissues. As we have seen, the more violent and depressive emotions or paroxysms of the emotional allied phenomena, are spasmodic contractions or contractile constrictions which often deflect the major volume of the blood from the superficial to the deep (splanchnic venous) circulation.

The nomenclature of the subject is so vague and ill-defined that demarcation lines are difficult to draw, and moreover identities and definitions are especially unsatisfactory in addressing a paper to an unprepared reader. Emotion, now brought down to a physical basis, is yet more difficult to differentiate from hysteria, while the lesser emotions would not be characterized as hysterical. Hysterical paroxysms, short of epileptoid convulsions, are usually termed emotional and the question arises: where comes the line of demarcation between the superficial spasm of the emotional and the somatic tonic and succeeding clonic contractions of hysterical convulsions, and where is the line that marks the point of division between the epileptoid and the true epilepsy which it not infrequently develops into when successive repetitions as hysterical manifestations are not curbed in time to circumvent the operation of the law of repetition which provides that all physical actions are facilitated by previous actions of the same tenor, and are further facilitated corresponding to multiplicity of antecedent ones.

Repetition of emotions foster chronic emotionalism, and furthermore correspondingly lower the level of overflow, thus diminishing the height of attained head necessary to obtain vent through the safety valve emission of cumulated physical motive force. In fact an individual may become so emotionalized and so emotionally weak that every trivial factor may produce an emotive emission.

Emotions of apparently diverse types are atypical apart from emotionalism, *per se*. For example religious emotions serve as well as any to promote an emotionalism which may be reexhibited as sexual emotion, dipsomania, or a paroxysm of fear or other form of neurosis at the battle front. On the other hand hetero-and homo-sexual excesses and vices or alcoholic addictions become productive of the chronic emotionalism, the effect of which, in general, is to lower the resistance, permitting emission at progressively lower and lower levels.

The medical problem is not only one of prevention of emotionalizing of men in training for the army and in the trenches but also of the returning war neurotics who are distinctly injured by any type of emotion, either profound, violent, depressive, or re-

peated. Emotion is in essence a spasmodic response phenomenon and its cultivation is an invitation to other expressions of the spasmodic dyscrasia. Spasmodic reactions become habitual.

Oppenheim[24] has recognized the importance of the vasomotor-wrought disturbances, but suggests that the painful neuritic symptoms point to a hypothetical wave of molecular changes in various parts of the nervous system as an impact resultant. This, however, has been rejected by several authors. He does not attempt to explain how such an effect on the nervous system would cause the observed vasomotor phenomena or how the terrific neuritic pains are benefited by hot baths, superheated air, etc., which he employs.

The Tissue Density Factor.—All writers on emotionalism, hysteria, spasmodic manifestations, convulsions, shock, etc., as psycho-neurotic phenomena, recognize a common predisposing cause vaguely termed constitutional inferiority, congenital defect, neurotic constitution, the stigma of heredity, degeneration, defective development, etc. The question at once arises: what is the nature of this vague something of such prime importance, which, coming as accidents of constitution, of heredity, of birth and of development, is responsible for such a multiplicity of syndromes? It does not bear out anatomical conformity to the nervous system so there is no use in abstruse speculations as to the part played by the neurones, by the central nervous, or the sympathetic systems.

It is obvious that this predisposing cause is some specific unit physical condition which is in turn responsible for a typical action and effect which shall be compatible with those exhibited as prime etiological factors and consistent with the superimposed factors exhibited as ultimate exciting causes of the group of ultimate manifestations under consideration. This specific *physical* condition must be an actual one, confirmatory by proper investigations. Its alleged typical action must be subject to substantiation by recognized methods of observation, and so on through to the last analysis. Such a series of tests can be wholly satisfied only by the *tissue density factor*, and by the relation of tissue density to response phenomena.

Regardless of what angle we approach the subject the results of investigation are never disappointing. Wherever we find living tissue, whether in man or the lower animals, the state of tissue esthesia corresponds with its state of density. In man, in all divisions of sex, age, race, health and disease, the tissue density corresponds with the exhibited sensibility attributes. In induced conditions the tissue density falls as deviations from the normal are induced. Development of growth is one from a lower to a higher density, and arrested development carries with it a correspondingly lower tissue density. All tissue reversions to or toward the embryonic form (atavism) revert to a correspondingly lower tissue density. Thus atavism has come to be recognized as a cause of stigmatic phenomena.

Sunstroke, so called, or more properly heat-stroke, is a typical example of reduction of tissue density by heat, often in persons previously free from neuroses in which are thus produced hyperesthesia and the several stigmata of the hysteric and the neurotic. Americans resident in the Philippines experience increasing hyperesthesia which becomes so great by the third year that they must leave the tropics or suffer irreparable deterioration. High surface heat in its effects on peripheral tissue density and in its production of hyperesthesia of the superficial tissues is thus productive of supersusceptibility to cold and to spasmodic reactions to chill attended by the characteristic overt recoils of the susceptibility wrought in neuropathogenics. Continuous hot baths also have the unfortunate ultimate effect of augmenting hyperesthesia—the prime factor of neurotic and other spasmodic affections.

The systematization of hysterical manifestations in accord with the common muscle associations of daily life functions, rather than of unit nerve distributions, evinces the influences of the law of reaction repetition, automatism and fatigue influences upon their esthesias which are inseparable from their sense memories which the psychical theorists admit as such an important factor.

The "jumpiness" of the war neurosis is caused by characteristic systemic tics which are typical of the sudden starts of fright from which they take form as habit or repetition phenomena. They may be characterized as memory manifestations. They are easiest cured by the earliest treatment, by the eradication of the underlying hyperesthesia.

The Physical Bases of the War Neuroses.—It must be obvious to all unprejudiced investigators that no unit pathological lesion can be broad enough to blanket the extremes of war hysteria on the one hand and war shock on the other. They have, however, some common factors. Depressing and intensive emotions, apart from concussions and shock, exhibit corresponding indications of spasmodic circulatory deflections, approximately evacuating the periphery and extremities and coincidently engorging and producing stasis of the major trunks, and lesser splanchnic veins. In cases of shock and collapse, this circulatory condition is more pronounced and approaches yet nearer the typical status of death. Both the hysterical and the shock cases thus have a *physical* basis, but only the latter may be said to exhibit organic damage. It is truly a paradox of pathophysiological nomenclature that the obvious superirritability (overt reaction) manifestations of the paranchymatous tissues are so universally dominated *nervous* phenomena and that just as obvious manifestations of *organic* damage to the nervous structures are so often dubbed *psychic* in nature. Such are the current interpretations of war hysteria and war shocks. True, there are also exhibited all gradations of transition between the above named extremes, and shocks frequently are engrafted upon hysterical foundations, resulting in all degrees of relative proportions of the two elements.

Strumpell gave us his concept of that vague sense of irritable weakness, of chronic perturbation, ferment and restlessness which goes by the misnomer *nervousness* when he wrote[25] "What is called nervousness, is, from a scientific point of view, above all a spiritual and not a corporeal disposition." Since science knows not the term *spiritual*, and has never attempted to analyze or define it, we must interpret his use of it as meaning *psychic*, in the non-corporeal sense. It is, however, significant as an admission by this great authority on the nervous system that while he is willing to relegate it to the domain of

mysticism, he nevertheless disowns it as of actual *nervous* origin.

Since we now propose to place the *psychical* within the range of the physical or corporeal we hope there will be no occasion in the future for the induction into scientific nomenclature of the word *spiritual*. We may then refer to mental and nonmental functions of the physical body without fear of confusion of interpretation.

Nervousness, so called, is the most common manifestation of somatic hyperesthesia. We referred in a former monograph[37.1] to Kennedy's paper entitled: "Nature of Nervousness in Soldiers". While usually associated with emotional instability, they should have distinctive differential interpretations in order to avoid confusion and misconception. Let us allude to the *hyperesthesia* of soldiers for the sake of a more universal and definite nomenclature.

If we differentiate the neuroses into sthenic and asthenic, we thereby provide a basis of identification and discrimination. Both are hyperesthetic states and both are characterized by weakness, but the former much less than the latter. In these the physical strength varies in as wide a range as that between the high grade moron and the feeble minded. The sthenic, the well nourished but sedentary and soft individual, attains the highest degree of tensional stress or excitement, culminating in the highest degree of explosive violence of outburst or overflow. He is the highest strung hysteric. Conversly the asthenic is the typical neurasthenic. Between these two extremes we have all gradations of transitional phases. All characterized by irritability and weakness. The sthenic type manifests its physical motive force in the explosive violence of its outbursts rather than by the enduring strength exhibited by sustained effort. On the other hand the asthenic phase is characterized by great weakness which permits no accruement of energy of kinetic value prior to its emission in the lowest form of sterile emotion. Perturbation produces exhaustion after imperceptible recoil responses. Both of these extremes and all intermediate states demand rehabilitation of tissue integrity, but the first may begin with graduated active exercises while the latter must begin with passive massage, manipulations and exercises cautiously interspersed with rest; the physical treatment never passing the fatigue limit, nor the rest-full recuperation. The work cure, however, is in general preferable to the rest cure.

Having already in a recent paper[37.1] discussed in considerable detail the fundamental biological reactions as aggravated by stigmatic hyperesthesia and the duplex common physical factor of spasmodic blood deflections from the superficial to the deep circulation, and from the peripheral capillaries to the splanchic venous reservoirs, resulting in serious venous stasic and circulatory disequilibrium, we will pass on to other complementary phenomena.

Hyperesthesia.—It is not with a view of merely correcting or improving the nomenclature that we are striving for the recognition of the physical basis of so-called purely psychic phenomena of the neuroses, but rather of the establishing of a sound basis of co-ordinated theory and treatment. At the outset both sides of this discussion admit that these socalled *neuroses* are not typically *nervous* functional irregularities. Charcot demonstrated the freedom of the nerves, cord, and brain from any related enduring lesion, in his famous lectures of 1884-5. Also stigmatically affected areas do not conform or correspond to those of nerve trunk distributions.[13]

Let us first review the objective of our own recent literature[37.1] setting forth that *hyperesthesia* is expressive of a tensional, a tetanic form of typical contractile reaction, resultant of low density of tissue, from any cause producing such a loss of tissue integrity, and that *anesthesia* is just as typical a resultant of tissue constricting spasms, of which hyperesthesia is the specific predisposing cause. However, purely psychic hyperesthesia and anesthesia may appear to be, and even as we shall observe, however fluctuating they are, from emotion and psychic causes, the fundamental basis is no less physical and no less dependent upon a physical substratum.

In a recent paper[37.1] we have introduced evidence that in the more severe (fatal) shell shock cases, congestions, ecchymoses, punctiform hemorrhages, softening of tissue environmental of superficial blood vessels of the brain and contiguous nervous structures are found. We may find similar anatomatical states among wet brained alcoholics and among cerebral softenings of general paralysis, but otherwise not at all among the great group of nontraumatic hystericals. We hold that shell shock and allied traumatisms damage the integrity of the body tissues in general, and thus disorder the mental functions which we hold does not proceed exclusively from the brain or nervous system. Our evidence shows circulatory deflections which could alone account for the tissue softening and attained impermeability to blood in the delicate brain tissues which require for their physical and functional maintenance one-fifth of the blood of the body. As we shall see presently, the effects of *suboxidation* of gas toxemia, of acidosis, etc., and of *suboxygenation*, respiratory, anemic, circulatory, etc., produce general tissue softening. These are the factors that universally obtain, wherever these results occur. Whether traumatic or not, the typical "neurotic" manifestations also find expression. The more severe traumatic types differ in degree rather than in kind. All are physical, but none is specifically nervous. All are both mental and physical. They are indivisible into either one or the other.

Predisposition.—Psychiatrists universally recognize a general predisposing cause of neuroses, whether hereditary or acquired. What that causative factor is has never been identified, much less agreed upon. The pure psychicalists must regard it as psychical, while with the physicalists it must be regarded as physical; yet with both it has ever been an enigma. By virtue of the effect of this inherent predisposition those affected by it are predestined to succumb to all manner of recoil producing factors, from which those uninfluenced by it escape; and the more violent factors from which none escape entirely, the predisposed suffering much more violent reactions than the others. With them the reaction is both precocious and excessive.

The essential character of reaction of the neurotically predisposed is typically spasmodic and paroxysmal, owing to which its victims are not only disposed to emotions and the other neurotic stigmata, but also to the more undisputed purely phy-

sical phenomena such as neuralgias, myalgias, asthma, etc., of the older writers, and now since we know that neuralgia, no less than neurosis, is a misnomer, we recognize dermalgias, coxalgias, myosalgias, arthralgias, cephalgias, nephralgias, cystalgias, coelialgias, thoracalgias, pleuralgias, hysteralgias, etc., more accurately named in reference to anatomic involvements; all characterized by spasmodic and paroxysmal pains and due to acute cramp like contractions of the involved tissues.

The physical nature of spasms and paroxysms has never to our knowledge been questioned, but Charcot and his pupils (originally entirely subscribed to by Sollier and others who have since deflected from it) so far as we know, concluded that all hysterical and allied manifestations have a purely *psychic* origin as evidenced by the following data: (1) Absence of any typically related lesions of nerves, cord, or brain, and of atypical areas of involvement as regards conformity to nerve trunk distributions. (2) In the absence of *nerve* sources of causation, hysterical paralyses and contractures must be of *psychic* origin. (3) All hysterical manifestations are artificially produceable by suggestion in sensitive subjects. (4) The anesthesia of hysteria is an *absent-mindedness* and is due to psychological disaggregation and is not always a genuine tissue anesthesia. (5) Arousing of the attention may momentarily hold the anesthesia in abeyance. (6) Genuine anesthesias are usually due to nerve lesions, whereas hysterical anesthesias are especially characterized by mobility. (7) Anesthesia of hysteria is extremely changeable and contradictory. (8) All hysterical events are dissoluble by chemical anesthesia. (9) Hystericals are in a permanent state of psychic fatigue. (10) Hysteria is a contradictory disease, and collectively is essentially *psychical* as distinguished from the *physical*, which is treated as of the nervous system if at all, but leaves the biologic factors out of account. Let us recall here that Sollier now defines the war neuroses (cerebral commotions), as hysterias in the raw, as elementary hysterias in which the physical as distinguished from the psychial element, is absolently preponderant.

Taking up this series of statements of evidence in the order above enunciated, the first and second have been answered by our biological accounting for what the psychical theorists reasoned must be either psychic or nervous in origin, entirely disregarding fundamental irritability and its response recoils; (3) Suggestion, like all sensorial impressions, is reacted to by subjectively related tissues, therefore the reaction is generally physical rather than specifically psychical yet not nervous; (4) however complete or incomplete the hyperesthesias that are exhibited, admittedly they are the physical causes of the abolition of memory, which again is admitted as responsible for amnesia. The fact that anesthesia of the contractile tissues of the body inhibits memory involving the original functional participation in that of which the memory is the recurrence by those tissues, implies that memory is not an independent or exclusive brain function, but a functional product of general tissue reaction which may be subject to a reactional revivification. In the treatment of amnesia and other diseases of memory the true seat of memory should be recognized regardless of any soul seat sentiments; (5) distraction is a form of suggestion, and suggestion is a recognized form of influence of contractile phenomena as well as of psychical; (6) loss of general tissue functional integrity and of density accounts for this observed mobility better than any known psychic factors. (7) The instability and fluctuation of tissue spasms explain the changeability and the elusiveness of hysterical anesthesia better than otherwise unexplained psychic caprice. (8) Artificial anesthesia admittedly acts upon tissue but we have no evidence of a separate action on mind. (9) We have no evidence of mental or nervous fatigue apart from associated contractile reactions of tissues. We have here pointed out the general relation between anesthesia and fatigue. Recognizing attention as a tension, as a state of intensive sustained effort, we can understand that momentarily eliciting the attention would necessarily transiently arouse a subject from an incomplete, even a drug narcosis. (10) is answered by answers to (6) and (7).

Fixed ideas of the hysterical series of stigmata, constitute a form of tetany, a mental catalepsy, and in terms of contractility, a rigidity or contracture of involved tissues. In this relation the idea is abruptly acquired as a spasm and is retained as a tetany. The *conviction* of Jastrow[34] is the *fixed idea* of Carpenter[r], Charcot[r], Janet[35] and others. In the the words of Jastrow: "There can be no question where beginnings lie. The original source of conviction is emotion. . . . The initial factor in the genesis of conviction is the rivalry between reason and emotion. . . . The design deviates, the workmanship is irregular, as thinking is emotionalized. The wish is father of the thought and breeds true. Dogma and formula, formidable words, like popular slogans help to carry conviction, they are more apt to contribute to obvious fallacy and pretence than to subtle error, but they play their part variously.

Conviction, the snapshot, the immature grasp at an idea, is exhibited in inverse ratio to reason which is the product of mental elaboration, *i.e.* of an extended deliberation. Ideas derived by spasm are those which are prone to persist as fixed ideas. Fixed ideas are thus common to the recoil spasm of shell shock.

Decision by Paroxysm.—There are obviously at least two ways of arriving at a decision, by process of reason, *viz*, by weighing the pros and cons of available evidence and by spasm or paroxysm. By process of producing the sudden emotion of fright, an individual may spasmodically in connection therewith arrive at the conclusion that an impossible dogmatic belief is truth or superior to truth. A fixed idea is as persistent as the underlying hyperesthesia.

The greater the abruptness, haste, stress, dynamic violence of a decision, the moment it is adduced by passion, the greater the attendant emotion of fright, anger, rage, etc., and the more spasmodic and less reasonable it is. An emotional decision is always premature and ill advised, and rash are the acts that proceed therefrom. When a decision is arrived at spasmodically it is thus termed *conviction*, it is perpetual as a fixed idea, a belief. The scene and event incident to shell shock is thus perpetuated as a fixed idea. The term conviction, which originally

had reference to the resultant of convincing evidence or perhaps of logical argument, has gradually by misuse, evolved from a state of being convinced, to one of being emotionally and spasmodically transfixed, obsessed (brought to an abrupt decision), attained as by a sudden muscular cramp. The transition is one from a gradually elaborated, to a sudden mental process, and as such, from a constructive mentation to a destructive annihilation or extinction of deliberation. We have in hypnotic processes the best analogy of artificial production of those fixed ideas which are dictated or arbitrarily commanded by another, in either a waking or sleep state. Suggestion acts as a shock.

It is precisely the spasmodic nature of the process of attainment of fixed ideas that makes its cause simultaneously productive of an anesthesia of areas involved in the volitional events of daily life, in the abolishment of memory of those events, and the muscular processes involved in them. In turn, the abeyance of memory in the mechanics of these processes constitutes the basis of the syndrome of amnesia. Whereas fixed ideas are not infrequent accompaniments of amnesia, the latter by no means universally accompanies the former. They represent variations of effect from the same causes.

Fixed ideas are also typical of ecstatic states, and we have been taught to regard the involved thoughts as very high in that state which have undoubtedly misled many from a theory such as we have advanced. Janet, however, disagrees with them when he observes (p 391): "M. Briquet spoke of the 'serious thoughts' which provoke ecstacy. This is because he had perhaps not been able to determine the nature of these thoughts. We much fear that many ecstacies among the most revered, have never thought of anything higher than the monotonous interrogations of Marcelle or Maria."

It is quite universally recognized that ecstacy and emotion produce or coincide with anesthesia, abeyance of memory, and of reason, and it is quite obvious that with the obliteration of memory from current mental synthesis, with the usual substitution of subconscious groups, the quality of the product would be low. Even in cases where complete amnesia is not developed, it is well known in police circles that following the great emotion which is incident to accidents and exciting escapades, that individuals are woefully deficient in memory of the details of the incidents of which they were the participants. In these cases confusion of attention, as well as sense anesthesia, is exhibited.

The fixed idea is a prime menace to recovery from shell shock and the depressing emotions of war. It is the essential element that disposes to relapse when new experiences recall memories of original occurrences and distressing scenes. The eradication of the fixed idea is one of the great services which hypnosis has rendered to war victims. It is thus eliminated from the subconscious ensemble of memories, in many cases having long previously been dropped from conscious memory, at the outset of the amnesia.

We do not advocate dispensing with hypnosis where it is of value in behalf of the war's afflicted. We simply deprecate it as an exclusive dependence as based on the view that the war neuroses are exclusively psychical and do not require physical treatment. In properly selected cases hypnosis has no equal and in some cases it has no possible substitute at all. It is hypnosis or neglect. It should, however, always be administered with the patient's written consent, and always in the presence of dependable witnesses, yet utilized when the subconscious and forgotten engrams which amnesia has removed from conscious memory must be reached and restored to normal consciousness. Many of these cases can be reached by psychoanalysis.

The Biologic Series.—The biologic series is a term we have coined to facilitate economy of expression in referring to that very familiar biologic series of reaction manifestations which always occur in definite sequence and order as typical response phenomena of living tissues. This term is used as regards the definite order of reaction characteristics which are typical of definite phases of tissue density, both as contractile and as sensory reactions. The sensorial application we will defer until that subject is arrived at in the regular course of the paper.

We may excite the several phases of the series, in their natural order as contractile phenomena. If, beginning with a normal state of rest, an excised living muscle be mildly stimulated, preferably by electricity, the first observed response is a simple tightening of the fibers. They are put in a state of tension, as it were, and such a tension can be maintained without producing a perceptible shortening of the muscle until exhaustion flaccidity occurs.

The next step is producible by a slightly increased perturbation, in which the response contraction is incomplete, giving it a twitching character. The next, following a sufficient excitation, is a complete contraction. These phases which may be regarded as ascending reaction types, and may be varied in time relation by the time duration of the stimulus, represent the ascent from the state of rest to the contractile climax. If we continue a sufficient stimulus to maintain a continuous and unremitting (or tonic) contraction, we observe after a variable time, depending upon the vitality of the muscle, that the integrity of the contraction begins to break and a manifestation of broken integrity of contraction as a descending curve from the climax, thus occupies a transition stage extending to final exhaustion relaxation and flaccidity. The hysterical epileptoid and *grand mal* of complete epileptic paroxysms represent a passing through an analogous series of successive reaction phases. An emotion follows a similar course, a miniature of the major paroxysms, developing tensions of greater or lesser degree, but aborted by precocious overflows or emissions. The hysterical paroxysms, their catalepsies, contractures, constrictions, etc., represent yet more complete contractile phenomena, and the painful contractions, the various paroxysmal affections, asthma, etc., and the acute *algias* characterize the climax stages. Thence succeed clonic contractions and exhaustion flaccidity.

Convenience of consideration and comprehension of these physical states is greatly facilitated by assuming hypothetical phases of tissue reaction, in the order of the biological series as the tissue density reaction equivalents of various definite manifestations, such for example as the progressive hyperesthetic reactions, respectively, of tetany, twitching,

tics, catalepsies, contractures, clonic convulsions, flaccid paralyses, etc. We can then better understand the action of the various therapeutic measures at our command, and that those that change the pathological phase should be differentiated into those that restore the normal tissue synthetic processes, the density and the integrity necessary to functional capacity, on the one hand, and those which by toxicity or other agencies carry it forward to the exhaustion stage. The former is physiologically progressive. The latter is one of pathological retrogression. Though they are equally efficient in eradicating disagreeable symptoms, the ultimate resultant of the former is good, the latter, bad. In the treatment of shell shock, not infrequently symptoms are transiently eradicated by measures such as chemical anesthesia, which do not eradicate the underlying hyperesthesia, and even predispose to relapse when the victim experiences a subsequent shock. Ultimate reflections on these points is sure to bring severe condemnation on those who are responsible for such shortsightedness.

The typical emotion paroxysm, which may be but a miniature of the developed hysterical paroxysm, may range from a simple disturbance of the respiratory rhythm by a prolongation of the inspirations, to even treble that of the expirations. It may be attended by a sobbing form of breathing and accompanied by successions of waves of emission of kinetic energy expressed in ripples of miniature muscular contractions, passive, involuntary, largely insensible to the subject, and affecting mostly the smaller muscles and those of expression more than of posture or movement, ranging to conversion or hysteric types and to motor discoordinations. See Darwin and Bell later on.

Next to emotion, the choreic reaction exhibiting the biological phase of twitching, or incomplete muscular reactions, is expressive of reactions modified by weakness. It is truly an irritable weakness of the soft tissues of childhood, which may be so hyperesthetic that muscular repose is impossible and superirritability agitation is the inciter of involuntary incoordinate movements. Here we observe energy accruement beyond that of the early emission of the emotions, but less than that of the complete tonic contractions. Chorea exhibits movements which in discoordination of movement resemble those of the adult amnesia. Tremor exhibited either in sustained effort or motor activity is to be recognized as a weak and imperfect exercise of the muscular organs.

All the specific types of vital reactions exhibit a succession of dominant phases in the biological series, followed by relaxation attended by an exhaustion relative to the expenditure of energy. Emotions vary greatly; the passive pleasant emotions are hardly more than thrills of passing waves of mildly excited sterile impulses. Those of the passive perceptions of music, dramatic performances, speed exploits of airplane and automobile, are those in which the auditor and passenger play an entirely passive part. Here is especially observed an instance where the emotive or amotive feature would be eliminated if the mechanical work of expression or propulsion necessary had to be supplied by the auditor or passenger. These pleasant emotions are accompanied by those transports of delight and of sensorial lulling which are akin to those of religious ecstacy and certain lesser degrees of drug narcosis, of alcoholic intoxication, and chemical anesthesia, all of which are pleasing and captivating, analogous to the passive stimulations of massage.

The distinguishing feature between the socalled *conversion* hysterias and simple emotions, is the contrast between the more or less imperfect physical expression in the former, and the sterility of the latter. All kinds of impulsive and explosive acts are characterized as emotional when really hysterical would be a more distinctive term. They belong to the conversion type of hysterias. The term emotion should be restricted to the less motor and the more emissive and sterile types.

The recoil, or unpleasant emotion, follows more perfectly the characters of reaction irritability. The emotional addict being in a state of low energy cumulative capacity, the emotion as a recoil phenomenon begins in the biological phase of the persistent state of tension which may develop into a tetany; examples of which are dry grief, restrained rage, tetanic fear, etc., which exhibit delayed relaxations and accrued ultimate outburst force. The more typical emotion, however, is the type which is characterized by little development of tension, and which is being continually released by waves of emission of escaping physical forces. Emotion may emerge into hysterical paroxysm as physical motive forces accrue to explosive outburst.

Every normal individual unconsciously experiences a continuous succession of recoils to his environmental vicissitudes, which, though more or less wearing upon the vitality during waking hours, do not arrest the attention or cause conscious fatigue. If, however, the individual becomes hyperesthetic, these same series of recoils, formerly entirely unnoticed, now become exaggerated and a source of perturbation of conscious irritation and chronic fatigue. If, on the other hand, a mild narcosis or anesthesia or an ecstatic state be substituted, the release from what has been an unperceived factor is now characterized by an indescribable feeling of relief, of freedom, and a mysterious emancipation which is attended with a physical sense of buoyancy, lightness, and relaxation, and a mental one of peace, serenity, blissful comfort, rapturous delight, or transports of felicitous pleasure. As this passes away the previous insensuous perturbations become perceptible.

In other words, the state of lulled sensibilities is one of imperturbation from environmental factors. Not until one has experienced narcosis or anesthesia, which obliviate the subject from the normally imperceptible factors, does he become conscious of their existence. It is then to some degree, by contrast with the anesthetic abeyance of sensibility, that it is apprehended, though the toxic features of the drugs must also be recognized. However, the typical after event is a heightened acuity of sensation.

A Biological Substratum.—So many cases have been reported wherein soldiers have experienced serious results from a second or third shell shock which were out of all proportion to the current shock, that interest attaches to the underlying cause. After discounting the factors of aggravated irritability, augmentation of the exciting cause, super-

imposition of one causative factor upon another, increased fatigue and weakness, etc., should cause us to give heed to the biological factors of causation.

In biological research on elementary reactions of rudimentary forms of life, involving the fundamental property of irritability of living substance in general, it is observed that if the excised living muscle, in a state of rest or quiescence, be irritated or stimulated, and after an interval reirritated or stimulated, the same in kind and degree, whereas the first stimulus excites no appreciable reactions the second one will excite one, both precocious and relatively violent. The first reaction, in fact, falls below the physiological unit, *the threshold of stimulation*, and the second greatly exceeds it. The first stimulus sensitizes the object of observation sufficiently to produce a hyperesthesia. This fundamental biological factor should not be ignored in our analytical efforts in behalf of elucidating the many seeming paradoxes of the war neuroses.

If instead of occasional intervaled perturbations a reasonable succession of perturbations occur, the above-mentioned result will not materialize, but instead an immunity will be developed, protective in its nature. Again, if the succession of perturbations be so rapid or frequent that the reaction of one cannot be completed before the accession of the succeeding one a state of coalescent contraction supervenes, termed biological tetanus.

Recurring now to the battle line, we find the first described type among the victims of occasional big-shell explosions; we observe the second type among those of the more frequent ordinary field-gun fire; becoming accustomed to it, we attain a degree of immunity which minimizes the effects of the explosions of close proximity when they occur, which are often referred to as paradoxically inconsequential. If, however, the firing assume the high frequency known as drum fire, the most unhappy results obtain.

It is well known to embryologists that fertilized eggs, subjected to the vibratory jars and shocks of railroad shipping, when later hatched exhibit a delayed development. In many it is completely arrested. The coarse vibrations of electricity prove fatal, whereas the same voltage in very high frequency currents is withstood with impunity. The living substance thus appears to be vulnerable to coarse vibratory perturbations of extended wave length, on the one hand, and of overlapping and coalescing ones on the other. Drum fire has been much observed as a prime factor of shell shock etiology.

Suboxygenation and Suboxidation Factors.—There are many occurrences connected with its occurrence that point in no uncertain way to the conclusion that suboxygenation and suboxidation play a prominent part in the production of the composite syndrome of war shock. Primarily, let us recount the three prime essentials of all oxidation, namely: *Oxygenation* (the supply of oxygen), a definite alkaline reserve or *alkalinity*, and a radioactive activation to chemical action at a relatively lower temperature than otherwise would be the case, termed *catalysis*. On oxidation collectively is fundamentally dependent the process of tissue synthesis.

Physiological catalysis is provided by the cell neuclei of the stationary tissues and by a highly neucleonic substance, viz., lecithin, of the circulatory tissues. A supposed poverty of these tissues, or of their phosphoric content in neuroses and psychoses, especially the former, has led to the well-known phosphorus form of internal medicine in this class of cases, and to many artificial catalytic substitutes in the form of radioactive and allied therapeutic measures. We learn from Hamberger's law that phosphates and albumins are given up altogether as cleavage products of the blood when it is even slightly acidulated, or carbondioxide is passed through it. General acidosis is already well proved to be a product of shell shock and a constituent of its syndromes, by competent investigators, recently reviewed by us, and it now remains to point out the *suboxygenation factors.*

As a beginning, let us concede that all cases of peripheral and extremity anemia and asphyxia and splanchnic venous stasis are conditions of marked local and general suboxidation, whether occurring with emotions, hysterical paroxysms, or war shock. Fatigue, as a predisposing cause, we know may produce albuminuria and phosphaturia, and fatigue products in excess produce general toxemia. Physical exhaustion depresses both the respirations and circulation.

The collective physical phenomena attendant upon near-by explosions of large high-power shells are almost without exception suboxygenational or suboxidational in action upon animal life, if the men who have made the subject a scientific study throughout the progress of the war are not discredited. There are too many creditable eye-witnesses to discredit them, whatever be our interpretations. They will ultimately demand a hearing.

The atmospheric disturbance may be perceived from Col. Sir John Collie's statement[5] that a high explosive exerts a pressure of ten tons to the square inch. Major Frederick W. Mott[5a] comments that *enormous aerial compression is generated, the ordinarily incompressible and hence protective character of the cerebrospinal fluid is altered, and it is therefore probable that the compression is transmitted to the fluid about the base of the brain, causing shock, affecting the floor of the fourth ventricle, and resulting in abrupt arrest of the cardiac and respiratory functions,* which is significant, though highly speculative as to the nervous mechanism.

Major Mott,[5a A] after crediting Sydenham with the statement that the forces generated are sufficient to cause instant death, and another's estimate that the sudden atmospheric depression of such cases corresponds to a dynamic pressure of about ten tons to the square yard, comments: "One effect of this is to liberate nitrogen suspended in the blood and transform it into bubbles of gas, which are driven into the capillary vessels and cause instant death." This effect is distinctly deoxygenative.

In his Lettsomian Lecture No. 2, Major Mott remarks: "Many of the symptoms of CO poisoning are similar to those which I have observed in shell shock and burial." In his lecture No. 1 he mentions that one may be buried and partly asphyxiated, or suffer from deoxygenation of the blood through CO poisoning, of which high explosives contain so large a quantity.

Returning to lecture No. 2, he continues: "The symptoms of CO poisoning are headache, which may take the form of distention of the head without pain, ringing of the ears, interference with vision, which may become indistinct and blurred, hallucination of sight, and even blindness, giddiness, especially on exertion, powerlessness, yawning, weariness, often vomiting, shivering and feeling of cold, palpitation of the heart, and feeling oppression in the chest. When men regain consciousness they appear dazed and stupid, and generally have no recollection of what has happened," etc.

Proper facilities for prompt artificial oxygenation of badly asphyxiated cases should be convenient directly behind the battle lines, and not only by inhalation, but in comatose cases by gas pumps, through colon tubes per rectum. Many cases can be saved in this way that otherwise would be partially or wholly lost.

A very important derangement of the mind in CO poisoning is loss of memory. This may be characterized by intense retrograde amnesia, together with loss of recognition. Sometimes a whole period of time is effaced from the mind. The power of speech may be lost for some time, or it may come back after many days. This symptom amnesia is as typical a resultant in other cases involving other types of suboxygenation and acidosis.

Major Mott's résumé of the effects of high explosives: "(1) Commotion from aerial compression, (2) concussion, with or without burial, (3) decompression, with embolism by bubbles of N and CO, (4) inspiration of CO during the aerial compression, (5) prolonged inhalation of noxious gases while lying unconscious or partially buried.

Mott quotes Leonard Hill: "Explosion of a big shell in a trench, dugout, cellar, or other confined place, must, I think, instantly deoxygenate the air and produce a high concentration of nitrogen." This is again deoxygenation to the victim.

The importance of burial as a factor of suboxygenation is emphasized by reports such as one made by Dr. McCurdy[10] of a British soldier who one night was buried, and was under the earth for three-quarters of an hour. The immediate and later symptoms of this case were described as of a most serious nature.

Feiling[11] reported a case of a bandman who was buried in a trench for probably twelve hours before being dug out, whose amnesia (loss of memory) was so complete that he was oblivious of his past life, home, family, friends, etc., which, however, were preserved in the subconsciousness which he gave outward expression to under hypnosis, thus exhibiting a double personality, each one oblivious of the other. No CO poisoning was reported in this case.

Sollier and Chartier,[12] among the other clinical analogies of shell shock, which vary as to cause only, also recognize caisson disease as a sort of counterpart of its mechanism. The sphere of influence in cases of shell shock is divided into three zones by these authors. In the first the subject experiences a blow proceeding from the displaced air, and of such violence as to be comparable to a blow from a solid projected with great force. The sequence in this zone is generally fatal, from gross injuries, fractures, dislocations, cerebral and medullary lesions, organic injuries, etc. In the second zone a primary great atmospheric compression, characterized by sudden increase in its density, is followed by a secondary event, a violent atmospheric expansion (decompression) caused by the vacuum produced by the explosion. Gas embolisms are attributed to the expansion phase, and by analogy with caisson disease, cases of hemorrhage, rupture of the ear drum, labyrinthine ear shock, retinal hemorrhage with choroid rupture, paraplegias and hemiplegias are also charged to this, which is also the injurious phase of caisson disease. In the third zone the body is subjected to rapidly decreasing vibrations compared to electric vibratory phenomena, and comparable to electric shock and stroke by lightning.

The authors put the question: May not paralysis, contracture, tremor, anesthesia, etc., be due to inhibition, or to exhaustion caused by excessive stimulation of the sense organs or nervous system, or to a molecular disturbance of some kind produced by vibration in the equilibrium of the nerve cells?' Let us add: Is not this inhibition one of spasmodic anesthesia? Are they not physical—contractile?

We will quote the translator's and author's résumés: "In cases of shell shock, then, are present from the outset nervous disturbances of a purely functional aspect, to which may or may not be added organic lesions, generally temporary. At the end of a certain time the same symptoms are formed that belong, in the large majority of cases, to hysteria. The authors believe that this hysterical phase is not a distinct element, nor a superimposed condition, but that there exists in these cases a scale of operating factors, physical, mechanical, organic, and psychic, all tending to produce a single clinical result. In the hysteria of shell shock, physical causes and conditions predominate; in ordinary hystero-traumatism, psychological and physical phenomena are on almost the same plane; and in ordinary hysteria the psychological element tends to assume a dominating importance.

As to prognosis, it must always be attended with great reservation and circumspection.

As to treatment, as soon as the organic disturbances disappear the problem is simply one of traumatic neuroses, lacking the psychic element.

The authors draw the following conclusions:

1. The kind of explosion determines the number and variation of its results.

2. The clinical manifestations resulting do not present a definite character, for they are found under other conditions. There is, therefore, no syndrome peculiar to shell shock alone.

3. Some of these manifestations appear to be due to distinctly organic disturbances, others to dynamic disturbances of the central nervous system. The former seem to be caused by the shock and the violent atmospheric expansion, the second by atmospheric vibration.

4. Between the clinical syndromes of a purely organic nature and the functional manifestations exists a series of transitional forms, which fact leads to the conclusion that the central nervous system is subject, with a different degree of intensity, to both types of symptoms.

5. The nervous symptoms of the functional type are found most often, from the somatic point of

view, with the characteristics usually attributed to hysteria, as described by Charcot.

6. These symptoms exhibit hysteria in its most spontaneous and elementary form, lacking absolutely the psychological complex that ordinarily complicated and colors it.

7. They prove that hysteria can be of a purely physical origin, without the interpolation of any psychological process whatever, conscious or subconscious.

8. Psychological theories of hysteria are, therefore, insufficient for explaining all cases. Only a physiological interpretation is applicable to hysteria from a physical cause as to hysteria from a mental or moral cause."

As opposed to the able observations and analyses of Sollier, Babinsky[2] differentiates all so-called functional disorders into two varieties: those which are readily cured by psycho-therapy, and those in which he thinks the patient is opposing recovery. He questions whether those not curable by psychotherapy should not be refused discharge or sick leave. It is obvious that such narrow considerations as these lead to much harm. Not that discharge and sick leave are desirable, but rather the implied suggestion that unless cured by psychotherapy (since he recognizes no organic or physical damage), the patient must be a malingerer or a disloyal resister of recovery. In contrast with this, Sollier recognizes the existence of a *fixed idea* of incurability on the part of the patient, which he makes a subject of treatment and cure. It would seem an injustice to the patient, and the physician should not be too prompt in bringing him under suspicion before he has exhausted therapeutic possibilities outside of his own convictions (fixed ideas). Where optimism is high, when offensive is successful, much can be disregarded, but protracted trench warfare in winter makes it unsafe.

The Fatigue Factor.—The fatigue factor of the war neuroses is by no means an insignificant one. It calls for individual consideration, notwithstanding that its etiologic factors are by no means entirely separate from the other causes elsewhere treated. Farrar[10] has commendably retrospected the monographs of Bonhoffer,[35] Buzzard,[39] and Maitland[40] on fatigue and other factors of exhaustion, and exhaustion neuroses and psychoses.

The premonitory signs, such as irritable weakness, restlessness, insomnia, debility of attention, emotional instability, depression, etc., indicate hyperesthesia involvement with beginning exhaustion. Optic and auditory hallucinations exhibit super acuity of hyperesthetic reaction. The increased instability of muscle and the mild neurotic symptoms, arterial sclerosis, etc., suggest chemical irritations and mild inflammatory reaction, such as accumulated acid products, would be prone to cause. The extreme pallor, low blood pressure, edema of lower extremities, somnolence, collapse, etc., suggest splanchic venous stasis; and the dilatation of the heart, emaciation, diffuse muscular atrophy, edemas, chronic phlegmons, susceptibility to tuberculosis and other parasitic diseases, exhibit advanced inhibition of tissue synthesis, with serious loss of tissue density, and of functional and resistance integrity.

The conspicuous feature of these cases is the persistence and permanence of the fatigue sequences. Such extremes are little seen, apart from the rigors and disciplined overfatigue and exhaustions of war. Recuperation following excessive fatigues and exhaustions is painfully slow, especially following collapse. If these cases be returned to the line without rest and recuperation, often of many months, relapse is prompt, and exposure to shell explosions is quickly followed by shell shock and greatly augmented incapacitations.

A great danger in these cases is the exhibited proclivity of medical men to be overimpressed by the so-called psychical factors of causation, such as the withstanding of unremitting bombardment, especially of "drum fire," and moreover the resultant exhibition of emotional instability, insomnia, hysteria, and other classical "neurotic" and psychical manifestations, and finally of exhaustion psychoses, tends to warrant the conclusion that the syndrome is essentially psychical, perhaps imaginary or simulative. This great injustice has been done to this class of cases by medical men of all the belligerent nations, by both omission and commission. In the latter Germany leads, but the manner of their treatment of the deported Serbians out-Turks the Turk in barbarity.

It should be emphasized that it is economically best, as far as possible, to keep within the fatigue limitations of troops. Germany has recently given us evidence that exhausted troops are poor fighters, Russia did the same in the Russo-Japanese war. When fatigue limits have to be exceeded, not only ample rest should be enjoined, but resulting acidosis should be promptly neutralized by sodium bicarbonate, and the faltering circulation should be activated by hot coffee or other stimulants; but food should not be allowed too generously until the fatigue crisis has passed. All suspicious cases of cardiac dilatation and venous stasis should be removed from the ranks and treated with ergot until on reexamination they are shown to be equal to any service assigned to them.

The fatigues and exhaustions of continuous physical recoils, tensions, strains, tetanies, etc., are those of the physical body, contractile in nature, and accompanied with accumulation of the excrementitious metabolic products which we term fatigue products. The nervous tissues are probably least concerned in them of any in the body. These toxic excrementitious products react upon the living tissues, and as poisons retard the synthetic processes, resulting in a lower grade of tissue integrity, which is exhibited by lower density of the solid tissues and by lower specific gravity of the blood.

Fatigue plays so conspicuous a part as an acquired predisposing factor that some writers emphasize the collective events of war which eventually exhaust or render the subject prone to shell shock, under the general term strain. Smith and Pear[29] regard "war strain" as a more satisfactory term for the whole syndrome than shell shock. The use of the word strain implies continued perturbations, and anxieties culminating in some sort of giving way or outbreak, as a cumulative effect, which in war is greatly multiplied. Strain expresses the stress experienced in a monotonous highly disciplined life which is attended by the withstanding of incessant firing, which highly excites, with all

responsive reaction, restrained or inhibited, until a contiguous shell burst affords the impetus to an explosive outburst of pent-up emotions. This factor should not be ignored, though it by no means constitutes the entire syndrome as our collective data show.

As producers of polyuria, the superstress of sustained mental effort, the strain of sustained motor effort, the stress of the mental strain of bombardment, the anxiety of apprehension and dread, the tetany of worry and the tensional depression status, are about equal. However usually recognized as diversely psychic and physical states, they are all causes of polyuria and of fatigue and exhaustion as well as of psychic symptoms. Fatigue augments the hyperesthesia of the hysterical, and may be the exciting cause of an accident.

As fatigue products accumulate and by their protoplasmic toxicity are productive of hyperesthesia, we observe inversely with the exhibited general superirritability a coincident benumbing of the muscular sense and often of cutaneous sensibility. The relation of this factor should not be ignored when summing up the participation of fatigue in the syndromes of the war neuroses. In hyperesthesia and anesthesia we have a connecting link between the physical and the psychical.

Anesthesia of Exsanguination Asphyxia.—Sensory retrogradation in order of *biologic series.* Anyone can prove to himself the fact that tissue asphyxia is productive of anesthesia, by the highly artificial process known as distilled water anesthesia, by virtue of hypodermic injections of distilled water into a circumscribed zone until it is completely distended with the water, producing pressure displacement of the capillary blood, as indexed by blanching of the area. This anesthesia is as complete as though an adequate solution of cocaine was used. It may be added also that general anesthesia is producible by respiratory asphyxia, though it is accompanied by loss of consciousness. Most individuals are however familiar with the production of anesthesia below the knee of the leg crossing over the other, in which the patella of the under leg makes pressure against the vessels underlying the uppermost leg. Clinical observation provides numerous instances of anesthesia of exsanguinated extremities, and localized and generalized anemia of the periphery. One of these is by the circulatory stasis of an esmarch bandage.

Partial mechanical anemia, however does not in direct ratio produce a partial anemia, unless it is very gradually produced. When at all abruptly mechanically produced, circulatory anemia is attended by a too paroxysmal type of contractile reaction. If well graduated, it is characterized primarily by tension and hyperesthesia, secondarily by twitching and paresthesia, thirdly by cramp (spasmodic tonic contraction) and dysesthesia or pain, fourthly by broken or clonic contraction or convulsions and partial anesthesia, and finally by exhaustion relaxation, flaccid paralysis and complete anesthesia. Between these five phases of a curve of the range from the normal to flaccidity and anesthesia, one may fill in all transitional gradations intervening them, thus completing an orderly series of vital reaction events common to all reaction of living parachymatous tissues and owing to which fact we have dubbed it the curve of the *biologic series.*

Tissue density, as an index of the existing degree of integration and physical integrity of the tissues, other factors equal, occurs in direct ratio to its blood supply. Every individual exhibits a state of tissue density which is commensurate with his maintained states of tissue sanguination, qualified by the quality of the blood, and every individual standard of tissue density carries with it a corresponding phase in the *biologic series* as to specific reaction characters. Physical reaction characters are as typical of unit densities of living tissue as are the physical properties of the chemical elements to their atomic weights.

The relative importance of air, water and food as constituents of the body may be gathered from the time honored physiological maxims: "We can go seconds without air, days without water, and weeks without food." The chemical state of the body finds its prime importance in that degree of alkaline reserve which is necessary to oxidation and other normal chemical reactions. Among others may be mentioned the salt equilibrium, which is so vital that tissue integrity depends upon it, though it also is specifically related to the chemical reaction as shown by Hamberger's law which provides that blood even slightly acidulated gives up albumins and phosphates to the serum, while conversely when alkali is added, chlorides are taken up from the serum by the cells. Moreover, carbon dioxide passed through it acts the same as the acid, and oxygen acts the same as the alkali, the former fostering *disintegration* and the latter *integration.* We may add further that the former lowers tissue density and integrity while the latter fosters them. We observe that asphyxia and acidosis are notable derivatives of the spasmodic procedures from chill, violent emotions, concussion. accidents, war shocks, etc."

Numbness results from emotions and anesthesia from yet more marked spasmodic contraction. Thus we observe a wide range of what have long been termed neurotic and hysterical phenomena as ultimate sensatory disturbances, varying from the numbness of emotional origin to the anesthesia of spasmodic and paroxysmal contractions. Emotion from the esthesia standpoint shades gradually into paroxysmal reaction. We can place no mark of demarcation between the two. Emotions lose their typical emotion qualities of reaction as they progress in morbidity and become more chaotic and less defined, as they approach the characters of simple paroxysmal reactions on the one hand, or as they retrograde into simple emissions of energy on the other. In other words as they become sthenic or asthenic of diverse extremes of character.

Hyperesthesia obviously occurs in various degrees, for all exhibited hyperesthesia is not sufficient to produce spasmodic asphyxiate anesthesia. Mott[9] observed that hyperesthesia is more common than anesthesia. He found both superficial and deep sensibility affected and in severe cases sometimes loss of sensibility to all forms of stimulus. Myers[9] reports observations of hyperesthesias and resultant over-reactions of increase of effective response. He has observed several cases in which the hyperesthesia has passed over into *hypesthesia*

and anesthesia. Like Mott, he observed great variations in sensibility, but saw a preponderance of hypesthesia and anesthesia—perhaps at later periods than Mott. These contrary reports lead to the conclusion that the two opposite states are really equal.

"Myers found about two-thirds of the cases of disturbed sensibility were accompanied by spontaneous or subjective disorders of sensation or of movement. Such disorders were often successfully traced to actual blows in the region in question from sandbags or other objects, or to the patient's fall after having been pushed or lifted by the concussion" (Transcript by Brown and Williams[5]). This agrees with observations of Mosso cited in my former paper.[37] We regret these vagaries of description, but are glad of the mention of disorders of sensation, however, not understood.

In the idiot, imbecile, hysteric, and the war shock victims, to the extent that normally involved functioning tissues lose sensibility of their own muscular reactions and to exterior sources of impression, we observe exhibited functional incapacity, both physically and mentally. This is most adequately exhibited in those unstable individuals who fluctuate from sensibility to insensibility and exhibit normality during the sensibility periods and corresponding mental and physical disability during the anesthetic periods. Yet, when anesthesia is artificially produced and the pathologic anesthesia is thus eradicated, the primarily abnormal condition becomes normal. This fact proves our postulate that the root of the abnormality is a hyperesthesia and not the more conspicuous anesthesia.

That the exhibited symptomatic anesthesia is the derivative of a spasmodic exsanguination of the affected tissue is shown by the well established fact that when spontaneously occurring, it is a product of those diatheses and stigmata which otherwise are productive of spasmodic and paroxysmal phenomena; moreover when artificially produced, those procedures which obviously promote spasmodic reactions, produce the ultimate effects and conversely such agents as anti-spasmodics, narcotics and anesthetics, instead of increasing the symptomatic anesthesias, anomalously, temporarily or permanently abolish them. In fact the abnormality is eradicated and as far as that abnormality is concerned, *a normal state is produced temporarily by an artificial anesthetic, or by hypnosis, by virtue of relaxing the tetany or paroxysm which was responsible for the primary asphyxial anesthesia.* Such artificial relaxations occasionally prove permanent and as such, cure of the ailment.

Secondary Tissue Changes.—Among apparent paradoxes presented on both sides of our subject may be mentioned the changes in involved tissues from pre-spasmodic states of low density as predisposing to paroxysmal types of reaction, to post-spasm states of high density, which Roy and Cobbett[38] observed in skeletal muscles as due to exsanguination in surgical shock following which a rise in the specific gravity of the blood was ascertained within an hour or two, and to rise so high that it flowed with difficulty except in the largest arteries; the intestinal walls meanwhile losing their density, becoming succulent and passively hyperemic. Complementary to the above mentioned reverse in direction of tissue density change, from the state antecedent, to that succeeding the shock spasm, we know that hyperesthesia proceeds while anesthesia as typically succeeds the outset of this median event. In other words the predisposing status, leading up to the spasmodic reaction, is hyperesthesia, while the ensuing effect as exhibited by those areas affected by the spasm is anesthesia, not infrequently of an asphyxial nature, otherwise partially so.

The next exhibited phase in the order of the *biologic series* is that of full tonic contraction. This may be local or general, transitory or protracted, and either painful or not, corresponding to the acuity of the cramp spasm. In general, the acuity of the contraction and of the pain is synonymous, the greater acuity appearing in the smaller muscles; those of the face and intercostal spaces being notable. The more intensive contraction is also exhibited in the more vulnerable extremities, such as the muscles of the calf of the leg and the extensors and flexors of the feet which are most subject to painful cramps. The muscles of the extremities, collectively, exhibit hysterical and hypnotic catalepsies, contractures and rigidities, and as tonic phases of hysteric and true *grand mal* epileptic paroxysms, in which it occurs following a tetanic aura largely affecting the thorax, the pharynx and larynx in their deglutition and respiratory functions, erectile swelling of the pharyngeal tonsil. This somatic tonic contraction is succeeded by a phase exhibited by its broken integrity (clonic contraction), which is intermediate in the progressive course traversed to the final goal of exhaustion relaxation, the diffuse collective contraction of the somatic body is seldom if ever painful owing to the diffuse dissemination of the contractile phenomena. The observation that the aura exhibits its perceptible beginning in the weakest organ appears to hold true at least when the weak organ is the stomach. The question of the existence of visceroptosis in the cases where it arises from the abdominal region is an interesting one. Certainly strong emotion and many epileptic auras appear to emanate from stomachs also exhibiting dilation, ptosis, tenderness, and often a sense of soreness.

Pleasurable and painful features of emotions are in fact phases of relaxations and more or less tetanic contractions, as in *feeling* in general, as muscular sense phenomena. Persistent anesthesia of the muscular sense involves a loss of voluntary activity and loss or abeyance of memory of past voluntary use of the motor organs, and involves current incoherence and incoordination. Anesthesia with nullity of muscular sense involves abeyance of memory of its past functional acts.

Ecstasy is perhaps the most elusive of the hysterical crises. It is at once radically physical and radically mental. It has been characterized as the most "spiritual" of all mental phenomena. The ancients, when in ecstatic states, saw visions and prophesied. This state was fostered by fasting until advanced states of anemia and general inanition were attained, and not infrequently it was augmented by free indulgence in wine and the crude forms of oriental narcotics. The typical feature of ecstasy is bodily insensibility and mental revery

in which inability to reason and to perform mental tasks is as marked as is the hyperesthesia of the body. A sense of walking on air, while in the waking or semi-waking (walking) state is typical of several other allied states exhibiting loss of sensibility not excepting alcoholic intoxication. Ecstasy is surely not a *material* entity, but it is obviously a *physical* state characterized by abeyance of a vital function, as the effect of pathogenic factors above outlined. The hallucinations, when exhibited, show an advanced pathologic state.

Phenomena such as ecstasy and the emotions appear to occupy a place on the borderline as transitional phases between the purely psychic and the purely motor, partaking at times of both coincidently, and of each alternately. They are characteristic expressions of instability and of frequent facilitated fluctuations from one extreme to the other, though obviously subnormal and typical of disequilibrium. Owing to this aspect they are in many ways atypical.

Ecstasy in many ways approaches amnesia as a state of loss of sensation, memory and reason though less permanent. Perhaps one of the best arguments against the identity of ecstasy and allied phenomena with purely *psychical* phenomena is the fact that they act in inverse ratio to one another. Capacity for intellectual tasks diminishes correspondingly as ecstasy progresses. Reason and ecstasy are incompatible, one must decline as the other rises. The development of ecstatic states must be cured before a victim of hysteria can be expected to resume his normal economic capacity. He can be cured by correction of the tissue density and physical contractile derangements that underlie his hyperesthetic and anesthetic states.

The present paper is the second of a series of three on diverse aspects of the War Neuroses. In the third article will be found a recapitulation summary and a bibliography for the second and third papers.

In the third paper the author will endeavor to analyze and interpret individually the several typical manifestations which collectively go to make up the characteristic syndromes met with by the army psychiatrists, as reported by them in the current literature.

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THE EFFECT OF THE SELECTIVE DRAFT LAW IN THE PRODUCTION OF PSYCHOSES.

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During the present great crisis in the making of the world's history, when all the leading nations and many of the smaller ones, are being held in the throes of a deadly combat, there is an excess of strain thrown on both the physical and mental energy of each individual. It matters not what his profession or calling may be, he must assume some extra responsibility, and especially is this true of those who are engaged in the active military fields. By placing man in a position where he is subjected to a greater amount of strain, changes in his emotional sphere are inclined to take place. The sudden change in his environmental condition, being surrounded, so to speak, by an altogether different atmosphere, stimuli hitherto unknown make a very forceful impression upon his fields of perception. The immediate transfer of a person from the peaceful life of a civilian to that of an active participant in a life of a military nature may be followed by unpleasant results.

Crile has demonstrated that quite early in the history of the evolution of man the various kinds of stimuli when applied produced certain types of reaction. If we take the broadest viewpoint in the study of the relations of the individual to his environment we readily can see that his every effort is centered toward bringing himself into adequate adjustment with his surroundings. In order to bring about this adjustment a certain amount of nervous energy is required, the amount expended depending upon the nature of the task to be performed. Upon his ability to meet and cope with the situation in question will depend the nearness to which he approaches a specific goal.

The nature of his emotions plays an active part in deciding the course an individual will pursue and, should a psychosis intervene, his emotions will be an essential factor in bringing about its onset. It is generally admitted that heredity is an important one among the causative agents in the production of a mental illness, but it seems in many instances that the situation in which an individual is placed is the paramount factor in bringing about the psychosis. It is the writer's opinion that many of the men recently admitted to this hospital would have been able to make good adjustment had the situation been less difficult. Smith and Pear on Shell Shock say, "A psychoneurosis may be produced in almost any one if the situation be made difficult enough for him." Had there been no selective draft law doubtless many of these young men would have experienced no mental disturbance.

To the individual who is prone to excessive indulgence in alcohol the situation may be a factor in stimulating latent desires. The alcoholic's mental condition may be traced to a faulty parentage. A biological inefficiency may account for his failure to meet the demands of life and he may only take this method of overcoming some difficulty or of covering up some deficiency wherein nature has failed to supply. To those who lack a knowledge of the psychology of such a person he is nothing other than a moral pervert who needs to have imparted to him lessons of morality and who should be compelled to abide by them strictly; on the other hand to the student of mental disease he presents an altogether different personality. Some fundamental element which is a constituent of the normal individual may be absent in this particular person. His inefficiency may assume the form of one of the types of sexual perversion or it may occur as the loss of the normal sexual powers; however, it matters not in what form the deficiency appears, it is the unconscious desire of such a person to adjust himself properly by surrendering to the excessive indulgence in intoxicating drinks. His familial condition may be not altogether pleasant, and he

may hail with much pleasure the call to enter military life. This may be to him a great emancipation, but on entering the service he finds the situation to be more difficult and to flee for refuge is impossible. There is only one alternative. Alcohol now comes to the rescue and his indulgence ceases only when he is housed safely within the walls of a psychopathic hospital. The following brief extract from a case is an example:

Only a few weeks ago a patient was admitted to this hospital. He was a young man born under normal circumstances, free from hereditary taint so far as could be ascertained. His childhood and youthful days were uneventful, but in his early manhood days he selected as his companions other young men, some of whom were addicted to strong drink. In the course of events he became an indulger at intervals. When the time had come for his entrance into the military service he accepted it as an opportunity to free himself from his former associates, also, as an excellent time to liberate himself from the drink habit. He entered the military service, the demands were greater than those in his previous environment, he began to indulge in alcohol and did so almost continuously; the result was that he was admitted to this hospital only a few weeks subsequent to his enlistment. The above instance is only one of the many who take this method of meeting the extra demands of a military life.

The causative agent of this type of reaction may be traceable to the same etiological factor which brings about a praecox episode or other forms of psychoses. If the various classes of mental disease are studied from a psychoanalytic viewpoint it will be seen that probably every form of a psychogenic neurosis is due to some buried complex—factors hidden in the unconscious realm of the individual. Let these underlying forces be given full credit as causative agents, yet it is clear to the mind of the writer that the environment of the individual, at the least estimate, plays an active rôle in the onset of his psychosis.

A large percentage of the recent admissions to this hospital are young men who fall within the age limits of the various classes of dementia præcox. Many of these patients show a symptomatology not essentially different from the ordinary præcox case, while in other cases the symptoms are variable. Many of the latter doubtless would have been able to follow the ordinary pursuits of a civilian life without the development of a mental illness.

To Kraepelin belong the credit of having introduced new life into psychiatry. By a careful and systematic study of his patients for many years, by his clear insight into clinical conditions and especially by his independence of thought, he was led to step to the forefront and shatter the bonds which for many years had retained the old classification of mental diseasee. It was he who first welded mania and melancholia into one form of mental illness. He was also first to study the various types of abnormal reaction in the youth and adolescent, and to give to each a name that signified the type of disturbance present. While he did not go deeply into the symptomatology of the disease, yet to him the patient's peculiar speech and actions, the numerous and senseless remarks, the reptition of meaningless words—each had its own significance. Kraepelin even saw more than this. He perceived that dementia præcox should be divided into subclasses. Since his day many other writers have attempted to select a more appropriate name, but, as yet, none has been accepted. Other students of psychiatry have gone more into detail as to the symptomatology and they have given more extensive discussions of the patient's behavior, only with the result that the greater percentage of young people with psychoses have been classed as dementia præcox.

The psychoanalysts have done excellent work in bringing to bear the etiology of mental illnesses and in a great many instances their successes have been worthy of merit. Hidden complexes have been cited as the causative agents. They have even gone further beneath the surface than the mere discovering that some unconscious element does exist as a basis, but they have been able, in many instances, to demonstrate the particular event which was responsible for the disturbance in the intellectual field.

To quote Smith and Pear, "Emotional disturbances play a very important part in all psychoses associated with war." Let the reader imagine the emotional changes occurring in the individual who is just entering this new sphere. The soldier just entering military life is subjected to intense and frequent stimuli, hitherto unknown, day after day with no relief, all of which could be "vouchsafed for" were he in civil life; but which is altogether impossible to those engaged in military fields. On account of his inability to overcome some difficulty emotional disturbances develop. The difficulty may usher in the mental disturbance in one of the many ways. The first signs of his mental illness may be characterized by the loss of sleep from a variety of causes. He may be unable to sleep from worry over learning his drill, from thinking about his homefolks, or because of his change of environment with such a variation from his previous mode of living. Whatever the cause of this loss of sleep, it may be accompanied by unpleasant organic sensations, as the loss of power of inhibitions and the loss of the power of self control. Along with numerous other disturbances he may develop an irritability of temper and an emotional instability. The man who is experiencing these mental and bodily discomforts may for a time show no outward signs, yet there is an inward conflict present. It must be understood that the suppression of all external signs of an emotional disturbance is only the partial dominance of the emotions by the will, and we must also remember that only the skeletal muscular system can be controlled by the will, and not that belonging to the visceral system. While there may be no signs of disharmony in the voluntary mechanism, and it may not be present, yet changes may exist in the circulatory, the respiratory, the digestive, and the excretory systems.

Probably three-fourths of the patients recently admitted to this hospital from the different branches of the military service come within the limits of the selective draft law. Many of these

patients might have been classed as being borderline cases previous to their taking up a military life. They are young men who have spent their lives in country places or small towns, with but little education or none at all, and with but a limited knowledge of the world's events. They have resided in a miniature world and they have cultivated no desire to pass beyond its limits. Their sole ambition has been to live in the way their fathers lived. When they were forced to register and subjected to the call to service a mark was placed upon them; yet hope still remained until they were assigned to active military duty. In civil life these young men had adjusted themselves well, they had been self-supporting and in many instances they had actively participated in the support of their immediate families. Had they never been called to support and defend their flag in a foreign country probably no psychosis would have intervened.

Now, take a young man entering some branch of the military service and beginning a course of intensive training, he is subjected to an altogether different environment, discipline surrounds him on all sides, he gets no sympathetic words, and news from the war zone is reaching him daily. He knows the present, he can only surmise as to the future, and he is extremely doubtful what the end will be. In his meditations he debates the question of his destiny and a fear of uncertainty enters his mind. At first he meditates, but later on he worries over the unknown; but no solution is tangible. Smith and Pear on Shell Shock say, "Of all the varieties of fear, the fear of the unknown is the greatest." As the days pass the individual attempts to alleviate his fears, a conflict ensues within him, he labors vigorously to become master of the situation, yet his every effort is in vain. His emotions are victorious, his will power is overcome, and a psychosis is fully developed. The following brief summary of a case will serve for an illustration:

A white male, aged twenty-five years, admitted to this hospital on November 9, 1917. So far as could be ascertained no psychopathic determinants were present, except that some members of his family were "quick tempered and nervous." His father was a grocery clerk, and the patient was the third child in sequence of births. His school life began at the age of six and continued until he was sixteen. He completed a preparatory course, standing at the head of his class. He was fond of athletics, he made friends easily, but his family relations were not altogether pleasant. He did not get along well with his father and brothers, but he was exceptionally fond of his mother, stating that he was her favorite.

His mother died when the patient was about eighteen years of age. Following her death he left home and worked at various jobs, in the meantime changing his residence several times. When the selective draft law went into effect he was forced to register as an eligible for military service. He enlisted for service in the Regular Army, as he stated, "to avoid being drafted." Apparently he made good progress in the army, as he attained the rank of sergeant by the middle of his third month in the service. At the end of the third month he was transferred to the National Guard and was sent to a new cantonment. Here he obtained a two days' leave of absence, visited a nearby town and returned intoxicated. He was reprimanded for his disorderly conduct and on the following day he went absent without leave, made his way to a nearby town, but was apprehended by the military authorities. He was returned to his camp and he stated that he "faked insanity," became noisy and destructive, destroying furniture, windows, etc. He also "faked death" and would tie cords about his limbs in order to stop the circulation.

On admission to the hospital he was oriented as to time, place, and person, he was free from auditory hallucinations but he stated that previous to his commitment, when "they" shot him full of "dope" he could hear voices talking to him and he was filled with all kinds of delusions. He said he had drank all kinds of poisons, a bottle of Sloan's liniment, a bottle of tincture of iodine, etc., and that he would have killed himself by drinking inoculation serum had he not had forethought enough to advise the ward master of the psychopathic hospital to keep the container closed. He was extremely nervous and restless. He showed quite a degree of psychomotor activity. He was inclined toward circumstantiality in his answers and at times displayed a marked degree of irritability. He also showed mild unsystematized delusions of a persecutory type, with reference to the other members of the family, and he stated that the army officials did not treat him right, inasmuch as they did not give him enough clothing and refused to pay him the salary he was promised. There was marked disharmony between his emotional and intellectual spheres. Numerous mannerisms were in evidence and he showed a number of facial grimaces at the time of his admission, but he was fair in his dress and clean in his personal habits. He stated that on one occasion he had ejected a lieutenant from his quarters because the lieutenant had made homosexual advances to patient.

He made a very good showing in the entire mental examination, which was not attempted until about two weeks subsequent to his admission. He possessed but little insight into his condition, maintaining that his mind was clear and that he was sent here only for the purpose of being properly restrained. The other phases of the mental tests were passed with a percentage almost equal to that of a normal individual.

On his arrival here this patient received kind assurance that all was well. He was informed that he would receive good treatment while residing here, that he would be discharged from the service within a few weeks, and that when so discharged, he would be permitted to return to his home should his mental condition warrant it. He immediately began to show signs of improvement, a rapid adjustment was made and by the end of a two months' residence he was discharged from the hospital, apparently having reached his former mental level.

Many parallel cases with varying shades of symptoms could be cited, in which the men have made as rapid and adequate adjustment as the one given. Now the question arises, into which one of the classes of psychoses should this and similar types of reaction be placed?

These patients show a symptomatology indicating an introversion mechanism, yet, apparently, no signs of dementia are present. When they are free from the enviroment in which the psychoses developed, their recovery is rapid and complete. No trace of a mental illness remains. They are able to resume their former occupations, demonstrating an efficiency equal to that displayed previous to the date they entered the military service.

It is hardly possible without a further study of cases to reach a definite conclusion regarding this type of reaction. Many patients express themselves as having been desirous of entering the military service, others enlisted to avoid being drafted, and the remainder was assigned to duty. Every one liked the service, each was anxious to do "his bit," but difficulties confronted each individual in this new situation and adjustment was impossible. A thorough and systematic study of these patients will doubtless reveal the fact that the agent immediately responsible for the onset

of this type of mental illness is traceable to the military environment.

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THE TREATMENT OF MENTAL DEFECTIVES THROUGH PHYSICAL AND MEDICAL MEASURES.

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In order to facilitate discussion the term "mental defective" is used in its most inclusive sense, as applying to all those individuals who fail to measure up to an arbitrary norm of mental development, whether the defectiveness be inherent and organic, a temporary developmental phase, or whether it consists of a more or less isolated impairment of certain faculties or functions.

With possibly few exceptions all mental defectives are improvable, some to slight extent, others to an extent which renders social adjustment possible. There are none of you who are unfamiliar with individuals, who, apparently feeble-minded in childhood, have, after subjection to a proper environment, become self-supporting and as well able to direct their own affairs as their supposedly normal fellows. Whether these cases could ever have been properly considered mental defectives or whether clinical psychology would still find defects of mentality such as would classify them as abnormal is not pertinent to this discussion. (Clinical psychology finds defects everywhere but in its own methods and conclusions.) Most of us manage to exist fairly comfortably with defects which if apprehended would immediately consign us to an institution.

I have been particularly struck by the improvement following the administration of proper hygienic measures, fresh air, good food, regular hours, exercise, etc., as shown by the condition of boys committed through the Juvenile Court to Thorn Hill School, the Allegheny County industrial school for delinquent and dependent boys. Many of these boys were, on the initial examination, thought to be feeble-minded, some being considerably below the accepted three year limit of retardation, besides presenting characteristics of physical constitution and of behavior which would classify them as being of the inherently defective class. Later examination, however, showed a general improvement such as to render their status comparable with that of other boys whose normality has never been questioned. If such results follow the general application of hygienic measures, aided by educational and other training, the results from more intensive treatment should be much greater. That this is so I have to my own satisfaction adequately proved.

It has more or less been the custom to cater only to the physical needs of the defective up until the age of six or seven years, which is considered early enough to begin the application of special educational measures. I think that this is a grave mistake and that this custom has been responsible for many human derelicts who might otherwise have lived lives of at least moderate usefulness.

Treatment should be begun as soon as the child's condition is recognizable as one of possible deviation. It is not necessary to wait until stereotyped tests can be applied. If doubt exists give the child the benefit of the doubt by treating him as a potential defective. If not defective he will be all the better for the treatment he has received. Even in early infancy there exist manifestations demanding attention. The undersized, puny, asthenic baby is not merely a problem of milk formulæ, for it is not so much the milk that is at fault as the physical organization of the child. Defects of correlative growth and subnormal activity of vital forces demand stimulation. Under ordinary circumstances the factors included in the term nurture are sufficient, but here nurture not only must receive unusual attention, but must be supplemented through the entire period of infancy and childhood. Gastrointestinal disturbances must be avoided, as these occur with unusual frequency in this class of cases. Maternal nursing is highly desirable, but should not be continued unless all conditions are favorable.

The subnormal energy potential of the child is in many cases due to a like deficiency in the maternal organism, with consequent imbalance of physiological functions, including lactation. Through artificial feeding certain principles essential to growth (vitamines, etc.) may be supplied which would otherwise be lacking. In some cases treatment of the mother by glandular therapy will insure an adequate and properly constituted supply of milk. Sajous ("Our Duty to the Mental Defectives of the Present Generation," *New York Medical Journal*, April 1, 1916) advocates the administration of organic products to the mother during pregnancy, when, because of poor heredity or constitutional inferiority, there is reason to suspect that the offspring may be defective.

Further on I should take up the discusion of organotherapy at greater length. There is a tendency, particularly among people who depend for guidance upon the popular books on infant feeding and the baby departments of the magazines, to postpone unduly the time of giving foods other than milk and to give other foods in insufficient quantities, thus depriving the child of important physiochemical substances at the time when they are most needed. The eruption of the teeth is a safe guide.

It is hardly necessary to speak of the value of fresh air as a factor in growth. Fresh air is not simply a vehicle for oxygen ("Fresh Air in the Light of Recent Research on Ventilation" by C.-E. A. Winslow, Chairman, N. Y. State Commission); it exerts its beneficial influences through stimulating the peripheral nerve endings and thus activating all physiological functions, consequently the defective child should spend but a minimum of time indoors, but should eat, sleep, and live in the open air.

Water also is a therapeutic agent of no mean value. In the form of hot baths judiciously pro-

longed, and particularly the continuous flow, it is of marked value in allaying excessive nervous irritability and restlessness. The cold pack, cold sponge, cold douche, and cold shower are of great value in stimulating nerve tone, with consequent effects upon metabolism, development, and growth.

A neglected agent of great value is heliotherapy. In applying sun baths there is obtained, in addition to the action of the sunlight upon the tissues, the effect of peripheral stimulation of contact with currents of fresh air. The sun bath stimulates the peripheral circulation nourishes the muscles, vivifies the blood, and increases the hemoglobin percentage, thus stimulating cellular metabolism and incidentally the processes which favor resistance and induce immunity. The secondary effects upon nerve cell nutrition and (possibly) regeneration are apparent. To obtain the best effects the treatment should be continued until deep tanning occurs, as pigmentation seems to be a normal phenomenon of the defensive reaction. Heliotherapy, like other therapeutic agents, has its dangers if injudiciously applied; the proper application requires an exacting technique.

Massage is useful as a form of passive exercise in children of deficient psychomotor control and when combined with corrective exercises is a valuable aid in the correction of spasticities, flaccidities, contractions, hypotonosity, etc. The general physiological effects of exercise are too well known to require enumeration, but this valuable remedy is neglected at the very time when it is of the most use. Attention focussed too closely upon exercise in psychomotor development results in neglect of its other function, particularly at the age when most effective. There are none of the measures mentioned above which cannot be initiated in infancy.

There is a prevalent impression that purely medical and surgical measures are of doubtful value in the treatment of the defective development, yet the armamentarium of the physician and surgeon offers much that may be utilized. The beneficial effects of the removal of reflex sources of irritation such as arise from adenoids and diseased tonsils, eyestrain, phimosis, impacted cerumen, carious impacted and abscessed teeth, etc., are recognized. A surgical measure whose value is not yet sufficiently recognized is that of cranial decompression as practised by Dr. William Sharpe. To most, any mention of head surgery in connection with mental defectives brings up the idea of the old operation of craniectomy, of trephining, which is for various reasons not comparable with Sharpe's method, as any of you who would take the trouble to investigate would learn. This, again, is a measure which should be applied as early as possible, even within a few hours after birth.

In those cases of mental defect in which the presence of congenital syphilis can be demonstrated, even when it would seem to be the important etiological factor, antiluetic treatment does not have the effects upon development that one might expect; in spite of this, however, treatment should be continued until no doubt exists as to the eradication of the disease in the hope of at least preventing further degeneration.

There are few hypoplastics who do not present some vagotonic symptoms; for these the indication is for atropine in full physiological dosage. I have come to regard atropine as a most valuable aid in treatment, especially in the active, restless, and neurotic type of defectives. In apathetic, listless individuals nux vomica in ascending doses till full physiological tolerance is reached is of great value. There is a group of remedies which exert a very decided action in removing morbid conditions of the system and improving general well being, "agents which alter the course of morbid conditions and modify the nutritive processes while promoting waste"; the most important of these are mercury, iodine, and arsenic; they are very active and must be administered with care. They are rapidly absorbed and carried to the tissues, becoming intimately connected with the vital processes, and, escaping with the products of metabolism, are excreted by the various secreting surfaces. Their use should not be prolonged unduly, as they are liable to cause depression and weakness with irritation during their passage from the system. The use of alteratives is of particular value in the treatment of conditions of defective development, as waste material must be removed before new healthy cell growth begins. As the more actively this is carried on the more rapid will be the improvement, it is often advisable in cases in which the products of malnutrition have accumulated and the various organs and functions are inactive to combine the alterative with a more active eliminant such as the salines.

It is now generally conceded that the chain of ductless glands is of the greatest importance in the development of the cerebrospinal and osseous systems in early life, and that impairment of function of one or another of these glands underlies the disorders of nutrition which inhibit proper development. Under the caption "The Ductless Glands and Constitution," Falta says, "we must not accept the ductless glandular system for itself alone, but must regard it as a constitutional component; the ductless glands as vegetative organs together with the nervous system regulating their functions." While our knowledge of the normal action of these glands is still somewhat hazy, yet they are found to preside, in some manner, over certain correlations of the body. These correlations are exceedingly variable, and this variability is most apparent when and where circumstances are abnormal. The adjusting mechanisms of development are more or less reciprocal; thus a ductless gland not only influences development, but is itself influenced by changes in general development. There is reason to suppose that in the harmony produced through the concerted action of the ductless glands, the leading role is played by the thyroid, which supplies the stimulus for bodily metabolism. As a check upon the influence of the thyroid in infancy and childhood, the thymus, the general lymphatic system, and perhaps the pineal gland, become active. In addition, these produce that delay of sexual activity which is essential to the proper maturation and stability of the somatic functions. In due time the adrenal system stimulates the sexual organs to activity, and hastens as well the growth of the muscular and skeletal systems. Of great importance at this time is the action of the pituitary gland, which stimulates every organ of the body.

Belief in the important role played by the duct-

less glandular system in development and belief in the possibility of correction of developmental defects by measures calculated to stimulate or alter the action of the various component parts of the ductless glandular system does not necessarily imply that all such treatment should be through the administration of ductless gland substance or products. There is not one of the measures already mentioned in connection with treatment which is without its effect upon the ductless glandular system, either as a stimulus to function or as a stabilizing influence upon the system as a whole.

There exists a misconception which is fairly prevalent regarding the possibilities and limitations of organotherapy in the treatment of defectives. Those who are looking for a panacea or a specific will be disappointed. There are undoubtedly cases in which brilliant results follow the administration of organic substances, as thyroid in cretinoid conditions, anterior pituitary gland in dystrophia adiposis sexualis, the whole pituitary gland and thymus in certain types of infantilism, but these more conspicuous instances are the exception, as in most cases the implication is pluriglandular rather than uniglandular and is a part of a general hypoplastic condition rather than a clinical entity. For this reason the best results may be obtained by a judicious combination of the glands of internal secretion. When so used their effect is stimulation of all physiological processes and is analogous to that of the alteratives upon whose action when given together they exert a reciprocal influence. I am accustomed to use a combination containing small doese of pituitary, thymus, thyroid, and adrenal glands with the addition of testicular substance for administration to male children and ovarian and mammary substance to female children.

Keenan Building.

PERSONAL HYGIENE! HOW OLD, YET EVER NEW!*

By DANIEL E. DRAKE, M.D.,

NEWFOUNDLAND, N. J.

DIRECTOR IDYLEASE INN

Personal Hygiene! How old, yet ever new! What memories of the past, what hopes for the future! The splendor of Caracalla's Baths in ancient Rome; the Moorish fountains of Spain, mute reminders of a lost therapeutic art. "Mislike me not for my complexion," said the Prince of Morocco, reminding us that hygiene and care of the skin were not confined to the blond races by any means, but were brought to a high stage of perfection during the Moorish occupancy of Spain. In the great palace of Abderrahman, to which no less than 6,300 persons were attached, the Moors, retaining the love of their ancestors for the cooling effects of water in a hot climate, spared no pains in the superfluity of fountains, baths, hydriatric works, and artificial lakes. "To the Saracens," says the historian Draper in the Intellectual Development of Europe, "we are indebted for many of our personal comforts. Religiously, cleanly, it was not possible for them to clothe themselves according to the fashion of the natives of Europe, in a garment unchanged till it dropped to pieces of itself, a loathsome mass of vermin, stench, and rags. No Arab, who had been a minister of state, would have offered such a spectacle as the corpse of Thomas à Becket when his haircloth shirt was removed. They taught us the use of the often-changed and often-washed undergarment, which still passes among ladies under its old Arabic name (Chemise). In all the palaces, great care was taken to make due provision for the cleanliness of the inmates. Through pipes of metal, water, both hot and cold, to suit the season of the year, ran into baths of marble."

Such were the palace and gardens of Zehra, and such the opportunities for the personal hygiene of rich and poor in ancient Spain, full 600 years before there was a pavement or a street-lamp in Paris or London, and when our immediate Anglo-Saxon ancestors like Thomas à Becket were living in unwashed barbarism. To even emulate these ancient baths we have a long way to go, and it is fitting that we of the medical profession, whose New Jersey State Society I have the honor to represent as a delegate, should do all in our power further to foster and encourage the admirable efforts of your society. That in these matters of personal and public hygiene we are 800 years behind Saracenic Spain, 1,800 years behind the Romans, and untold centuries behind the Egyptians and Babylonians, should serve only to stimulate our emulation of these venerable nations. That we still have a long way to go before our public baths are on a par with those of the ancients speaks well, no doubt, for our future growth along these lines, pointing as it does to the extreme youth and immaturity of our civilization.

There could be no more timely hour than the present for the consummation of your laudable projects. Anguished Europe has found it necessary to provide for the hygiene of her people and the multiplication of public baths and recreation centers bear strong testimony to their worth. Let us have them here, and have them soon!

Within a year there will come back to us the great stream of injured soldiers which is destined to tax every possible resource at our command. Let us be prepared, for whatever the nature of the disability! We must remember that it will occur in the young—a factor of great encouragement and promise. For young tissues have a recovery coefficient far higher than old, and, whatever the lesion be—from morphine addiction to shell shock, tuberculosis, and syphilis, it is going to be worth our while to work, and work by every known means at our command for the restoration of these boys. Never in the history of the world will such well disciplined, concerted efforts be put forth in reeducation and practical therapeusis. Undoubtedly, the public bath will, under this pressure of the near future, offer to the community which it serves, as already intimated, more than mere bathing facilities. It will not only bathe, but build and educate the body.

Some historical references are pertinent. One of the advantages of the world war, will be in England: a rebirth of the community spirit and

*Read before the Seventh Annual Convention American Association for Promoting Hygiene and Public Baths, Newark, N. J., May 15, 1918.

life, with its delightful, health giving idealism; this, springing originally from the old chivalric legends of St. George and the Dragon, gave to the Anglo-Saxon many of his noblest traits, and was lost only when the commons and public meeting places were seized and taken from the people by a usurping alien King and his nobility. From this Germanic King's iniquities, the American colonies promptly revolted. Later, England, becoming a manufacturing country, fell more and more under the Teutonic system and exchanged the chivalric St. George for the inartistic and coarse figure of John Bull. Rapidly the rich became richer, and the poor, poorer. It is almost inconceivable that in a land where centered one-third of the world's wealth, over one million of the population were actually, when the war broke out, starving. To over three million were denied the ordinary conveniences of life; baths, both public and private, were to them unknown. Thus, to no country will greater good come out of the war than to England. The changing of the tenure in the House of Lords from a life to a twelve-year term is a portent of the great changes that are coming and of the future in store for the usurping Teutonic nobility which had seized the English people's rights for the past two centuries.

Here we are fortunate in having a relatively free field and a loose rein for the reintroduction of old ideas and the development of new. Moreover, the early settlers in New England brought a strong communal sense which is perhaps more vigorous to-day in the West than in the East. To this sense, the aims and objects of your society should very specially appeal, and public baths, fully equipped for giving hydrotherapy, massage, and exercise, will become as important a part of the community center as are the school and the casino. Medically, hydrotherapy is fully as valuable to the people as is ordinary schooling, and if the one is properly sustained and directed by the state, so should be the other.

What specific support is there for this ground? None greater than the popularity of the New York City baths, established after so many years of laborious effort by your president, that great teacher of hydrotherapy, Simon Baruch! From a modest beginning, the number of baths taken rapidly increased to nearly ten million a year. Equipment follows slowly on education. Let us instruct the general public in the laws of personal hygiene! We are, without doubt, entering upon a new era, which will make for a better and more just national life. The unemployed will be attended to and there will be universal insurance against sickness. Aside from mechanical injuries and general infections, most sickness is now known to be due to what is called focal infection. This is the localization of a focus of bacteria and the distribution from it of living germs, as well as the poisonous products of their lives. Such foci are common in teeth roots, tonsils, sinuses, the appendix, gall-bladder, and the neck of the womb. Modern medicine calls for a careful study of the sick and a most minute search for the focus. After its removal, a matter of great importance to the patient is that elimination of poisons should be accelerated by stimulating the skin. In the experience of many surgeons, post-operative recovery is cut to one-half its usual duration by active hydrotherapy and massage. The beneficial effect of these is enhanced greatly by a change in altitude, there being something remarkable but quite unknown regarding the physiological stimulation resulting from altered barometric pressures.

All these things cost money. Is it Utopian to look for the day to be near at hand when an enlightened municipality will see to it that the poor are offered the same opportunities for health and happiness through hygiene as the rich, and as are everywhere enjoyed by all in our universal and justly renowned public schools?

To recapitulate: We are far behind the ancients in matters of public and private hygiene. The stream of wounded soldiers, soon due, will tax every means of caring for them, and necessitate the development of new and improved therapeutic agencies. Important among these will be baths and hydriatric institutes.

The great war, immersing the world in grief, will so favorably develop our waning altruism, that, like the fabled Phoenix of old, it will rise after the last battle is fought, in primitive strength and beauty to give help to the sick and destitute. Social democracy will favor the growth of the Anglo-Saxon communal idea, and, with schools and playgrounds, will come great baths and health institutes. So that to every citizen alike may come the boon of the healing power of water.

Medicolegal Notes.

Powers of State Board of Health as to Vaccination of Pupils.—Arkansas Acts 1913, p. 351, § 5, gives the state board of health general supervision and control of matters relating to health, requiring it to make a study of the causes and prevention of infectious and communicable diseases, and giving it direction of all matters of quarantine and of all sanitary and quarantine measures for dealing with diseases in the state. Section 6 authorizes it to make all necessary and reasonable rules and regulations of a general nature for the protection of infectious and contagious diseases. Section 28 provides a punishment for violation of the board's rules. The Arkansas Supreme Court holds that under sections 5 and 6 the board was authorized to adopt and promulgate a rule, requiring a certificate of successful or recent vaccination or immunity from smallpox as a condition to attendance upon the schools of the state. The courts of the state will judicially notice such a rule, and it need not be proven. It in no way infringes upon the constitutional right to attend the schools of the state, nor upon the management and control of the schools by school boards or directors. The statute is held to be merely the delegation of the power to determine some fact or state of things upon which the law makes, or intends to make, its own action depend, and hence is not invalid as a delegation of the lawmaking power. It is held that in view of the fact that smallpox was prevalent in the state at the time the rule was not unreasonable and unnecessary even though the school district concerned in this particular case was isolated and smallpox was not prevalent or threatened therein. Every presumption is indulged in favor of the necessity of such a rule, and courts will not interfere with acts of health authorities unless it is apparent that the rule is arbitrary. The rule is not in conflict with the Compulsory Education Act of 1917, requiring every parent, guardian, etc., of children between 7 and 15 years, inclusive, to send them to a public, private, or parochial school, under penalty, as the net result of the acts, when read together, is to enforce vaccination by a penalty only.—State v. Martin, Arkansas Supreme Court, 204 S.W. 622.

Military Medicine.

Diphtheria and Diphtheroid Bacilli in Open Wounds.— In the *Canadian Medical Association Journal* for September, 1918, are published the results of an investigation concerning diphtheria and diphtheroid bacilli in open wounds, conducted by a commission of the Canadian Army Medical Corps, composed of Col. J. G. Adami, Major F. B. Bowman, and Captains P. Adams, A. G. Fleming, C. D. Farquahrson. C. Imrie, and R. M. Janes. The conclusions were as follows: (1) Morphologically and in the early stages, culturally diphtheroid bacilli from wounds are, many of them, indistinguishable from *B. diphtheriæ*. (2) Harmless, non-toxic bacilli may be present in wounds affording cultures possessing the same sugar formula (dextrose, lactose, saccharose, and dextrine) as does the true virulent Klebs-Loeffler bacillus. (3) It is not justifiable, therefore, to make a diagnosis of diphtherial infection of wounds, either from smears alone or from stained preparations and cultural characteristics. The demonstration that the bacilli produce toxins, ectotoxins, the result of inoculation of both cultures, is alone capable of proving the presence of infection by the true virulent *B. diphtheriæ*. (4) By the staining, cultural, and fermentation tests, four cases of apparent diphtherial infection have been detected in a careful bacteriological study of 306 cases of open wounds. By the decisive test of inoculation these are reduced to two. (5) There is a large body of evidence showing that even isolated cases of diphtherial infection of wounds are distinctly uncommon among the wounded overseas, and complete absence of any evidence in Great Britain that these isolated cases have acted as foci for the spread of infection to other wounded men. No evidence of a widespread infection of open wounds by diphtheria bacilli has been discovered in Canadian hospitals in Great Britain. (6) Diphtheroid bacilli of various orders, while not common, are, as might be expected, more frequent in open wounds. There is no evidence that these have exerted deleterious effects. (7) There is a certain amount of evidence that particular species of diphtheroid bacilli characterize particular hospitals.

Red Cross Hospital in Genoa.—The American Red Cross Hospital, founded two months ago at Genoa, has been turned over, with complete equipment and personnel, as a gift to the United States Navy, and will in the future be under the direct control of the Navy. The hospital contains thirty-two beds. Dr. J. C. Clark, U. S. N., is in charge.

Sick and Wounded Men Brought Home.—The War Department announced on November 1 that there were landed in this country during the month of October 4,339 sick and wounded men from the American Expeditionary Forces.

Census of Nurses.—The American Red Cross, at the request of the Government, is making a canvass to bring in the names of any women who are either doing nursing or have been nurses in the past. The census aims to reach not only graduate nurses but those who have taken only undergraduate courses, those who have taken Red Cross courses, those who have been midwives or have had practical experience, and women whose only experience in nursing has been in the home. The object of this record is so that the War Department can release nurses for service in France and still be sure that the civilian population will not be left without nursing resources. Women who have had experience are urged to send their names to the nearest Red Cross chapter or to the offices of the supervisor, which are at 44 East Twenty-third Street, New York. It is said that up to November 1 only about 260 nurses had volunteered for war service in France as a result of the nursing survey now being made by the Atlantic Divsion of the American Red Cross. These women are among the 3,056 in the nation who have answered the recent call of the War Department and the Red Cross.

Influenza Disappearing from Army and Navy.— The War Department reported on October 29 that the influenza epidemic is over in ten naval districts and that it is waning in all other places except Paris Island, South Carolina, and Mare Island, California. The number of new cases of influenza in the army camps is likewise diminishing rapidly. The Surgeon General of the army announces that vaccination against pneumonia is now available for every officer, enlisted man, and civilian employee of the army. The vaccine is being produced in large quantities in the Army Medical School and it is expected to lower materially the number of cases of pneumonia in the army this winter.

Army Acquires More Hospitals.—The War Department announces that hospital facilities have been procured to care for 19,200 additional patients by the Hospital Division of the Medical Corps during the past month, bringing the total facilities outside of the camps and cantonments up to 50,000, or one-third the estimated need of the army for the coming eighteen months. The plan calls for securing 5,000 new beds each month. Wherever possible, hospitals and other institutions already in existence will be utilized. As a part of this plan the Government has taken over North Brother Island and the Riverside Hospital in New York City, the nine buildings in the Exposition Park at Rochester, and the Westchester (N. Y.) Almshouse, which, after alterations are made, will accommodate 2,000 patients. It is estimated that to make all the new buildings accepted ready for army hospital purposes alterations costing approximately $995,000 will have to be made. These will be undertaken at once, and practically all of the newly acquired buildings will be ready for occupancy by January 1, 1919.

Red Cross Reorganized in France.—Owing to the vastly extended military operations of American troops in France a complete reorganization of the work of the American Red Cross in that country has seemed advisable. Instead of the work being divided into two separate branches, one for military and the other for civilian relief, France has been divided into nine zones, with a manager in control of operations in each. Under the reorganization plan Major Homer Folks has been appointed Director of the Department of General Relief, Major Alexander Smith, Director of the Supplies Department; Colonel Fred T. Murphy, Director of the Medical and Surgical De-

partment; Major J. B. A. Fosburg, Director of the Army and Navy Service Department, and Major Alexander Lambert, Director of the Medical Research and Intelligence Department.

Enormous Growth of Red Cross.—The 3,854 chapters of the American Red Cross held their annual meetings throughout the United States on October 23, when a message was read from Henry P. Davison showing the remarkable growth of the organization since June 1, 1917, when a little band of eighteen workers sailed for France. On that date the membership of the organization numbered 486,194. On July 31, 1918, the membership of the organization numbered 20,648,193. Within eighteen months the American people have given $325,000,000. In addition to this sum of money large contributions of materials and supplies of all kinds have been donated and much time has been given by millions of women throughout the country. The announcement is made that during the Christmas season a call will be made for a new enrolment of members.

Deaths in the Service.—Major Alfred Reginald Allen, Infantry, U. S. Army, of Philadelphia, graduate of the University of Pennsylvania in 1898, was killed in action in France during the heavy fighting northwest of Verdun, on September 30, aged 42 years. He was a member of the American Urological Association, twice president of the American Psycho-Pathological Association, president of the Philadelphia Urological Society, a member of the American Association of Pathology and Bacteriology, secretary of the American delegation to the sixteenth International Congress to Budapest, Hungary, in 1909, and to the seventeenth International Congress in London in 1913. Major Allen was lecturer in urological electrotherapeutics, associate lecturer in neurology and in neuropathology in his alma mater. When war was declared against Germany he entered the line rather than the Medical Corps, attended the Infantry School of Arms at Fort Sill, Okla., and was assigned to duty with the Three Hundred and Fourteenth Infantry.

Captain Fred S. Towle, M. C., U. S. Army, of Portsmouth, N. H., lost his life in the fire that destroyed the officers' quarters of the Base Hospital No. 3, at Colonia, N. J., on October 9. He was a graduate of the College of Physicians and Surgeons, New York, in 1893, city physician and chairman of the Board of Health of Portsmouth, Surgeon-General on the staff of Governor George A. Ramsdell in 1897-99, and at the time of his death president of the New Hampshire State Medical Society. He was 55 years of age.

Captain Howard B. Jackson, M. C., U. S. A., of Melrose, Mass., died recently at Fort Oglethorpe, Ga. He was born in 1874 and was graduated from the Harvard Medical School in 1901.

Lieutenant Rushmer Christian Christiansen, M. C., U. S. Navy, died at Mare Island, California, on October 18, of pneumonia. He was born in 1890 and was commissioned in the Navy from Iowa in 1915.

Lieutenant John Joseph McLarney, M. C., U. S. Army, of Ansonia, Conn., a graduate of the University of Maryland Medical School, in 1913, died of pneumonia at Fort Slocum, N. Y., on October 11, aged 29 years.

Captain Victor Moreau Rice, M. C., U. S. Army, of Batavia, N. Y., a graduate of the University of Buffalo, N. Y., in 1904, a Fellow of the American Medical Association, and a specialist in roentgenology, died in General Hospital No. 14, Fort Oglethorpe, Ga., from pneumonia, following influenza, on October 13, aged 38 years.

Lieut. Argo Montague Foster, M. C., U. S. Army, Kaukauna, Wis., a graduate of the University of Michigan, Ann Arbor, in 1910, died in the North Shore Hospital, Chicago, from infection following an operation on the nose, on September 2, aged 33 years.

Capt. Lorenz Burrows, Jr., M. C., U. S. Army, of Buffalo, N. Y., died of pneumonia while on duty at the Buffalo Base Hospital No. 23, on September 17, aged 51 years. He was a graduate of the College of Physicians and Surgeons, New York, in 1889, a Fellow of the American Medical Association and the New York Academy of Medicine. He was ophthalmologist to the Buffalo General Hospital before the outbreak of the war. Captain Burrows served in France during 1917.

Lieut. Arthur Lewis Byerlein, M. C., U. S. Army, died from bronchopneumonia following influenza at the Walter Reed Hospital, Washington, D. C., on October 10, aged 30 years. He was graduated from the University of Illinois in 1910, was in the Government service in the Canal Zone from 1910 to 1916, and was later on duty in the orthopedic department of the Walter Reed Hospital.

Assistant Surgeon Hadley Howard Teter, U. S. Navy, of Cleveland, Ohio, a graduate of the Ohio State University, Columbus, in 1916, aged 27 years, is reported to be one of the missing from the U. S. S. *Tampa*, which was torpedoed in foreign waters on September 26 while escorting a convoy.

Lieut. Pressly Robinson Brown, M. C., U. S. Army, of Sweponville, N. C., a graduate of the North Carolina Medical College, Charlotte, in 1914, is reported in the *Official Bulletin* of July 15 to have been killed in action in France.

Lieut. Morris Finkelberg, M. C., U. S. Army, of Spring Valley, Ill., a graduate of Loyola University, Chicago, in 1908, aged 31 years, was killed in action in France on September 15.

Lieut. Joseph Charles Monnier, M. C., U. S. Army, of Cleveland, Ohio, a graduate of the Western Reserve University, Cleveland, in 1917, died from pneumonia in Washington, D. C., on October 2, aged 28 years.

Lieut. Emil King, M. C., U. S. Army, of Fulda, Minn., who was on duty with the American Expeditionary Forces in France, is reported to have been killed in action about October 7. He was a graduate of the University of Pennsylvania, Philadelphia, in 1893, and was 51 years of age at the time of his death.

Lieut. Irving Jones Pinkus, M. C., U. S. Army, of New York City, a graduate of the University and Bellevue Hospital Medical College in 1914, aged 27 years, is reported to have been killed in action on August 31.

Lieut. Admont Halsey Clark, M. C., U. S. Army, a graduate of Johns Hopkins University, Baltimore, in 1915, assistant professor of pathology in his alma mater, and one of the most promising of the younger pathologists in America, died from

pneumonia, following influenza, in Johns Hopkins Hospital, October 13, aged 30 years.

Lieut. Earle Robinson Achley, M. C., U. S. Army, of Bartow, Fla., a graduate of the Medical College of Ohio, Cincinnati, in 1904, a Fellow of the American Medical Association and the Cincinanti Academy of Medicine, died of pneumonia, following influenza, at Camp Greenleaf, Fort Oglethorpe, Ga., on October 13, aged 44 years.

Lieut. Max Marowitz, M. C., U. S. Army, of Youngstown, Ohio, a graduate of the Chicago College of Medicine and Surgery in 1916, serving with the British Army, died of wounds received while giving first aid to his men, on September 1, aged 23 years.

Lieut. Duncan M. Stone, M. C., U. S. Army, of San Antonio, Texas, a graduate of the University of Tennessee, Nashville, in 1909, died from pneumonia, following influenza, in General Hospital No. 14, Fort Oglethorpe, Ga., on October 13, aged 36 years.

Lieut. Porter Perry Pillans, M. C., U. S. Army, of Orlando, Fla., died in General Hospital No. 14. Fort Oglethorpe, Ga., from pneumonia, following influenza, on October 13, aged 38 years.

Lieut. Waldemar T. Richards, M. C., U. S. Army, of New Orleans, a graduate of Tulane University, La., chief surgeon to the Presbyterian Hospital, New Orleans, and at one time editor of the *Pan-American Medical Journal,* died at his home, from pneumonia following influenza, on October 14, aged 39 years.

Lieut. Harry Paul Martin, M. C., U. S. Army, of Chicago, a graduate of Rush Medical College in 1916, on duty with the Fourteenth Sanitary Train, Two Hundred and Fifty-sixth Field Hospital, died at Camp Custer on October 13 from pneumonia.

Lieut. Edmond I. Monquin, M. C., U. S. Army, of Fair Water, Wis., a graduate of Marquette University, Milwaukee, in 1913, died from pneumonia at General Hospital No. 14 at Fort Oglethorpe, Ga., on October 14, aged 30 years.

Lieutenant Joseph Clarence Balson, M. C., U. S. Army, of Passaic, N. J., a graduate of the University and Bellevue Hospital Medical College, in 1912, died from pneumonia, following influenza, at his home, on October 11, aged 29 years.

Lieut. George Rupp Pretz, M. C., U. S. Army, of Lebanon, Pa., a graduate of Johns Hopkins University, in 1909, died from influenza, while on duty at Syracuse, N. Y., on September 30, aged 38 years.

Lieut. Homer Coulson Parrish, M. C., U. S. Army, of Fort Benton, Mont., a graduate of the University of Illinois, Chicago, in 1908, died in General Hospital No. 14, at Fort Oglethorpe, Ga., on October 14, from pneumonia, aged 46 years.

Lieut. Philip Frank Shaffner, M. C., U. S. Army, a graduate of Rush Medical College, in 1909, died while on duty at Fort Riley, Kan., following an operation for appendicitis, on October 21, aged 33 years.

Lieut. Thomas Riggin Adams, M. C., U. S. Army, of Califon, N. J., a graduate of the Medico Chirurgical College of Philadelphia, in 1915, died of pneumonia, following influenza, while on duty at Camp Lee, Va., on October 4, aged 26 years.

Lieut. Harry Charles McIntosh, M. C., U. S. Army, of St. Paul, a graduate of the Chicago College of Medicine and Surgery, in 1913, died while on duty at Camp Sherman, Chillicothe, Ohio, from influenza, on October 6.

Lieut. Henry Joseph Rowe, M. C., U. S. Army, of Chicago, a graduate of the Northwestern University Medical School, Chicago, in 1913, an interne in the Michael Reese Hospital, died in that institution on October 25, aged 26 years.

Lieut. William Carlyle Kantner, M. C., U. S. Army, of Seattle, a graduate of Wilamette University, Salem, Ore., in 1907, attached to Base Hospital No. 50, died in France from angina pectoris, September 15, aged 33 years.

Lieut. Clarence Hull Dobbs, M. C., U. S. Army, of Jacksonville, Fla., a graduate of the Atlanta (Ga.) College of Physicians and Surgeons, in 1910, died while on duty at Camp Zachary Taylor, Louisville, Ky., on October 6.

Lieut. William Karp, M. C., U. S. Army, of Portsmouth, Va., a graduate of the Medical College, Va., in 1915, died from influenza, at Camp Meade, on October 9, aged 31 years.

Lieut. James David Atkins, M. C., U. S. Army, of Chrighton, Ala., a graduate of the University of Alabama, Mobile, in 1906, died of pneumonia while on duty at Camp Lee, Va., on October 2, aged 38 years.

Lieut. William Buffalow, M. C., U. S. Army, of Jacksonville, Fla., a graduate of Lincoln Memorial University, Knoxville, Tenn., in 1910, died from pneumonia, at his home, on October 8, aged 33 years.

Assistant Surgeon Harry Ellsworth Davey, lieutenant (junior grade), U. S. N. R. F., of Keene, N. H., a graduate of the Boston University School of Medicine, in 1913, died from pneumonia at his home in Keene, on October 15, aged 34 years.

Lieut. Clark Denike Fanton, M. C., U. S. Army, of Riverside, Cal., a graduate of the State University of Iowa, Iowa City, in 1915, died recently in a military camp in California, aged 30 years.

Lieut. Carl Stoeppler, M. C., U. S. Army, of Philadelphia, a graduate of the Medico Chirurgical College of Philadelphia, in 1912, died in the Polyclinic Hospital of Philadelphia, on October 9, aged 36 years.

Capt. William Fielding McIsaac, C. A. M. C., of Antigonish, Nova Scotia, on duty with No. 9 Stationary Hospital in France, is reported to have died from wounds recently.

Capt. M. A. McKechnie, C. A. M. C., of Walkerton, Ont., a graduate of Queens University, Kingston, Ont., in 1917, is reported to have died from wounds recently.

Capt. J. T. Whitworth Boyd, C. A. M. C., of Port Arthur, Ont., a graduate of Queens University, Kingston, Ont., in 1914, is reported to have died from wounds recently.

Major Frederick O. Waage, M. C., U. S. Army, of Red Hill, Pa., died suddenly at Fort Bliss, Texas, on October 30. He was born in 1877, and was a graduate of the University of Pennsylvania Medical School in 1904.

Lieut. Lewis Zion, M. C., U. S. Army, of New York, a graduate of the College of Physicians and Surgeons, New York, in 1915, died of pneumonia at Fort Slocum, N. Y., on October 31, aged 29 years.

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THOMAS L. STEDMAN, A.M., M.D., Editor.

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New York, November 9, 1918.

THE PAIN AREAS OF CHOLELITHIASIS AND THEIR RELATION TO OTHER AFFECTIONS.

As is known, there are various painful spots which may be detected in cholelithiasis, namely, the cystic, epigastric, pancreatico-cholodohus, costal, phrenic, scapular, vertebral and the area of the right shoulder but biliary lithiasis is not the only disease susceptible of causing pain at these points. This is particularly true of the cystic and epigastric areas. By the term subcostal point, urologists have described a painful renal point which when it is present on the right side is difficult to distinguish from the cystic point. Millon has described a point of pain almost always localized on the right costal edge, between the ninth and tenth cartilages almost under the ribs, in a tonic dilatation of the stomach.

Superficial right-sided pain on pressure under the costal edge and along the relief formed by the rectus muscle has the middle lobe of the liver as its starting point. This sensitiveness of the liver merely signifies that there is active congestion of the organ, but in this same area the angle of the right colon lies outside the cystic point while the kidney is lower down. Inside of the cystic point, under the rectus lie the pylorus and the descending portion of the duodenum, but the pain to which these organs may give rise is deep-seated and circumscribed. It is true that some writers attribute quite a large area to the cystic point and, therefore, cholecystitis, gall-bladder colic, pancreatitis, mucomembranous colitis, and painful renal lesions may give rise to pain here.

The epigastric pain in cholelithiasis may be due to the liver or solar plexus. When of hepatic origin the pain is a symptom of various diseases of the liver and some writers have maintained that it is frequent in gastric and intestinal dyspepsia and in chronic malaria.

There are few painful gastric affections which do not present the maximum point of pain on the oxiphoid-umbilical line or a little to the right of it. This pain corresponds to the solar plexus, or more exactly to the nerve plexus surrounding the celiac trunk. Cancer of the pancreas may give rise to distinct epigastric pain. An epigastric painful spot has been described in pulmonary emphysema which is supposed to be due to the lowered and dilated right ventricle, but it is more apt to be below and to the left of the tip of the sternum.

A localized pain in the pancreatico-choledochus area may be due to lesions of the pancreas and not of the gall-bladder. The costal point may be met with in all congestive processes of the liver and, what is more, Martineau has described a painful costal spot, located exactly at the free end of the twelfth rib in disease of the suprarenal capsule. The scapular and vertebral points, when they are present without any other symptom, may reveal a perihepatic or hepatic painful lesion. Let it also be remarked that the phrenic is a nerve which is often sensitive and, without referring to its frequent neuralgia, numerous are the causes of irritation susceptible of producing an abnormal sensitiveness of this nerve.

PRESENT STATE OF OUR KNOWLEDGE OF THE HYPOPHYSIS.

The hypophysis is a structure of great importance in both physiology and pathology. It is necessary for normal function and probably for existence. Anatomically it is a threefold organ, but functionally it is only twofold. The anterior portion is the more important, in that it is probably indispensable to life. Successful extirpation has almost always led to death, the apparent exceptions having been due to imperfect removal. Alterations in this portion lead to excess or diminution of function, varying with the age of the animal. Hyperfunction causes overdevelopment of the skeleton and hypofunction arrest of the same and infantilism, when occurring in the young, while in the adults a complex condition results in consequence of disturbances in the other endocrine glands. The anterior lobe has functions similar to those of the thyroid but antagonistic to those of the sexual glands. Like the thyroid it enlarges in pregnancy. This phenomenon is believed to be antitoxic in nature, for the anterior lobe enlarges in all intoxications and infections.

However, extracts of anterior lobe subtances have not yet been shown to possess antitoxic powers. Therapeutically they are of some value in infantilism. The medioposterior portion, on the other hand, has not only important functions of a character quite unlike those of the anterior portion but the active physiological principle has an extensive use in therapeutics. It has an action on smooth muscle, regulates diuresis, etc. If ablated, life is not compromised. Hypofunction of this part is of much importance in the pathogenesis of dystrophia adiposogenitalis and adiposis dolorosa. It provokes transient polyuria, augments the tone of the smooth muscle fibers, perhaps causes an increase of carbohydrate tolerance, increases some secretions and diminishes others. The action of the active principle is of the hormone type, *i. e.* through the medium of the blood and without the intermediation of the nerves. Hypophysis extract (posterior lobe) resembles adrenalin in action, but is slower

and less powerful. There is further a hypotensive substance which appears to be present in both portions of the hypophysis but chiefly in the anterior. Hypophysis extract appears to be capable of numerous other activities. Its action on the heart *per se* is equal to that of digitalis. It exerts an activity on the coagulability of the blood, which it may hasten to a greater extent than a number of well known hemostatics. In fact it possesses value as both a local and a general styptic.

Guraldi, whose article on this subject is reviewed in *Malpighi*, and who has summed up the preceding data, adds that the mechanism of hypophysis-polyuria is not yet settled. The latter could be due to elevated blood pressure, to action on the renal artery, or to a specific secretory action on the epithelia of the convoluted tubules. In subjects who do not have elevated blood pressure or arteriosclerosis, hypophysis extract in suitable doses, given over considerable intervals, is of benefit in atony of the heart, uterus, intestine, etc. The active principle is doubtless formed in the medial rather than the posterior portion and passes into the cerebrospinal fluid by way of the infundibulum and third ventricle, then entering the general circulation.

FARCY IN THE FELIDÆ.

THE subject of farcy among the carnivores appears to have greatly interested the Italian pathologists of late, in spite of the manifold diversions of war. In fact the military veterinary laboratories are the ones which are investigating the subject. Some time ago, in the *Annali d'Igiene* Carpano related the results of experiments in inoculating cats from the nasal secretions of a lioness with glanders. The matter was transferred to the nostril of a kitten who fell ill on the sixth and died on the fourteenth day. The *Bacillus mallei* and the ovoid bacterium were both isolated from the nasal secretions. Inoculation of a two-year-old cat, on the contrary, gave a negative reult. A three-month-old kitten was now selected, care being taken to produce no lesion in the nostril. One drop of pus was introduced and the disease became manifest on the fourth day, death resulting on the seventh.

A hypodermic inoculation of a young dog caused only a local abscess. An adult cat after having been placed in the cage with the sick kitten developed the disease and died on the twelfth day. The incubation period was five to six days. Finally another adult cat was successfully inoculated with the blood of the preceding animal.

The experimenters were convinced that the large felidæ were attacked by a mixed infection—acute glanders and a pasteurellosis. The course was almost invariably acute, even hyperacute, so that little time was afforded for lesions to develop. In one case in a lioness in which nodules and ulcers appeared in the skin, the disease had persisted for six weeks. Some lesions were found at autopsy in the intestines and the mesenteric lymph nodes were enlarged.

The fact that these menagerie felidæ develop the disease in captivity speaks for lowered resistance, but the susceptibility of cats shows that members of the cat tribe like those of the horse tribe are predisposed to the infection which passes readily from nose to nose. It is possible, however, that the virus can be swallowed, absorbed through breaches of continuity such as occur in the gastroenteric tract from rough eating habits, and deposited secondarily in the nasal mucosa. The first manifestations are always referred to the digestive tract.

The author has little to say of the pathogeneity of the associated bacterium save that it is known as the *Bacterium felisepticum* and the *Pasteurella felis*. It is regarded as one of a group of organisms which cause a form of hemorrhagic sepsis. Similar mixture of infection has been claimed in human farcy, the streptococcus having been accused in this connection. The hyperacute, septic course, with the occasional supervention of hemorrhagic lesions in the intestine, may be due in part to the activities of the pasteurella.

ACTION OF ADRENALIN ON THE GASTROINTESTINAL TUBE.

THIS subject, according to Binet in *La Presse Médicale* for August 5, is but little known to the average medical man. The experimental basis is as follows: Removal of the adrenals is followed by certain alterations in the gastroenteric tract; adrenalin is known to modify the blood supply, secretion, and motility of this tract; not enough is known concerning the absorption of adrenalin when given by the mouth. In regard to the results of extirpation on this tract, a number of experimenters have seen gastric ulcer develop, especially after bilateral extirpation, when it almost invariably occurs. Ten hours after operation, marked hypotension having appeared, ulcers form with great rapidity. These lesions appear at the localities preferred in the human subject in the clinic—pylorus, prepylorus, and duodenum. The ulcers are round or oval, and measure about 2 cm. in diameter at the most. They stand in a definite relationship with gastric acidity, because sodium carbonate, to a certain extent, prevents their development. Finzi found histological changes in the adrenals in five autopsies on subjects with gastric ulcer.

Recently, authors have attempted to isolate a type of adrenal dyspepsia and a gastroenteric form of adrenal insufficiency. Such conditions must stand in some relationship with the functions controlled by adrenalin—vascularity, secretion, and motility. Adrenalin, when injected hypodermically, causes vasoconstriction in the alimentary canal, and is of value in intestinal hemorrhage on this account; but if the action of the drug is sufficiently pronounced the tension is raised to such a point that hemorrhage may be favored. Despite its vasoconstrictor action the drug is known to stimulate the action of the gastric juice, or rather to increase the secretion of free hydrochloric acid. In regard to motility, the drug appears to activate some por-

tions of the gut and to exert the opposite action on other portions. Thus it appears to cause contraction of the esophagus and to relax the intestine, or portions of it. All of the contradictory finds can be explained by the size of the dose, which produces a given effect. Naturally, this peculiarity renders the subject of dosage, especially by the mouth, a difficult one. If the drug is thrown into the rectum it maintains its toxicity unchanged, but when swallowed it ceases to be toxic. The reason is far from clear, for none of the digestive enzymes interferes in any way with its action. We are forced to believe that passage through the liver detoxicates it, and that when absorbed by the rectum it does not enter that organ.

Cocainism and the War.

The efforts at putting an end to the use of narcotics and stimulants during the present war doubtless are due in part to factors not commonly stated. The noncombatants, in addition to other hardships, are in a constant state of suspense from various causes, one of which is the uncertain fate of the fighting members of the family; and hence the consumption of these substances threatens to spread to classes of the population which would be immune in times of peace. This is no speculative argument, for it seems to have a basis of actual fact in some of the warring countries. In *Il Policlinico* for August 4 is a synthetic review of cocainism by Dragotti. The habit was, of course, spreading before the war, and would have continued to spread had no war developed; but the high tension of modern life has been greatly augmented as a result of war conditions and the conscription of the adult man power has left other classes at the mercy of the drug. Almost daily, says the Italian author, victims are taken to the local hospitals. There is no motivation of pain in the formation of the cocaine habit which usually begins as imitation. Moreover, few form the habit through the therapeutic use of the drug, aside, of course, from proprietary catarrh snuffs, and in Italy the latter cases seem to be rare. In times of peace the cocaine habitués usually belong to certain definite classes of people, and while they number prostitutes and criminal degenerates, they also include physicians and druggists, literary people, and artists. Since it intensifies the joy of existence, there is no class to which cocaine taking may not at times appeal. Nothing is said by the Italian writer of any restrictions on the sale of the drug or difficulty in procuring it; if such measures are in force they plainly are as inoperative as they are in New York City with the Harrison law, the Boyland law, and other restrictions on the practice of medicine in full force, yet impotent to prevent anyone who wants it badly from getting the drug at any time.

Superhealth and Disease.

That men who are most euphoric and have the keenest subjective feeling of health may be already in the grip of some malady is so well known to experienced practitioners that some of the latter come to dread the statements of their clientele as to redundant health. This subjective attitude can be explained at times by the subtle stimulation of disease toxins. We know that protoplasmic poisons are all stimulants in minute doses. But this view seems somewhat narrow to explain all of the phenomena which illustrate the thin partition between redundant health and disease unless we generalize very broadly. The candidate for cancer is often not only the healthiest of subjects but never so abounding in health as when the malady first declares itself. This is an argument in support of the growing theory that cancer is constitutional from the start and that the apparent superhealth is in reality the result of stimulation by protoplasmic poisons of some kind, the result no doubt of metabolic anomalies. Let us consider the arsenic eater as depicted by trustworthy practitioners who have studied him in his native Austrian mountains for many years. He is really a better man by biometric standards than an ordinary citizen. He responds to every criterion for an extra-sound subject, and, what is more, he is not an addict, or, at least, not necessarily one. There is some reason for believing that all the stimulant-poisons when used by subjects who lead an active out-of-door existence tend to show only their good side. Much has been written about the stimulating effects of tuberculous toxins on the quality of literary and artistic output and these men are proverbially optimistic and exhibit a very sane, even if selfish, attitude toward self-preservation, the natural result of their poor physical condition. The consumptive is one exception to the rule that euphoria breeds indifference to personal hygiene. Not all disease-toxins, however, have stimulant properties. Those of lues, at least, have never been credited with anything of the sort, unless in the initial stage of paresis, a purely organic disease, involving the cortex.

Spondylitis Deformans.

The entire June 30 number of the *Svenska Läkaresällskapets Handlingar* is devoted to a monograph on this subject by Kahlmeter. The work contains over 200 pages, and comprises a large number of case histories. Originally there was great confusion concerning the group of maladies which collectively were known as ankylosis of the vertebral column. At the beginning of the present century the subject became more lucid, as it was at last recognized that the Strümpell-Marie-Bechterew disease, which is an ankylosing arthritis of the intervertebral articulations, is radically different from spondylitis deformans. The author labors to show that the latter of these two affections is simply a form of ordinary arthritis deformans, because there is a close agreement not only in the pathological anatomy but in the causal factors. The essential lesion or process is a regressive alteration in the vertebral cartilages. The author strives to follow up the parallel to the utmost. He makes a primary, or idiopathic, and secondary forms. Of the first named he describes there are 11 additional cases with radiograms only, which have not been studied clinically. He is not, at least in the present paper, interested in the secondary form of the disease. Having isolated the idio-

pathic affection, he says of it that it is eminently chronic, that subjectively its evolution is gradual, although it may be acute at times. The latter behavior is seen after traumatism. The disease clinically may be summed up in two words, rigidity and pain. The sense of rigidity is in the most flexible part of the spine—the loins. The pain is determined or aggravated by postures and acts, but even with the subject in complete rest there are spontaneous pains. The worst pain is felt when the patient seeks to rise from a recumbent position, and it is in this act that the rigidity seems most marked. To the eye of the spectator there are two symptoms, deformity and nervous manifestations—muscular atrophies of nervous mechanism; and on investigation, disturbances of sensation and reflex disorders, none, however, being of marked degree. The affection is rare in the young, common in the elderly, increases with advancing years, and is four times more common in men than in women.

News of the Week.

Influenza on the Wane.—Reports from widely separated points throughout the country show that the epidemic of influenza is gradually receding. The bans which have been laid on public gatherings in many cities are being lifted and with few exceptions the situation is improving. A report from Boston, under date of Oct. 30, shows that approximately 11,000 deaths from influenza have occurred in Massachusetts during the two months the disease was prevalent. In New York City the number of new cases of influenza is rapidly decreasing and the order of the Health Department regulating the opening and closing hours of business have been rescinded. Health Commissioner Copeland has issued a statement advising those convalescent from influenza or pneumonia to be examined by a physician within thirty days after the disease has disappeared. This is recommended as a precautionary measure because it is feared that such patients left in a weakened condition may easily fall victims to tuberculosis. Those unable to pay a physician are advised to attend one of the clinics of the Health Department, all the resources of which will be placed at the disposal of such persons. Dr. W. H. Guilfoy, Registrar of Records of the New York Health Department, declares that the statistics of his department show that the epidemic has hit all classes without distinction, the average number of cases among the well-to-do being just as high as among those in the crowded sections of the city. He also calls attention to a peculiarity of the influenza germ in that it appears to find a fertile field for development among the young and the strong, while children and elderly folks are almost immune. He shows that out of 12,484 fatalities in this city, 8792, or 7 per cent occurred among persons between the ages of fifteen and forty-five years of age, and only two per cent among those who were 65 years of age or older.

Influenza in Paris.—Influenza is epidemic in Paris, France, where 2566 deaths were reported for the week ended Oct. 30. This is the greatest total that has been recorded for any week since the epidemic began in that city. Of the 2566 deaths influenza caused 1263 and other diseases of the lungs 515. It is believed that the height of the epidemic has been passed in Paris as the reports for the past few days have shown a decrease in the number of new cases.

Diphtheria in Troy Institution.—There has been an outbreak of diphtheria among the 700 students of the Rensselaer Polytechnic Institute in Troy, N. Y., who are enrolled in the Students' Army Training Corps. The Schick test is being applied to every student and those who are found to be susceptible to the disease are being immunized.

Street Accidents in New York State.—According to the report of the National Highways Protective Association, 106 persons were killed by vehicles in New York State during October. Of these automobiles caused 95 deaths, trolleys 18, and wagons three. In New Jersey automobiles killed 16, trolleys five, and wagons two. Eight persons have been killed at grade crossings during the month.

Dr. Charles H. Chetwood, formerly head of the department of Urology of the New York Polyclinic Medical School and Hospital, has been appointed Consulting Surgeon to the French Hospital.

Dr. Thomas J. Preston, Jr., formerly of Princeton University, has been appointed dean of the New York Homeopathic Medical College and Flower Hospital.

New York Entertains Visiting Surgeons.—A group of distinguished surgeons, who came here from Europe to attend the Clinical Congress of Surgeons which was to have been held in this city Oct. 21-25 and which was abandoned on account of the epidemic of influenza, have been making a tour of other cities of the country. They arrived in New York on Nov. 6 and were entertained at luncheon on that day by the Department of Surgery of Columbia University. After the luncheon addresses were delivered by Col. George E. Gask of London; Major Adrian Poillet of France; Major Pierre Duval of Paris; Colonel Sir Thomas Myles of Dublin; Lieutenant-Colonel Raffaele Bastianelli of Rome; Major George J. Turner, Surgeon to the British Army in Mesopotamia, and Dr. Henry Beclere of Paris. A dinner at Delmonico's was given the visiting surgeons on the evening of Nov. 6 at which time the members of the medical profession at large were given the privilege of meeting the visiting surgeons. After the dinner many of the distinguished foreign visitors spoke, as well as Surgeon General Merritte W. Ireland of the Army, Surgeon General William C. Braisted of the Navy, Dr. Franklin Martin, Colonel George E. Brewer of New York, who has recently returned from service at the front, and others. On Nov. 7, Dr. Charles E. Elsberg entertained the visitors at a luncheon at the Hotel Plaza, after which the military hospitals of the city were visited. In the evening they were entertained at a private dinner given by Dr. Walter B. James, after which they attended the Stated Meeting of the New York Academy of Medicine which was given over to a discussion of "Surgery in the War Zone" by delegates to the American College of Surgeons.

Report of United Hospital Fund.—The Executive Committee of the United Hospital Fund,

which collects and apportions funds among forty-six hospitals of the city, has submitted a report which shows that the war has greatly crippled the hospitals, owing to the large number of doctors and members of the staffs that have gone to the front. The receipts of the United Hospital Fund for the year ended Sept. 30, 1918, were $181,504, a gain over the previous year of $47,924. Notwithstanding this increase, the rising cost of all kinds of medical and surgical supplies and of labor has been greater so that the expenses of the hospitals for the year showed an increase of $1,771,380.16. Thirty-six out of the forty-six hospitals closed the year with deficits. The total number of patients treated during the year who were unable to pay was 151,655, an increase of 15,243.

Obituary Notes.—Dr. Giuseppe Vittorio Sbordone, a graduate of the University of Naples, in 1889, died of pneumonia at his home in New York City, on October 21, aged 57 years.

Dr. Adolph Morgenstern, a graduate of the Long Island College Hospital Medical School in 1906, died at his home in New York on October 7.

Dr. William J. Bedell, a graduate of the University and Bellevue Hospital Medical College, in 1898, died of pneumonia at his home in New York, on October 23, aged 48 years.

Dr. Edward Kenneth Lubin, an interne at Bellevue Hospital, died there of influenza on October 27, aged 23 years. He was graduated from the University and Bellevue Hospital Medical College last June, and recently received a commission as first lieutenant in the Army Medical Corps.

Dr. Hyman R. Wiener of Harrisburgh, Pa., a graduate of the University of Maryland School of Medicine, in 1912, died recently of pneumonia, in a local hospital, aged 29 years.

Correspondence.

ABORTING THE GRIPPE.

To the Editor of the Medical Record:

Sir:—In my brief letter in the Medical Record of October 19, on "The Value of Sodium Bicarbonate for Common Colds," I mentioned the use of phenacetine and soda in "grippe." As this is of such vital importance just now, and as after many years' use of it I have found invariably good results, I cannot refrain from trespassing again on your space, in the cause of humanity. I do this especially because many physicians to whom I have mentioned it do not seem to grasp its importance, and many express a fear from the size of the dose. They often speak of using smaller doses, compounded with other things, but seldom speak of really aborting the trouble, which can surely be done by this means.

I cannot tell just when I began this measure, but for ten or twenty years I have always kept the powders on hand, and used them most satisfactorily during many epidemics of grippe, for myself, in my family, and with my patients and friends, and never in a single instance have I had cause to regret, but have had the unqualified thanks of dozens who realize that the disease was aborted. Only to-day a gentleman from the West spoke incidentally of fearing the grippe, and I said that I would give him some powders which would break it up, if he was threatened, and he instantly asked if they were the same as those which had worked so wonderfully years ago, and several times since. Yesterday a lady said that she had been nursing several in her family, severely ill with it, and felt all the premonitary symptoms herself, and expected to take her turn in bed. I gave her a powder myself, at once, with hot water, and a prescription, with directions to take one every two hours, and one on rising in the morning, and to continue further if needed. I expect to see her in a week and to learn that she "did not have any grippe after all," as so many have remarked under similar circumstances.

In my own family this has occurred time and again, and, with six children and many servants, we have never had any one in bed with it, as I remember. Repeatedly my wife will tell me that some one is coming down with the grippe, and ask, "Shall I give some powders?" I hand out my box, and generally that is the last I hear of it. Only to-night I answered a letter from a patient asking as to the number of doses to be taken.

The plan of treatment, as indicated in the foregoing, is so simple that little more need be said. With the adult I always give ten grains of phenacetine and twenty of bicarbonate of soda. Three weeks ago I gave a child with psoriasis, 13 years of age, seven and a half grains with twenty of soda, every two hours; she had had influenza for a week, with fever, and was a miserable sight. Yesterday, returning for the first time, the mother said, "The powders worked wonders"; she took them that day and the next, and on the following day was brisk and well. I, myself, have recently felt the wonderful bracing up, after a few powders had removed the depression and general aching. It is probably better to keep quiet while under this treatment, and if there is the least heart depression to add a trifle of whisky to the hot water; but I have had any number of patients who have gone about their usual avocation, and I myself have never exercised any precautions.

The powders are placed dry on the tongue and about a third of a tumbler of pretty hot water taken after them. After they have been taken in one or two courses, I often have them continued for a while, one on retiring and on rising, to ward off further trouble. One cannot always clearly explain the rationale of every treatment, and it must be granted that experience is a very considerable factor in medical success. I realize that some will regard me as unduly enthusiastic in thus urging a remedy, but I think that the present epidemic warrants some enthusiasm about a measure which has uniformly yielded such good results over so many years. I hope others will report upon it.

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PROPHYLACTIC VACCINES IN INFLUENZA.

To the Editor of the Medical Record:

Sir:—We are still in the throes of the influenza epidemic and it is unwise to relax any effort in fighting this great foe. On October 30 there were 5349 new cases of influenza and 1026 new cases of pneumonia, a new high record for this disease.

There are two points that need to be emphasized: First, the excellent advice has been given that every person with symptoms indicating a probable onset of the disease go immediately to bed and conserve every ounce of strength in fighting the infection. To this should be added the additional mandate that no one should get up out of bed and stir about until at least five days after the temperature has become normal. Dr. Charles L. Mix, Major, Medical Corps, U. S. A., stationed at Camp Mills, reporting on the epidemic among soldiers, says: "We have reached the conclusion that it is wholly unsafe to send out a patient before he has had at least seven days of normal temperature, and I think that as my experience increases I shall arbitrarily raise my date of discharge to ten days of normal temperature." It is an undeniable fact that the fatal cases have been chiefly in those who have quickly defervesced, and, feeling all right again, have gone back to business or taken up their social obligations only to come down with high fever and pneumonia.

The second point is that prophylactic vaccines have not been insisted upon. It is still being debated as to whether vaccines prevent either influenza or pneumonia; certainly they cannot be expected to "cure" these diseases once they are under way. But this much can be said—vaccines when properly used cannot do harm. It is now agreed that they increase the number of white blood cells, the scavengers which destroy great numbers of bacteria. In influenza the number of white blood cells are diminished by the disease, thus destroying an important line of defense against the invader. Vaccines stimulate the formation of new white blood cells, and thus increase the body resistance to infection. They also increase the appetite and favor quiet, restful sleep. Many of the hospitals, such as the Manhattan Eye, Ear and Throat, have immunized the entire staff, and while an occasional case of influenza has developed thereafter, the mortality has been practically nil among those doctors and nurses who have submitted to this harmless inoculation of dead bacteria.

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OUR LONDON LETTER.

(From Our Own Correspondent.)

THE COMING MINISTRY OF HEALTH—CHILD WELFARE AND PUBLIC RESPONSIBILITY—THE WAR AND LUNACY—URBAN INSANITATION.

LONDON, October 10, 1918.

FROM the expressions of Dr. Christopher Addison, the Minister of Reconstruction, at a recent meeting of the medical profession, there can be no doubt that the institution of a Ministry of Health will form part of the Government program in the next session of the House of Commons. The reasons for the establishment of a Ministry of Health as one of the principal Departments of State have been detailed in these columns on several occasions, and a summary of those reasons shows that the movement is not a revolutionary one but a true development—a development in which that part of public medicine which is good will be extended, and that part which is redundant or reactionary will cease to exist. On the face of it the bill, when it is read, will be an assortment under one Government department of duties which at the present moment are discharged by six or seven departments, with consequent waste of time, overlapping of energy, and aggravated expense. But when the medical activities of such various and varying bodies as the Local Government Board, the Board of Education, the Home Office, the Foreign Office, the Privy Council, and others are considered, it will be seen that there should be no great difficulty in centralizing them, if a proper coordinating authority be set up. The reasons for wide, anomalous distribution of public medical duties have disappeared, so that none of the existing Government Departments want to be confirmed in their medical work, though none want to hand it over without knowing that the scientific responsibilities will be duly discharged by a new central bureau. Such difficulties as lie in the way of the the Government in promoting the contemplated bill can only be met by providing in the bill for a strong Medical Consultative Council, composed of medical men who are truly representative of professional interests, this not out of tenderness for doctors, but out of genuine feeling, that good public servants will only be obtained in response to proper conditions of service. That the Medical Consultative Committee should be properly chosen is a more important proviso than the one on which so much stress is often laid that the Minister himself should be a doctor. There is certainly no reason why the Minister should not be a doctor, and there would be considerable fitness in his possession of medical titles, but a clear-headed public worker, willing to trust a competent Medical Consultative Council would be a far better protagonist of the cause of national health than the wisest of medical men could be, while hampered by having to defer in principle or detail to assessors with no medical equipment. The knowledge from the mouth of the Minister of Reconstruction, himself quite probably the first "Minister of National Health," that by the new bill no institution of a wholesale state service is intended, has been a great relief to many leaders of medical thought, for the conditions of medical practice in this country seem hardly ready for such a revolution.

In England the mother has not yet got an efficient medical service at her disposal for herself and her children, and the provision of this is one of the after-war problems which the citizens have to settle, and the citizens of London should be in the front of the movement, having regard to the population and aggregate wealth of the community.

We need a system by which there will be secured a family doctor for each family. The relations of the family doctor to the special institutions such as School Clinics, Tuberculosis Dispensaries, Maternity and Child Welfare Centers, and Venereal Disease Clinics will have to be determined. The family doctor must be linked up with the consulting surgeons and physicians, and the hospitals, convalescent homes, midwives, district nurses, and mothers' helps, so that his patients may have the benefits of these services in time of need. More lying-in hospitals, more children's hospitals, and open-air schools are required. Especially do we need more hospitals for crippled children. Besides this, arrangements must be made for dentists to look after

the teeth of the children. This has been done to some extent in the case of children of school age by School Clinics, and the system will have to be extended. As I have said above, the new bill for a Ministry of Health does not purport to institute any State system of medical practice, whereby every doctor would become a regimented officer in a salaried service. Nor must it disturb the voluntary hospital system, but that system, if it is to be unmolested, must set its own house in order.

The reform of out-patient departments in these institutions is urgently needed. Serious cases are at present swamped by cases which ought never to be sent there. "Mothers who take their children to out-patient departments are frequently required to spend the whole day in the waiting-room, to the great detriment of their homes." These were the words employed by Dr. Harold Scurfield in a recent lecture delivered in London on "After War Problems," and there is no doubt that in many directions in the county the children could be given a better chance. County Councils and Sanitary Authorities are now required to establish Maternity and Child Welfare Centers, and the representatives of the citizens must see that these are as efficient as possible. There should be provided advice and hospital treatment if required for expectant mothers; medical attendance under certain circumstances, and hospital treatment, if required, during confinement; and advice and hospital treatment, if required, for both mother and baby after confinement, the advice to be continued, in the case of the baby, up to the school entrance age. As regards hospital treatment, the usual way is for the Sanitary Authority which establishes the center to make arrangements with the existing hospitals, but some Sanitary Authorities may find it advisable to establish lying-in hospitals and infant hospitals. At present we have medical supervision of children from birth up to the age at which they leave school, but no provision has been made for the gap between leaving school and the age of sixteen, when those who go to work come under the scheme of the Insurance Act. This is an anomaly which is always, and rightly, being used to prove the necessity for a central scheme of National Health, so that the general care of the individual should receive one central supervision.

The annual report of the General Board of Control (Lunacy Board) of Scotland gives statistics which show that there has been a steadily progressing decrease since the outbreak of war of lunacy in Scotland, and a similar reading can be put upon the lunacy statistics for the past twelve months of other divisions of the kingdom. The decline in the admission rate to public asylums of pauper lunatics is the salient point. It is true that this decline had begun to take place before the commencement of war, owing perhaps to the general prosperity of the country, removing from wage earners much of the stress of poverty and the anxiety of non-employment. But since the drastic regulations with regard to alcohol have begun to tell on the morale of the population, the decrease of pauper lunatics has been marked. The death-rate among this class has slightly increased by comparison with the figures of last year.

And just as war conditions have been accompanied by an actual decline in the lunacy rates among paupers, so, on the whole, the profoundly disturbed and disturbing social conditions of war have not led in England to the amount of trade difficulties which might be gathered from newspaper accounts of strikes in various directions. The relations between employer and employed, whether we have to deal with State Departments like the Police, with great corporations not under Government aegis like railways, or with private companies like those which exploit the coal mines, have required readjustment, and probably will require it in a further measure. But the set-backs to the prosperity of the country or to the prosecution of the war by the occurrence of these trade disputes have not been serious, although the German journals have chosen to think otherwise. The position arising in one or two lunatic asylums out of the strike of attendants and nurses opened the eyes of the public to the mischief that would inevitably follow if in certain directions whole social services were disbanded while questions of payment were threshed out, and many lay papers drew a moral from the imagined horrors of a medical strike, and in so doing awoke the public to the fact that strikes of a particular nature are wholly unjustifiable. One such strike having a medical side prevailed in the important and central district of London, called Holborn, this week, coming to a conclusion as abruptly as it had started. For several days the public service of the Holborn district having the care of the condition of the streets was suspended; streets were not swept and were not watered, gullies were not flushed, *débris* of all kinds—manure, paper, tins, boxes, tobacco ash, and the like—collected mainly in the small side streets. The manure, indeed, was largely to be found in a thick paste on these side streets, because the major thoroughfares, being used for motor traffic, horse traffic tended to take the minor routes. This disgusting condition of affairs was maintained for about a week, and the interesting point about it is that the public health of the community, as far as the figures of the municipal health office go, showed no immediate depreciation. There was no rise in such disorders as infantile diarrhea, and it is possible that the presence of rain and absence of wind, by preventing the dissemination of dust, prevented also catarrhal conditions of eyes, nose, mouth, and throat.

As, apparently, there was no "doctor's bill to pay," the public will conclude that "all is well that ends well," but the medical view is something very different. No one supposes that a week's dirt will undo all the advantages to be derived from many years of organized cleanliness; the danger is lest the public, seeing no immediate harm to result from a dirty environment, should tend to estimate medical recommendations with regard to public sanitation as being based on fussiness rather than on fact. To such people the public health statistics of important cities, not only in the East and in Russia, in the Balkans and in Spain, but even in parts of Italy and parts of Ireland, should prove a salutary lesson. The dirt of the day does not matter—it can be shifted. The dirt of years becomes an insanitary bequest to future generations, and its evil is hard to combat.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

THE AMERICAN IS COMING INTO HIS OWN—ANIMAL EXTRACTS FOR TREATING WOUNDS—THE FRIENDS HOSPITAL BOMBED—THE OPINION OF SOME NOTABLE GERMANS—THE PARIS WOMAN'S RELIEF CORPS.

PARIS, September 17, 1918.

THE appreciation of what America and her sons are doing finds expression in every place and class in extravagant praise, which is all the more gratifying because of the genuine ring of earnestness and truth that is perfectly apparent.

War correspondents at the front get hardened and callous and rarely deal in florid praise, and I think no more comprehensive idea can be conveyed of what I say than to quote a paragraph from a war correspondent of one of England's great dailies: "As specimens of physical fitness, these farmers, lumbermen and mechanics, many of whom have German names, compare with the Australians, and there are no finer. Never a moan from a wounded man have I heard in the advanced dressing stations. Every man, however badly wounded, has had a smile for a joke and a face that betrayed satisfaction in a task well done."

Professor Charles Richet presented last Monday afternoon, at the Academy of Sciences, a communication from Dr. Serge Voronoff and Mme. Evelyn Bostwick on their new treatment of war wounds. After a great number of experiments on animals in the Laboratory of Experimental Surgery at the Collège de France, they have succeeded in healing in a few days deep wounds which normally require months. Dr. Carrel of the Rockefeller Institute had, before the war, indicated the accelerative properties of the thyroid gland. Dr. Voronoff and Mme. Bostwick have found from various experiments that there is in the organism a gland that disperses throughout the body secretions which are infinitely stronger. This gland is obtained by the castration of a young ram. It is known that this organ produces considerable vital energy. Animals on whom the operation is performed become fat and apathetic. It is that organ that Dr. Voronoff and Mme. Bostwick have utilized with marvelous results.

Large and deep wounds treated by their process, which consists in spreading the pulp of these glands in the wounds, have healed with a rapidity that had never been observed before. Long months of unnecessary suffering have been avoided for soldiers, who have the joy of seeing their wounds heal in a few days. That this method is successful is shown by the fact that Dr. Carrel has called upon Dr. Voronoff and Mme. Bostwick to apply their method at his hospital at Noisiel.

After having passed safely through months of shelling from both land and sea, and bombing from the sky, the headquarters at ——— of the Friends' Ambulance Unit, an institution the American Red Cross has been assisting, has been almost completely wiped out by bombs from German avions. Two of the workers were killed and four injured. The casualty list was small, as most of the personnel were in an "abri." The headquarters of the Friends' Ambulance Unit was in the Hotel ———, which was built in two parts, one more recent than the other. The new part was destroyed. Two bombs fell in the courtyard back of the building, blowing out the whole first story, causing the structure to collapse.

Belgian and French residents in Switzerland (many of whom are liberated prisoners of war) have been struck by a startling German recognition of France's ultimate claims on Germany for the invasion and wholesale destruction of northern France. Hitherto, the general opinion has been that, on the day of peace, France would be unqualified to put up special claims against the invasion of her northern departments, because she is an ordinary belligerent power and comes under the provisions of the Hague Conventions, which proclaim legitimate the levying of war contributions, commandeering of food, etc., by an invader in a country not enjoying the privilege of neutrality as is the case with Belgium. The *Freie Zeitung*, which is published in Switzerland by the few notable Germans whom the crimes of their Fatherland have disgusted and revolted, has, however, just published the following view: "The French northern departments were not reached by the German armies in direct and loyal fight, but only thanks to the violation of the neutral Belgian territory which, by international agreement, adhered to by the King of Prussia himself, was to remain a perpetual and impassable barrier between France and Germany. Therefore, on the conclusion of peace, France will be absolutely justified in claiming that the invasion of her northern provinces does not come under the rules of the Hague Conventions and should be compensated for as amply as the violation and occupation of neutral Belgium." This contention, new though it be, appears quite sound in law and in fact; and the French will be all the more entitled to act by it and enforce its consequences, as it is suggested by subjects of the belligerent enemy and invader.

Though the "Women's War Relief Corps" has been amalgamated with the Red Cross organization proper and no longer exists as a separate organization, the service of the corps remains as before, with additional duties, though it has dropped its name of "The American Women's War Relief Corps" and has become the Women's Division of the Bureau of Personnel of the American Red Cross. Its duties consist in finding quarters for all the Red Cross women who arrive from America. The women of the committee meet them at the boats and the stations upon their arrival in France and find "pensions" or hotels for them and arrange every necessary accommodation for them. All uniforms are applied for through this bureau and tailors are assigned to those who demand a certain class of uniform. The bureau, further, serves as a general information bureau for all women engaged in war relief work in France. The most important part of this division is, perhaps, its women's employment bureau, which has recently been inaugurated. Positions are found whenever possible for all who are in need through losses caused by the war.

Chancroid of the Vagina.—Courtade reports two cases of this rather rare localization; this infrequency may be only apparent, for unless the speculum is used in routine work one can never be certain of their absence.—*Annales des Maladies Vénériennes.*

Progress of Medical Science.

New York Medical Journal.

October 26, 1918.

1. Spanish Influenza in the Army. Charles L. Mix.
2. General Survey of the Influenza Epidemic. Royal S. Copeland.
3. Epidemiology and Administrative Control of Influenza. Louis I. Harris.
4. Symptomatology of the Prevailing Epidemic Influenza. Morris Manges.
5. Nervous and Mental Disturbances of Influenza. Smith Ely Jelliffe.
6. The Treatment of Influenza from the Standpoint of the Nose and Throat Specialist. Irving Wilson Voorhees.
7. Complications in Influenza. Alfred Kahn.
8. Prophylactic Treatment of Influenza for the Prevention of Pneumonia. Charles M. Bellows.

Journal of the American Medical Association.

October 26, 1918.

1. The Retrograde Movement of Ureteral Calculi. Herman L. Kretschmer.
2. Isolated Disease of the Scaphoid. Charles R. McClure.
3. Fracture of the Spinal Column With and Without Cord Injury. Norman Sharpe.
4. Cancer of the Oral Cavity, Jaws and Throat: Treatment by Electrothermic Methods or in Combination with Surgery, the Roentgen Ray and Radium, with an Analysis of Two Hundred Cases So Treated. William L. Clark.
5. The Use of Heat and Radium in the Treatment of Cancer of the Jaws and Cheeks. G. B. New.
6. Treatment of Vertebral Tuberculosis by Fusion Operation: Report of Two Hundred and Ten Cases. Russell A. Hibbs.
7. State Responsibility and Aims in County Health Work. J. N. Hurty.
8. The Use of Oxalated and Citrated Blood for Routine Class Study. Frederick Howard Falls.
9. A Convenient Method for Filing Surgical Sections. W. L. Robinson.
10. Report of a Case of Foreign Body in Left Main Bronchus for Ten Years. Thomas Hubbard.
11. A Case of Traumatic Rupture of the Kidney with Delayed Hematuria. Robert W. Angevine.
12. Acute Poisoning by Five Grains of Acetylsalicylic Acid—"Aspirin." Edmund P. Shelby.
13. An Aspirator for Paracentesis. H. C. Stevens.
14. Medical Studies in Aviation.
    I. Organization and Objects of the Medical Research Board, Air Service, U. S. Army. Yandell Henderson and E. G. Seibert.
    II. Physiologic Observations and Methods. Edward C. Schneider.
    III. Cardiovascular Observations. James L. Whitney.
    IV. Psychologic Observations and Methods. Knight Dunlap.
    V. The Effect of Altitude on Ocular Functions. William H. Wilmer and Conrad Berens.
    VI. Influence of Altitude on the Hearing and the Motion-Sensing Apparatus of the Ear. E. R. Lewis.
    VII. Effects of Low Oxygen Pressure on the Personality of the Aviator. Stewart Paton.
15. The Occurrence and Significance of B. Welchii in Certain Wounds. James L. Stoddard.
16. Blood Transfusion at the Front Area. Benjamin I. Harrison.
17. Further Experience with Face Masks. George H. Weaver.

5. The Use of Heat and Radium in the Treatment of Cancer of the Jaws and Cheeks.—G. B. New reports the results obtained in 21 inoperable cases of cancer of the jaws and cheek by treatment with the cautery and radium at the Mayo clinic in 1917. In most cases, epitheliomas occurred in the fifth decade; two patients were between 31 and 40 years of age, four between 41 and 50, twelve between 51 and 60, and three between 61 and 70. Nineteen were men and two were women. The exact length of time the growth had been present could not be determined; patients had noticed it for periods of from two weeks to four years. Tumor was on the lower jaw in two, on the lower jaw and cheek in seven, on the upper jaw in two, on the upper jaw and cheek in seven, and on the cheek in three cases. Five of the 21 cases had already been operated on. In seven cases, epithelioma was associated with a leukoplakia, and in one instance the tumor developed on a pathologic fracture of a bone cyst of the jaw. All patients were treated by the slow heat cautery with soldering irons, radium being also used. New states that although the decision as to surgical intervention in cases of cancer of the jaw or cheek without glandular involvement must depend on individual judgment, in questionable cases the patient should be given the chance afforded by operation. The technic of the operation is as follows: After the patient is anesthetized with ether, a mouth gag is inserted opposite the affected side. The tongue is drawn to one side out of the way, by the aid of a stomach clicker. The water-cooled speculum is inserted, and all the teeth in the area involved, or those that prevent good exposure of the growth are removed. If it is possible, the entire growth is excised from the jaw or cheek with a knife cautery, and the base is cauterized with soldering irons. If this is not possible, the irons are inserted into the tumor. The water-cooled speculum prevents the burning of the lips or cheeks except in the area being treated, and it affords good exposure. A wooden tongue depressor holds the tongue out of the way and prevents it from being burned. The cautery should be used longer than seems really necessary; at least for from twenty to forty-five minutes. If the growth is in the upper jaw and involves the antrum, the soldering irons are carried up into the antrum and the entire growth is gradually burned away. In case of hemorrhage following cauterization and not readily controlled by packing, ligation of the external carotid with the lingual and facial branches is recommended. Radium is applied about two weeks after cauterization, directly into the open area, from which the slough will have cleared off. The radium is directed into the ulcerating area in lead applicators, using a 50 or 100 mg. tube within a silver tube, for from 15 to 20 hours, without screening. If the cheek is involved, radium is applied, with screening, externally over the cheek; and if the growth has involved the antrum, the radium is placed in the antrum and packed there with petrolatum gauze. In a month to six weeks, large pieces of sequestrum usually come away from the jaw. Further treatment is given in a month and repeated as required. In case of recurrence, a second cauterization is done, and this is followed by radium. As a rule epithelioma of the jaw does not metastasize early, unless there is considerable involvement of the cheek. In such case the submental and submaxillary glands on the affected side should be removed. *Results:* Twenty out of the twenty-one patients have been traced. Twelve have had no recurrence locally or in the glands for from six to eighteen months. One patient, who was operated on before going to the Mayo clinic, has a hopeless recurrence. Two patients died of cancer. New points out that the end results in this series cannot be foreseen, but he believes that much more is being accomplished in the treatment of such cases by the addition of radium than was formerly possible.

The Lancet.

October 5, 1918.

1. An Address (Part of) on Sensory Changes in the Diagnosis of Trench Fever. Given Before a Base Medical Society in France. Major D. W. Carmalt Jones.
2. The Pathological Diagnosis in Gunshot Injuries of Peripheral Nerves. John S. B. Stopford.
3. Reports from the Pathological Laboratories of No. — General Hospital, Alexandria. III. Macroscopic and Microscopic Methods of Diagnosing Amoebic and Bacillary Dysentery. IV. Types of Dysentery Bacilli Isolated. Captains J. Gordon Thompson and L. F Hirst. V. Amoebic Dysentery. Captain J. Gordon Thompson.
4. Fractures of the Femur: A Practical Note on the Calliper as an Instrument of Extension. Captain P. L. Watkin Williams, D.S.O.
5. Ether Anesthesia for Face and Jaw Surgery. Captain J. C. Clayton.
6. Transfusion of Blood in War Surgery. Some Indications and Results, and Description of New Modified Direct Method. Major S. R. Harrison.
7. Abnormal Conditions of Enamel in Cases of Malnutrition J. Lawson Dick.
8. Angina Pectoris: Changes in Electrocardiogram During Paroxysm. Lieutenant Guy Bousfield.
9. Distantly Audible Heart Sounds. W. Gordon.
10. A Case of Prolonged Artificial Feeding. J. Batty Tuke
11. A Case of Acute Ascending Paralysis. W. Waddell.

1. An Address (Part of) on Sensory Changes in the Diagnosis of Trench Fever. Given Before a Base Medical Society in France.—Major D. W. Carmalt Jones refers to the clinical investigations conducted by Sir James Mackenzie, Dr. Henry Head, and others on the association of inflammation of viscera with areas of increased sensibility of the skin. Some work on the lines laid down by these observers has been done at a Base Hospital in France, and records of 500 consecutive examinations are now available. The work of Gaskell made it possible to construct a working hypothesis, based on the principle that every segment receives an afferent nerve from a viscus, and if the viscus is inflamed the skin area connected with the same segment becomes hyperalgesic. Carmalt Jones describes

in detail the procedure followed; a series of light pinpricks (with a wooden match finely pointed) is applied to the skin along a line which cuts across a number of segmental areas, for instance, from the clavicle to Poupart's ligament. The patient will be seen to flinch when the pricks pass from a normal to a hyperalgesic area; the spot where the flinch occurs is marked with a skin pencil and the experiment repeated from below upward and the skin marked again. The series of 500 included cases of various kinds of fevers, diseases of the circulatory, respiratory, alimentary and genitourinary systems. It was found that of the 130 cases of "fever" of various kinds, trench fever and malaria were commonly associated with hyperalgesia of three definite groups of segments which do not correspnod with those belonging to any of the viscera noted in the series. These areas were: the eighth cervical and first dorsal, the seventh dorsal, and the first, second, third, fourth and fifth lumbar. This is the "full trench fever distribution" and it was noted, more or less completely, in nearly every case clinically diagnosed as trench fever. Of 18 cases of malaria examined, 16 showed precisely similar areas to those found in trench fever. It is suggested, therefore, that hyperalgesia of these particular segments is diagnostic of a group of disease consisting of malaria and trench fever, and it is remarkable that one of them is mosquito-borne and the other louseborne; that both appear to be protozoal, with a definite cycle of development, as shown by periodicity of the febrile attacks; that both appear to lie dormant for considerable periods within the body; and that both are associated with enlargement of the spleen It is possible that the eighth cervical and first dorsal may indicate an affection of the thyroid gland; and the seventh dorsal may indicate the spleen. The significance of a lumbar hyperalgesia as yet is unexplained. Major Carmalt Jones points out the diagnostic value of such hyperalgesic areas in visceral lesions in general. In trench fever he believes hyperalgesia or the areas indicated to be diagnostic, when malaria can be excluded. He suggests also that afebrile cases of other disorders, such as D.H.A. and debility, which show the same changes, may be suffering from a chronic form of the same infection. He points out that among 100 cases of D. A. H. examined at a "heart center" in France, who showed positive changes in sensibility, 67 gave evidence pointing to trench fever alone and of 33 that had signs of a true heart lesion, 22 also showed signs of trench fever. This would mean that trench fever constitutes a serious source of invaliding. In any case, the question is worthy of further investigation.

6. Transfusion of Blood in War Surgery: Some Indications and Results, and Description of New Modified Direct Method.—Major S R. Harrison describes a modified direct method of blood transfusion, by which the blood is conveyed from an artery of the donor to a vein of the recipient in such a way that the operator can observe the flow and knows immediately if the flow ceases or any clotting takes place. The apparatus is simply made. It consists of a Y-tube, two limbs of which are shortened, and two glass cannulæ. The cannulæ are connected to the short limbs of the tube by sterilized rubber tubing; the third limb is connected with a reservoir of saline 0.8 per cent. or sodium citrate 3.8 per cent. by tubing about 5 feet long, which has a clip on it. All rubber connections are conveniently tied with silk. The length of the instrument—that is, the distance the blood must flow through the tube—is about 6 inches. The Y-tube and cannulæ are waxed after sterilization and joined up in position with sterilized rubber tubing. The long limb of the tube is connected to the reservoir of sodium citrate solution and the apparatus is ready for use. The donor's left radial artery is usually taken (unless he is left-handed), the distance between artery and the selected vein in the recipient is roughly measured off with instrument, and the two arms secured in position with adhesive. Two operators are necessary: one to prepare the artery and one to prepare the vein. The skin over the proposed wound is sterilized with 1-20 carbolic, which also acts as an anesthetic. The radial artery 1½ inches above wrist is dissected out through an inch incision, tied off distally with fine silk, a second loop of which is passed under the artery and used later to tie in the cannula. The artery is now opened with a Graefe's knife from above downward and outward, leaving a V-shaped tongue. Pressure in the meantime is applied above the wound to prevent loss of blood. The vein is prepared in the same way. The clip on the tubing leading to the reservoir is now opened, and the apparatus filled with citrate. The artery cannula is now tied into artery and blood allowed to flow until it reaches the tip of vein cannula, when pressure is again applied to artery. The vein cannula is then tied into vein and all pressure taken off artery. The blood can now easily be seen flowing through the Y-tube at the junction of the short and and long limbs where the clean solution of citrate comes in contact with the blood. This can be more easily demonstrated by occasionally opening the clip on the tube to reservoir, which is suspended about 3 feet above the patient, when the clear solution is seen passing quickly into the vein cannula. This is even more pronounced if pressure is applied to the artery. At the termination of the operation the cannulæ are withdrawn after pressure has been applied above each wound, both vessels ligated, and skin sutured. The author states that he has not seen any untoward results from tying off the radial artery. He points out, however, that care must be taken not to cut branches of the radial nerve. From a rough calculation made by running the blood from the radial into a dish containing citrate and subsequently transfusing the mixture, he estimates the amount of blood which passes through the apparatus as 750 c.cm. in five minutes. He has never known clotting to take place, yet he does not consider that the method described has many advantages over some of the indirect methods for general use. In war surgery, Harrison considers that whenever possible "whole" blood should be used, as all the constituents of the blood are necessary, especially in septic and septicemic cases; that a preliminary agglutination test should always be carried out, except when the groups of donor and recipient are known; and that the "Dakin container" direct method is the most simple and efficient method for general use, as the apparatus is easily made or obtainable, the required amount of blood can be given at one filling, and little assistance is required, also whole warm, unadulterated blood, with little chance of infection, is quickly transferred from one patient to another. He adds that, of course, the method selected must necessarily vary with circumstances.

British Medical Journal.

October 5, 1918.

1. The State and Pre-natal Hygiene. Edward McConnell.
2. The Exercise Blood Pressure Test of Myocardial Efficiency. Gordon Lambert.
3. Pulmonary Fat Embolism and Its Relation to Traumatic Shock. Captain George E. Sutton.
4. The Surgical Cure of Uterine Prolapse. Hugh P. Costobadis.
5. A Method for the Immediate Treatment of Fracture of the Femur on the Battlefield at the Site of Casualty. Captain F. B. Chavasse.
6. A Splint for Fractured Shaft of the Femur. H. E. Griffiths.
7. "Acidosis" and Hydrogen-ion Concentration. W. M. Bayliss.
8. Celluloid Solution for Traction. Lieut. W. F. Cunningham.
9. A Simple Grip for Adjusting Suspension Cords. Herbert E. Durham.
10. Collosol Manganese in Furunculosis and Seborrhoea. Captain E. W. Kirk.

3. Pulmonary Fat Embolism and Its Relation to Traumatic Shock.—Captain George E. Sutton points out that a number of cases of so-called shock arrive at a casualty clearing station showing the following features: cyanosis, small pulse, breathing sometimes labored and increased in rate, cold extremities, delirium of varying degree. Such cases respond little to measures of resuscitation and post-mortem examination invariably reveals pulmonary fat emboli which can be demonstrated grossly. Captain Sutton believes that among fatalities the percentage of such cases is at least ten, and would be found to be higher if sections of lung tissue were stained for fat in all cases. Fat emboli have been found in single and multiple compound fracture of long bones, fracture of skull with destruction of brain tissue, fracture of ribs; in penetrating wounds of the abdomen with maceration of omentum and large wounds of buttock and trunk; and in wounds penetrating the abdomen, with laceration of the liver. In cases of fracture of

long bones where immobility was not complete, symptoms resembling shock were invariably present. In eight fatal cases of profound shock, Sutton examined the lung tissue and found pulmonary fat embolism in six. The work of Warthin, Gauss and Bissell has demonstrated the relation of pulmonary fat embolism to shock, and Sutton points out that if unsuccessful cases of shock are due to acidosis—a prominent opinion to-day—in pulmonary fat embolism all the factors are present to produce this acidosis, that is the physical and chemical properties of lipemic blood are such that acidosis cannot be avoided. He concludes that pulmonary fat embolism is much more frequent in the war zone than was formerly thought; that a reasonably accurate diagnosis of pulmonary embolism can be made; that such cases do not respond readily to measures of resuscitation; and, finally, that the ultimate cause of death in pulmonary fat embolism and shock may be the same—namely, acidosis. The prophylactic treatment consists in fixation of fractures with extension where possible; early and efficient surgical interference for fractures; careful and complete hemostasis at operation on wounds involving fatty tissue, and *particularly the ligation of the non-bleeding proximal ends of veins as well as the bleeding distal ends.* Active treatment is only symptomatic. Small amounts of sodium bicarbonate (2 per cent.) are helpful, the administration to be regulated by the condition of the right heart. Transfusion of blood in small amounts may be useful.

Berliner klinische Wochenschrift.

August 26, 1918.

Diathermy and Its Limits of Efficacity.—E. Tobias, after offering some recommendations of a technical kind, endeavors to sum up the indications and contraindications of diathermic treatment. The preservation of the sensibility is essential and overlooking this fact may be disastrous in the treatment of locomotor ataxia, for example. Constipation of spasmodic origin is favorably influenced by this treatment whose principle resides in the application of heat in the depths of the organism. A sedation of pain ensues as well as stimulation of the local metabolism of the tissues. Muscular and joint diseases are among the most favorable indications for diathermy, after which come certain nervous affections (among which tabetic paroxysms), the neuriticles and neuralgias, with the exception of that of the trijeminus which may be exasperated by the treatment. The virtue of the hyperemic action can be used in the treatment of wounds of warfare, etc. Among the internal organs treated by diathermy at the present time may be mentioned angina pectoris, ischemia from vascular spasm (intermittent claudination), chronic bronchitis, asthma, emphysema (stimulation of the expectoration). The effects on hepatic or nephritic colic are not distinct. Genital affections are being more and more treated by diathermy. It is likewise applicable in the domain of cutaneous diseases (lupus). As essential contraindications the writer mentions the tendency to local congestion and suppurative processes.

Operative Treatment of Urethral Fistulæ and Hypospadias from Bullets.—C. Hirschmann offers the following conclusions: (1) Urethral fistulæ often close spontaneously; (2) when the fistula assumes a labiated aspect, an operation is required; (3) large fistulæ are cured by excision and suture of the urethra with a cutaneous plastic operation or a venous graft; (4) smaller fistulæ may be sutured after freshening the borders; (5) temporary deviation of the urine by a suprapubic opening is to be recommended; (6) avoid the catheter *à demeure* in operations on the penis; (7) hypospadias is closed by a cutaneous flap.

Münchener medizinische Wochenschrift.

August 20, 1918.

The Condition of the Blood in "Edema Disease."—W. H. Jansen states that this affection occurs in conditions of chronic inanition. The writer has observed a marked diminution of both the white and red corpuscles without signs of pernicious anemia. The writer considers this decrease not due to an hydremia related to the edema, but rather as the manifestation of a state of general cachexia. The globular index is usually increased, this being due to the predominance of old globules resulting from the want of sufficient renovation of the blood. The coagulability is usually accelerated. The point of congelation is normal (—0.55° to 0.56°). The tenor of the serum in albumin is lowered (down to 4 per cent., normal = 6.5 to 8.5 per cent.). The proportion of sugar is usually lowered, and the same applies to the lipoids and calcium. The writer attributes this calcic insufficiency to an exaggerated permeability of the capillaries which is made evident by the edemas to which the disease owes its name. On the other hand, the quantity of chlorides does not present any fixed variation, the residual nitrogen and uric acid are present in normal amounts.

The Therapeutics of Protein Bodies.—A. Wolff-Eisner discusses the question of the priority of the discovery of anaphylactic phenomena, claiming, in spite of absolute proof to the contrary, that he and not Charles Richet of Paris is the discoverer.

The Accuracy of Wassermann's Reaction.—K. Zieler concludes that there is necessity to render the reaction more sensitive, for example by employing Kaup's technique, which consists in using graduated doses of the compliment. On the other hand, the sensibilization of the method implies in itself a greater uncertitude in the results, the clinical findings retaining all their rights in doubtful or slightly positive cases.

Deutsche medizinische Wochenschrift.

August 22, 1918.

Regeneration of Tissues in Man.—A. Bier continues the series of his researches on the regeneration of various tissues. That of the muscles has, up to the present, been considered nil. Bier's experiments would seem to show that so negative a conclusion is not justified. He believes, on the contrary, that the presence of a favorable culture medium such as the sero-lymphatic exudate allows the muscle cells to bud, grow, and partially reconstruct the muscle destroyed. The writer has observed this process in two cases of amputation of carcinomatous breasts, comprising the greater part of the thoracic muscles. In one of the cases the muscular neoformation was only simulated by a cicatricial band, but in the second case Bier considers regeneration as certain because the contractile function of the muscles returned, likewise electric excitability. This regeneration was preceded by the formation of a lymphatic exudate over the area of removed muscle. Other cases recorded by Bier gave negative results, but on the other hand, he maintains that he has seen regeneration of the vastus externus muscle in a child in whom he removed a cavernous angioma in this muscle.

The Etiology of the Grippe.—H. Selter in the first place tries to show that Pfeiffer's bacillus is not the specific agent of the present epidemic. Having experimented on himself and his assistant, he came to the conclusion that the agent of the so-called "Spanish grippe" is a filtrable virus which cannot be detected microscopically.

Wiener medizinische Wochenschrift.

August 24, 1918.

The Control of Epidemics in the Army of the Isonzo.—K. Russ exposes the general plan of sanitation barriers instituted to oppose the spread of various infectious diseases. The data, useful both for prophylaxis and statistics, which are to be collected by a special commission appointed for this purpose, are essential. Bacteriological laboratories should be stationed as near as possible to the fighting line in order to quickly assure the elimination of doubtful cases, as well as for a direct superintendence of the trenches by specialists in hygiene. Next come two parallel lines of laboratories located in the other formations, comprising from two to four units. The number of bacteriological examinations done by these various centers is in the mean about 1100 a day. Besides the above units there are central stations for the examination of foodstuffs, centers for Wassermann's reaction and for the control of malaria. The latter possess all the necessary apparatus for the examination of mosquitoes, diagnostic researches and treatment. The hospitals should each have from 250 to 300 beds

near the firing line, rather than large base hospitals some distance off. The transport of men recognized sick should be done within a few hours. The care of the sick and convalescents is favored by the nature of the soil on which the hospital stands. The writer also describes sanitary trains, quarantine measures, movable apparatus for disinfection, etc.

La Riforma Medica.

July 6, 1918.

Three Day Fever.—Gabbi traces this affection back to 1804, at which period an English surgeon, Pym, first mentions it as an affection of the Mediterranean basin. No very important account of the disease appears before 1874-5 when Cicoli and others mention it as occurring in Dalmatia. It was described as a benign fever of brief duration, peculiar to the summer months. About 30 years ago it attracted the attention of Italian military surgeons and has retained it ever since. In addition to the countries mentioned—Dalmatia and parts of Italy—the malady is known to occur in Greece and Switzerland and in the Balkans, but is not a European malady in the ordinary meaning of the term—that is, it is native to Africa and India but exotic in Europe. In recent years its incidence in Southern Europe has been better understood. Thus in 1909-10 an epidemic, the first (?) on record, occurred in Messina and the coast of Calabria. Since that period it has been recognized in many localities in Italy and Sicily and the author has been able to trace all of these cases to this epidemic. It was not difficult to show that in all likelihood Messina in turn was infected from Dalmatia. Since 1909 it has been domesticated in many localities in Italy so that outbreaks occur readily every summer. Whether infected men or infected phlebotomus flies carry the disease about is not yet known. The rôle of this fly in the transmission of the disease was not known until about 10 years ago, when an official investigation by the Austrian government made this plain, as far at least as an epidemic in Herzegovina was concerned. In speaking of these recent epidemics in Italy it should not be forgotten that earlier ones are on record. The affection was epidemic, for example, in Bologna in 1896. The chronology of the disease is somewhat confusing. A distinction must of course be made and upheld between recent importations and old endemic foci.

La Presse Médicale.

August 1, 1918.

Streptococcus Wounds.—Plisson, Ramond, and Pernet attempt a clinical description of streptococcus wounds, which they style a new entity. They have made a study of 67 cases in which the bacteriologic finds were constant—chains of gram-staining cocci. There are, however, numerous variations, polymorphism being notable. Both aerobes and anaerobes are represented, there are marked differences in resistance and fragility, behavior varies with the culture medium, and all in all the question of one or several species is more than academic. As for the source of these germs, they are omnipresent, occurring in the soil, in the clothing, in the human skin and cavities. They are seldom seen in recent wounds, and in 56 of 67 cases studied they could not be demonstrated inside of 48 hours. Yet these wounds are not to be classed as secondarily infected, for in most cases the organisms must have been present at the start. Secondary infection, while possible, is very rare. The germ is carried directly into the wound by the projectile or weapon, whether it was originally in the skin or clothing. It doubtless begins to proliferate in the marginal portion, which explains why the wound at first appears to be sterile. In about 86 per cent. of streptococcus wounds the missile was a shell fragment. The locality is apt to be one of the fleshy portions of the body—regions like the hands, scalp, etc., are very seldom involved. Hence penetrating wounds are possible, and as a matter of fact this type of wound is what is usually encountered. The per cent of this type of wound to become streptococcus-infected is very high—84 per cent. in the author's material. In the uncleansed wound streptococcus infection may be quite masked by the development of gas gangrene. If the causes of gas gangrene are not in evidence—that is, in pure streptococcus infection—we see a simple infected wound with very intense and violent inflammation. Supposing that the wound has been sutured, the first symptoms of infection are pain and fever. The latter are invariably absent in uninfected wounds. Pain is spontaneous and increased by pressure, and fever even begins on the first day while the wound still looks healthy. By the third to fifth day it has reached a sort of maximum of 38.5-39.5 C., falling by lysis until normal at the end of ten to fifteen days. This course was seen in half the cases. In a number of cases the sutures were removed, but without influence on the course of the fever. The authors believe that the infection is parietal and not cavitary. The surface appears to be progressively vaccinated by the disease products just as in erysipelas, until an immunity is reached. The edges of the wound are the seat of a peculiar edema recalling that of milk leg. The amount of redness is very moderate. The discharge is abundant and without odor and may be thin or purulent. In the great majority of cases union by first intention does not occur. If, on the other hand, the wound has been carefully cleaned out and left unsutured or has been desutured a superficial necrosis occurs in the surface of the wound, while the margins in addition to being red and swollen present small phlyctens or superficial sloughs. The discharge in this kind of wound is usually thin, seldom purulent. In from 10 to 15 days the necrotic tissue is replaced by granulations and pus now appears in the discharge. The granulation does not heal normally, and after three or four weeks the wound area is studded with proud flesh which may be more or less ulcerated—exceptionally the wound has become a vast ulcer. The infection from the laboratory standpoint may be mixed through the presence of staphylococci, coli bacilli, pyocyaneus, etc. In these mixed cases the clinical picture may or may not be altered somewhat, but generally speaking the infection is practically streptococcic. Death from sepsis is very unusual. Of the authors' material all recovered but two, and neither man died of streptococcus infection. Healing progresses as soon as the granulations become normal. The latter have a characteristic tendency to bleed readily. In making a laboratory diagnosis a number of smears must always be made because the little chains of cocci may not be seen at first. The treatment must be that of an ulcerated surface which is to heal by granulation and there is no special method. The authors apply 40 per cent. formol as a disinfectant, and when possible the area of proud flesh should be ablated and sutured. This intervention was never practised before the third week.

Nederlandsch Tijdschrift voor Geneeskunde.

June 22, 1918.

Case of Acute Pseudoleucemia.—Van Asso describes a case of the so-called Pel-Ebstein type of this affection, which is also known as chronic relapsing fever. The patient was a man aged 31, who had been in apparent good health the day before his fever developed. The family history was unusual from the coexistence in his immediate relatives of cancer, tuberculosis, and syphilis. His father had died of cancer of the stomach, mother had tabes dorsalis, a sister had syphilis of the humerus, two maternal uncles had pulmonary tuberculosis and a third died of pernicious anemia. The maternal grandfather was both tuberculous and luetic. The patient was of a phthisical habitus. His attack of fever was set down to influenza. It became apparent, however, that he was suffering from a type of remittent fever which showed no tendency to recovery. In other words, he had developed what was clinically a chronic relapsing fever. A renewed search was made for internal lesions and enlarged lymphnodes, but without success. Despite afternoon temperatures up to 104° the patient did not feel very sick. A slight tendency to hemorrhages appeared—attacks of nosebleed, petechiæ, etc., and a few enlarged lymphnodes became apparent. The blood count excluded leucemia and the spleen was not enlarged. The mucosæ were not especially anemic and the hemoglobin was 61, with 4,000,000 red cells. The case was hopeless from the start, death taking place about 4 months after the first consultation. An autopsy was not allowed.

Book Reviews.

An X-Ray Atlas of the Skull. By A. A. Russell Green, M.B., B.S. (Lond.), M.R.C.S. (Eng.). Price, $3.50. London: Longmans, Green & Company, 1918.

This atlas contains eleven plates, five of which are colored. The number of separate radiograms is twenty-seven, but this small figure conveys no idea of the resourcefulness of the representations, for the practice of coloring a portion of the radiogram is an aid in interpretation of the shadows which has not yet come into general use. The work has an introductory purpose, for it deals only with the normal skull. The only departure from this plan is a section on the general principles of locating foreign bodies. The author has employed the methods of his atlas for two and a half years in a military hospital with nearly 2,000 beds.

The Indian Operation of Couching for Cataract. Incorporating the Hunterian Lectures Delivered Before the Royal College of Surgeons of England on February 19 and 21, 1917. By Robert Henry Elliot, M.D., B.S. (Lond.), Sc.D. (Edin.), F.R.C.S. (Eng.), etc.; Late Superintendent of the Government Ophthalmological Hospital, Madras; Late Professor of Ophthalmology, Medical College, Madras, etc., etc. Price, $3.50. New York: Paul B. Hoeber, 1918.

The seven chapters of this volume are devoted to the history and technique of couching, the Hindu coucher, the couched eye and its recognition, case histories and statistics. The eight plates of illustrations comprise forty-five separate pictures. No less than 780 cases of couching are controlled under the statistics. The superheated conclusions reached are that the coucher is an unmitigated evil who should be suppressed—a dirty, ignorant, bragging, lying, swindling mountebank, who does no manner of good and no end of harm.

Etudes Sur Le Fonctionnement Rénal Dans Les Néphrites Chroniques. Par Pasteur Valery-Radot. Paris: Masson et Cie., 1918.

The author is known to be a junior collaborator of Widal and Weill. These three men acting in concert have done a vast amount of original clinical work on uremia, and the present volume covers all of the activities of Widal on the subjects of Chloride excess and uremia, including his famous prognoses of survival in association with various blood contents of nitrogen. More than this need hardly be said, for all internists and urologists who read French will read the work, which will no doubt be translated into other languages at an early date.

Surgical and War Nursing. By A. H. Barkley, M.D. (Hon.), M.C., F.A.C.S., Lecturer at Good Samaritan Training School for Nurses, Consulting Surgeon Good Samaritan Hospital, Lexington, Ky. With 79 Illustrations. Price, $1.75. St. Louis: C. V. Mosby Company, 1918.

This book is intended to embrace the practical phases of surgical and war nursing and to take an intermediate position between a reference and text book. It is written especially for the instruction of nurses and, therefore, a good deal of the material is elementary and adapted to the nurse's knowledge of surgical questions. It is clearly written and excellently illustrated and should well serve its purpose.

La Gangrène Gazeuse. Bactériologie, Reproduction Expérimentale, Sérothérapie. Par P. Weinberg, Chef de laboratoire, et P. Seguin, Boursier de l'Institute Pasteur. Prix, 20 francs. Paris: Masson et Cie., 1918.

In order to treat this subject properly it has been necessary to study intensively no less than twenty pathogenic bacilli which are known to produce lesions of the type seen in gas gangrene. These studies were all made in vitro. In the study of the disease itself a distinction is made between the classic and toxic forms, both of which are the products of the same pathogenics. Another distinction is based on isolated and mixed causes. The amount of space given to pure infections shows that these are much more common than the general public was aware, for we gain the impression that most cases are due to the symbiosis of a number of germs. Experimental gas gangrene is next considered, and the last section before we come to therapeutics is devoted to the pathology of the disease, with special reference to the conditions which favor its development. Serotherapy comprises antitoxic and antibacterial sera, univalent and polyvalent sera, and prophylactic and curative use of sera. To praise a book like this is quite beside the mark, for it is the work of the representative men of the Pasteur Institute, who have delayed four years before going upon record.

Pharmaceutical Botany. By Heber W. Youngen, Ph.G., A.M., M.S., Ph.D.; Head of the Department of Botany and Pharmacognosy in the Philadelphia College of Pharmacy; Member of the American Pharmaceutical Association, Academy of Natural Sciences of Philadelphia, Botanical Society of America, Botanical Society of Pennsylvania, etc. Second Edition, Revised and Enlarged, with 195 Illustrations. Price, $2.00. Philadelphia: P. Blakiston's Son & Company.

For many obvious reasons the use of vegetable remedies has increased largely of recent years. Owing, perhaps, to their origin, synthetic drugs are somewhat in disrepute. The coming into their own again of vegetable drugs has rendered the study of pharmaceutical botany more necessary than ever before. Pharmacognosy has come to the front as a science, and in the present edition of Dr. Youngen's work this fact is appreciated and the subject matter of botany has been revised and expanded. The book is a very useful one and the illustrations are good.

Pathologie de Guerre du Larynx et de la Trachée. Par E. J. Moure, Chef du Centre Oto-rhino-laryngologique de la 18° Region; G. Liébault, Chef du Centre Oto-rhino-laryngologique de la 11e Region et G. Canuyt, Assistant du Professeur Moure. Prix, 25 francs. Paris: Felix Alcan, 1918.

This grand octavo volume is bulky, being printed on heavy paper, but it comprises only 370 pages and the large number of text figures (128) contributes further to reduction of the text. The subject matter is divided into functional disorders of the larynx, extralaryngical injuries, wounds of the laryngotracheal conduit and their complications, the operations of tracheotomy and thyrotomy, operations for cicaturial stenoses and autoplastics. A work of this scope is almost unique and could be condensed considerably in a translation or adaptation for American needs. As far as we can learn, there is as yet no manual devoted to these war traumatisms and we suggest the feasibility of an adaptation of the present volume for that purpose.

A Textbook of Physiology for Nurses. By William Gay Christian, M.D., Professor of Anatomy, Medical College of Virginia, and Charles C. Haskell, M.A., M.D., Professor of Physiology and Pharmacology, Medical College of Virginia. Illustrated. Price, $1.75. St. Louis: C. V. Mosby Company, 1918.

This is an elementary work, intended for pupil nurses. The authors have made a judicious selection of topics to be presented and the discussion of them is, as a rule, adequate. The chapters are short and there are a number of useful illustrations. The book should prove serviceable in nurses' training schools.

Lectures on Medicine. A Handbook for Nurses. By Chalmers Watson, M.D., F. R. C. P. E., Lecturer on Clinical Medicine, Edinburgh University. Price, $1.75. New York: William Wood & Co., 1918.

This little work comprises chapters on fevers, general conditions, and affections of the different systems of the body—digestive, nervous, circulatory, renal, etc.—together with a chapter on diet. When possible each individual affection is preceded by a brief section on the pathological physiology. The speculative part of each subject is handled very briefly and conservatively and the practical part naturally outbulks the former—diagnosis, prognosis, treatment, and prophylaxis. Aside from a full chapter on diet, there is little on nursing technique, and it is not exactly easy to understand why this chapter is inserted in the work at all. The principles of diet doubtless come in pat after an account of the varied phenomena of disease, but in the present work the usual recipes and menus are well represented.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held May 3, 1918.

DR. SETH M. MILLIKEN IN THE CHAIR.

Resection of Elbow and Shoulder—Dr. ASPINWALL JUDD presented these patients, in one of whom a complete resection of the elbow and in the other a complete resection of the shoulder joint had been done. He said that he had described the operation before and was showing patients for the purpose of demonstrating the degree of function that could be obtained by this procedure. The resection of the elbow was done for a tuberculous osteomyelitis but was equally applicable to any type of osteomyelitis or any type of disease which resulted in considerable destruction of bone. The boy presented had no elbow joint at all, a complete resection having been made. The second patient had no shoulder joint. He was a farmer and was able to do his own work. He had performed a complete resection of this kind in a number of cases, among them a waiter and a barber, both of whom were able to pursue their occupations. In doing the operation the idea had been to conserve the periosteum as far as possible even if one left some small portion of diseased bone behind. Having conserved the periosteum and the muscular attachments intact he fixed these so as to get the proper pull upon the bone. The periosteum formed a sort of a tube which was packed with gauze after iodoform and ether had been poured in. This was allowed to remain until it set up considerable reaction, even until the patient had a chill. The dressing was applied in this way two or three times under anesthesia until one obtained considerable granulation tissue and subpericosteal bone.

Endothelioma of the Frontal Bone.—Drs. JUDD and A. EDWARD DAVIS presented this patient for two reasons: First, to show the result of the extensive plastic operation and, second, to ask for opinions as to whether it was advisable to attempt to replace the loss of bone tissue in this case either with bone or with a foreign substance. The boy gave a history of swelling of the right upper and lower eyelids of two months' duration. The eye was pushed downward and inward, and there was a certain amount of ectropion. The boy has also noticed a swelling at the right side of the forehead. His vision was 20/30 in the right eye and 20/20 in the left. A nodular mass was found in the lachrymal gland. At operation the lachrymal gland was excised and a piece of tumor was dissected from the orbit for examination. This was found to be an endothelioma. It was not connected with the eyeball. A second operation was performed four or five days after the first, removing the roof of the orbit and the frontal bone on the right side (the bone removed being 1½ inches in diameter), the dura mater and the pia mater, down to the brain surface, but it was not thought best to sacrifice the eye. There was a very slight diversion upward and outward and there was no motion directly inward or outward, vision being 20/30 and the fields normal. They had saved the eye, though all the frontal bone was removed on that side and the dura mater and pia mater were involved down into the brain tissue itself, but the sinuses were not involved. In considering the involvement of the lachrymal gland, it was worthy of note that, while there were many varieties of growth that affected this gland and endothelioma was very rare, Dr. L. Webster Fox reported cases of sarcoma of the orbit cured by the *x*-ray without operation. With reference to the nature of the growth, whether benign or malignant, congenital or acquired, it would seem that undoubtedly the growth was acquired in this case. It would be an advantage if the boy's eye could be saved. Plastic operations on the upper eyelid and the extended ocular muscles were not to be considered until the chance of recurrence was past. The orbital plate was entirely missing as well as a part of the frontal bone. When they began to operate they expected to take off only a piece of the orbit but they found such an extensive involvement that they took out the entire orbital plate down until they could see the optic nerve. Both the dura and pia mater were involved so that it was necessary to remove masses, one the size of an almond and the other the size of an English walnut, from the brain. The question that came up was whether the introduction of a plate would give this boy greater protection from a blow and whether at the same time a plate could be introduced without spoiling the cosmetic effect. The tumor was one of rapid growth. The boy had first consulted him on January 21, at which time he stated that he had only noticed the growth two or three months before, and yet at operation this enormous growth was found.

Two Cases Simulating Diverticulitis of the Sigmoid with Chronic Intestinal Obstruction.—Dr. JUDD presented these cases because they had both been diagnosed as diverticulitis and the diagnosis was confirmed by the *x*-ray plates. The *x*-ray plates gave the characteristic picture of diverticulitis. The one patient gave a history of ten years' standing and complained of constipation with symptoms of obstruction. Enema had no effect. The patient stated that nothing less than four ounces of castor oil had any effect, so he gave him four ounces and a large enema to produce a movement. It was assumed that they were dealing with a diverticulitis or possibly that the sigmoid was redundant and folded over on itself and that possibly at one point the lumen was completely obliterated. This was found to be the case, and when the fold was released the sigmoid ballooned and came into very good alignment. The patient made a good recovery, needed no laxatives and had gained 30 or 40 pounds.

Tuberculosis of the Breast.—Dr. JOHN A. VIETOR presented this case. He said that the patient was admitted to the hospital on November 9, complaining of pain and tenderness, and had a typical abscess of the breast, which had been forming for the past two weeks and had ruptured three days before her admission to the hospital. Examination at that time showed a typical abscess of the breast, with a sinus at the upper outward quadrant and another small sinus at about the center of the breast at the outer part. The sinus was discharging mucopurulent pus, so at operation a specimen was taken and some of the tissue was curetted off and sent to the pathologist, who reported that the discharge contained tubercle bacilli. The patient was readmitted to the hospital on December 8 and subjected to another operation, the breast being removed. There were no nodes, the *x*-ray was negative, and there was no evidence of tuberculosis anywhere else in the body. The previous history was that the patient had had six children, nine, seven, six, five, and three years, and the last, three months old. At the time the second child was born she had an abscess of the breast and it had continued to discharge ever since. The chief interest in this case lay in the rarity of the condition. Dr. Gerster stated that in the routine examination of 200 cases of breast abscesses at the Mayo clinic they had found only one primary case of tuberculosis of the breast.

Ulcerating Carcinoma of the Breast.—Dr. EDWARD W. PETERSON presented this patient, whom he stated he had not seen for two years. He had operated on her five years ago, when she was 42 years of age, at which time she gave a history of a breast growth of two years. Before coming to the hospital she had been treated by a physician who advised against surgery and had treated her with poultices, etc. The breast had a large ulcerating area and very extensive axillary involvement, and the skin was involved. Dr. Peterson said he had never seen an extensive skin involvement where there was not a recurrence. This patient was sent to Dr. Hirsch, who gave her *x*-ray treatment for about one year after the operation. When he saw the patient the last time there were no signs of recurrence; now there was a small nodule which would be treated.

Dr. SCUDDER JOHNSON WOOLLEY exhibited several *x*-ray plates made of a man, 65 years of age, who for years had suffered from abdominal pain, gas eructations, and a condition bordering on intestinal obstruction. He had noticed these symptoms fifteen years ago and had consulted physicians in Europe who made a diagnosis of intestinal stasis. He had gone along until five years ago, when he suffered from abdominal pain and fever and it was thought he had appendicitis. The appendix was explored and found normal. The kidney

was also explored at this time and no pathology found. When suffering another attack he was operated on again and the gall-bladder removed. About one year ago he became ill again. His temperature was 102° F. and he presented symptoms indicative of acute obstruction. *X*-ray plates were then taken and showed diverticuli of the rectum and the lower part of the sigmoid. It was decided not to operate on him at that time but to try medical treatment. He had gone along for practically a year on a meat-free diet, etc. Three weeks ago he had another acute attack and the *x*-ray taken at that time showed multiple diverticuli, at this time from the rectum to the cecum, and he thought that possibly there was a beginning carcinoma implanted on the diverticuli and advised operation. These plates showed multiple diverticuli all along the colon, and it would seem to be very possible in every case to make the diagnosis of this condition quite easily if one had good *x*-ray work. This man had not lost weight and did not look ill in any way whatever.

Treatment of Inoperable Cancer of the Breast by Chemical Extirpation.—Dr. CHARLES WILLIAM STROBELL presented this paper. (See MEDICAL RECORD, September 21; also August 12, 1916.)

Dr WILLY MEYER said that if he had not come to the meeting and seen Dr. Strobell's cases he would not have believed it possible to get such results by chemical extirpation, but this did not imply that chemical extirpation could be placed on the same basis as surgical excision. Dr. Strobell was deserving of great credit for having spoken of the method as only applicable to inoperable cancer, and, as he had said, the treatment of cancer by the application of caustics was known a thousand years ago. They must admit that operation as such was good for nothing before a growth that was recurrent and progressive. It stood to reason that in the presence of growth as large as several of those reported this evening there must have been some involvement of the axillary and subclavian glands. He had examined these patients carefully and found no enlarged axillary or subclavian glands. If it could be shown that inoperable cancer was amenable to this form of treatment it was worth while trying, if only to prolong life. Dr. Strobell spoke of having had one patient on Dr. Bulkley's dietetic treatment. He wished Dr. Strobell had gone more into the details of this treatment for, as we knew so little about cancer, anything that seemed to give any additional help in the treatment of this disease should be gone into. He believed that there was a possibility that diet might have some influence on the underlying condition of the individual that gave a foothold to cancer. As he had said before, the pathology of cancer was so like that of tuberculosis and syphilis—and these were infectious diseases—that he was inclined to the belief that cancer was infectious. He believed that there was some underlying condition in the system that permitted the cancerous growth to gain a foothold, and that food might influence this condition and therefore deserved attention. In the surgical excision of carcinoma of the breast, Dr. Meyer emphasized the importance of removing both the pectoralis major, the pectoralis minor, and the deep fascia. He thought that if this were done and the cases were operated on early, in from 28 to 35 per cent. there would be a prolongation of life beyond five years. He believed Dr. Strobell's method had a place in the treatment of cancer.

Dr. L. DUNCAN BULKLEY stated that he had started the Skin and Cancer Hospital because he did not believe in operation for all cases of cancer, and he hailed this method which Dr. Strobell had presented as the *summum bonum;* it took away his objections to the surgical removal of cancer. He had seen dozens and dozens of postoperative recurrences and that was the reason he was opposed to operation. Dr. Strobell had been employing this method at the Memorial Hospital, which had the approval of all the physicians who had seen with what success he removed tumors and they felt that it had a distinct value in cases in which other methods of treatment were not available. The results which were obtained were due to two factors, the active leucocytosis which was set up and the extreme care with which Dr. Strobell worked, absolutely avoiding all manipulative displacement of loose proliferating cells through vascular channels beyond the limits of the operative field. Dr. Bulkley cited several instances of severe cases of cancer of the breast that he had seen successfully treated by Dr. Strobell and emphasized the necessity of carrying out the procedure with extreme care.

Dr. J. SHERMAN WIGHT said that Dr. Strobell's paper carried him back some years ago to a time when he did somewhat similar work on inoperable cases of Dr. Coley's. Dr. Strobell had not told them how he used his preparaion. In his own work he had used an alkali, sodium hydroxide. He recalled two cases in particular which he had treated by this chemical; one was a case of carcinoma of the tongue and the other carcinoma of the breast. He injected the solution into the tumor and also into the blood current. In the case in which he made the injection directly into the tumor the tumor disappeared quite rapidly and did not recur in that locality. This case Dr. Coley had watched for a number of years. After it was pretty well cleared up there was a spontaneous recurrence in the femur and the patient died. The case of cancer of the tongue was treated by injections into the blood current and it was quite remarkable the way in which it melted down, but the man had a severe hemorrhage and died. Seeing these cases brought back this work that he had done many years ago, and it occurred to him that perhaps if he had pursued it a little further he might have found that he would obtain better results if he used the potassium rather than the sodium hydroxide.

Dr. GEORGE H. SEMKEN said that if we were asked to go back into past centuries for our treatment of cancer it might be wise to go back also in the field of philosophy and take a favorite dictum of René Descartes, namely, that one should accept all propositions with doubt. In the present matter for discussion this applied with peculiar force. Dr. Strobell's treatment consisted in the destruction of the integument with sticks of potassium hydrate, followed by the application to the denuded tissues of a mixture of zinc chloride, sanguinaria, and charcoal. Potassium hydrate, in the form of Vienna paste, had been used to destroy the skin for one hundred years. Zinc chloride had been used in the treatment of cancer since the thirteenth century. Sanguinaria had long been a favorite treatment for cancer among the North American Indians, and charcoal had been in use as a deodorant of necrotic surfaces since the time of Hippocrates. The whole combination —Vienna paste, zinc chloride, sanguinaria, and charcoal—was used by Fell many years ago, so Dr. Strobell's chemical operation was neither new nor original. It was well known that there was a great difference in the malignancy of breast cancers, and most of the cases that Dr. Strobell had described were apparently of the less malignant type that tended to remain localized for long periods and to recur late. In these a limited surgical operation or extensive local destruction might suffice for a long time, even perhaps effect a cure in a few instances. Another factor that must be borne in mind, in judging cancer treatments, was the occasional recurrence of latency—the cancerous process remaining apparently stationary even for years. In one case of this type, a recurrence involving the chest wall, the speaker removed the tumor, together with parts of the adjacent ribs and the intercostal muscles down to the pleura. The microscopic examination of the specimen showed cancer in the lowest level of the tissue removed, and it was evident that the cancer had invaded the pleura. The physical signs of an intrathoracic tumor appeared within the following six months, but the process then apparently became quiescent and remained so for about nine years, when it again became very active and extensive, and caused the patient's death within a few months. This latency could not be explained. The occurrence of the phenomenon, however, was not rare. None of the cases described by Dr. Strobell had been observed for the time necessary to a determination of his results. Dr. Strobell had stated that cancerous cervical and axillary glands, a lung metastasis, and rib metastases, supposedly present in some of his cases, disappeared after the chemical destruction of the breast tumor and of the lower axillary glands. It was a matter of knowledge to all students of cancer that when cancer obtained a foothold in any tissue it would continue to grow and develop unless destroyed by some external agency, and

the exceptions to this rule were rare. This zinc chloride chemical operation was purely local in its destructive effect, and it was inconceivable that any purely local destructive agency, applied to the primary tumor and the lowest axillary glands alone, could cause the disappearance of cancer in the remaining axillary lymph nodes, or the cervical lymphatics, or the lungs, or the ribs, as had been claimed in Dr. Strobell's paper. All enlarged lymph nodes in the axilla or the neck in cases of cancer of the breast were by no means cancerous nodes. Microscopic examination of such nodes had repeatedly demonstrated chronic inflammatory hyperplasia alone in many cases, particularly where there had been an associated erosion of the surface of the breast tumor. Dr. Strobell's last case, in which enlarged axillary and cervical lymph nodes disappeared after the destruction of the breast tumor, showed such an erosion of the primary tumor; and the subsequent behavior of these glands demonstrated rather the purely inflammatory character of the involvement. The radical surgical operation, done at an early time, was and probably would remain our main hope in the treatment of cancer. In these breast cases much could be learned from a study of the recurrences, and especial care could then be given, in the primary operation, to the regions that seemed to be the most frequent sites of recurrence. These were the skin and subcutaneous tissue about the growth, the lymphatic glands about the coraco-acromial vessels, the subscapular packet of glands, and the lymphatic glands situated immediately under the axillary skin. The radical breast operation was not a matter of forty-five or fifty minutes, but of a few hours; and since the primary operation was the patient's one chance for cure, time should never be allowed to weigh against painstaking thoroughness. With the extended radical technique excellent results had been obtained, and even in many advanced cases, that ultimately succumbed to visceral metastases, local recurrence had not occurred. The zinc chloride operation, so called, did not allow selective dissection and could not be considered a surgical procedure. If it had any place in the treatment of breast cancers, it was in those advanced cases where the removal of the tumor by operation was impracticable or would be attended by considerable loss of blood, and also in those cases in which the patient's low vitality would contraindicate any severe operation. If the cancerous process involved the soft parts alone, the zinc chloride destruction might remove the growth, but it could not be effective if the tumor had eroded the underlying ribs, as was so often the case with recurrences. It seemed evident, therefore, that the potassium hydrate-zinc chloride procedure should be limited to a very few cases; and even in these it was not clear that the method possessed any advantages over the actual cautery. With reference to Dr. Bulkley's case of the disappearance of a breast tumor without other treatment than a vegetable and cereal diet, the objection must be raised that the diagnosis of cancer in this case was made by palpation and not by microscopic examination. The disappearance of the tumor, therefore, was not an evidence of an effective cure, but it was a proof that a wrong diagnosis had been made.

Dr. Willy Meyer said that he did not understand how these glands, if they were present in the axilla and along the side of the subclavian vein, were absorbed. All he could say was that there were no enlarged glands present in these patients and that it was beyond his comprehension. He did not mean by this that they should go back to the chemical treatment of cancer. Surgical treatment was the proper thing and it must be early and thorough.

Dr. Strobell, in closing the discussion, said the work he presented was based on cold scientific facts, which he had followed up very carefully and knew to be true. He had been working on the proposition for eighteen years. The first case he had treated with caustics lived for eight years after the treatment was applied, without ever a sign of recurrence, finally dropping dead in the street of heart disease. This woman had a typical advanced carcinoma of the breast, and when the speaker was called to see her, he told her that nothing would do any good but the knife, and urged immediate excision. This she refused, saying that she would rather die, and that she wished him to use caustics. Being an old patient, the speaker did not feel like leaving her to suffer without trying to do something for her, so, after consideration, and although very sceptical, he decided to employ an arsenical formula (Marsden's). The cancerous area was covered with the preparation and also spread out a little beyond over the adjacent skin. This was not disturbed for four days, when cataplasms of flaxseed were applied to hasten the separation of the devitalized tissues. This process over, the resulting clean wound soon healed. After a period of four months, the patient came back with a recurrence, which was wholly expected by the speaker, and again she was told that nothing but the surgical operation would do, that she must submit to without delay. She again refused and asked that the former treatment be repeated. This was done, but very much more extensively than the first time. The patient made a recovery, lived for a period of eight and a half years, without sign of recurrence, and died suddenly as stated. After this experience the speaker was convinced that there was something in that form of treatment; that if such a thing could happen in one case, it could in others. He therefore began to plan, and to work out a practical procedure, which had culminated in the present perfected painless technique. As time went by the conclusion was reached that, if all sensitive structures were removed by potassium hydrate as a first step under hyoscine-morphine narcosis, he could then apply the zinc chloride, with which he was working, painlessly, provided always, however, that the devitalizing mixture be kept from running over on to the adjacent intact skin. Just here was where the rôle of the charcoal ingredient of the zinc compound came in, as it was not at all intended to serve any other purpose than that of identification, for by its blackening effect upon the mixture, the least little speck, could be detected which, if left unnoticed, would entail suffering. The proposition of Dr. Semken, that the speaker had discovered nothing new in the agents used, namely, zinc chloride and sanguinaria, and charcoal, and potassium hydrate, was of course true, they were simply the tools with which the speaker was able to do his operation. It was the scope of the operation, the manner of application of the chemical agents in an effective yet painless way, and the fact of the enucleation of enlarged metastatic lymph nodes with chemicals that was absolutely modern, and not to be found in previous literature. The value of zinc chloride as a safe escharotic was first established by Canquoin of Paris in 1838, after a long series of experiments with all the known caustics to determine their relative values. It was the active agent employed at the Middlesex Hospital, London, in cancer work in general, the arsenical preparations having been considered too dangerous. It was the caustic employed there by Fell and Patterson. The method had been worked out on a scientific basis under the eyes of men who were recognized authorities on the treatment of cancer, and it had throughout been the desire of the speaker that the work should reach the laity through the legitimate channels, believing this to be the only right and safe course to pursue, to preserve it for the benefit of humanity for all time.

Dr. Willy Meyer asked Dr. Strobell how he explained the disappearance of the axillary and other glands, in a certain proportion of cases.

Dr. Strobell said he could not offer an entirely satisfactory scientific explanation. Eight years ago, when he published the first results of this operation, he had investigated the records of a large number of cases, making an examination of the pathological reports, and it seemed that about 60 per cent of the cases were free from axillary involvement or at least the pathological reports did not mention it. This he had done because he had observed that frequently enlarged glands disappeared after the cancerous breast was removed, and he was inclined to think that frequently enlarged axillary glands were not metastatic in the disease, but simply inflammatory. How much the direct action of a chemical (chemical drive) was responsible he could not say. When in his cases the enlarged axillary lymphatics were also to be removed, the primary denudation was extended to include the axilla which cleared the way for the destruction of the glands; this was accomplished wholly with potassium hydrate, the agent used in the denudation. Dr. Strobell said that he desired to ex-

tend the knowledge of the operation, but that it should only be done by surgeons who had mastered the technique. It was a surgeons' job and it was for them to do. The question had been asked by Dr. Levin regarding the effects of chloride on bone, he would answer that it would cut its way through any living tissue, even bone, and that the devitalized portion of bone would be separated from the living by the line of demarcation, would slough off, and the bone would renew itself perfectly. Concluding, the speaker referred those interested to Dr. W. S. Stone's most interesting article "Review of the History of Chemical Therapy" which appeared in the October 7, 1916, issue of the MEDICAL RECORD. Strange as it might seem the facts therein stated were new to the speaker who had then carried out an independent line of investigation unhampered by tradition, except such as one heard every day at the cross roads and read in the Pharmacopœias.

Congenital Hydronephrosis.—Dr. CHARLES E. FARR reported this case and exhibited the specimen. He stated that the patient was a colored boy, six weeks of age, who had a large cystic swelling in the left side of the abdomen. The diagnosis made was probably hydronephrosis. A laparotomy was done under local anesthesia, one-half per cent. cocaine. The large cystic kidney herewith presented was found. They were unable to find the right kidney. At the end of twenty-four hours there was no secretion of urine. The important point in this case was that the operation was performed on the child at the age of six weeks.

A New Blood Transfusion Apparatus.—Dr. J. SHERMAN WIGHT presented and described a small apparatus for blood transfusion which did away with the use of the syringe and cannula. He also presented a blunt dissector which was to be used in place of the Mayo scissors. In using the Mayo scissors the movement on the part of the operator was one of extension which was very tiresome, while with the instrument presented the movement was one of flexion.

AMERICAN ORTHOPEDIC ASSOCIATION.

Thirty-second Annual Meeting, Held in Washington, D. C., April 22 and 23, 1918.

DR. JOHN L. PORTER OF CHICAGO, PRESIDENT.

(*Concluded from page* 792.)

Foot Disabilities in the Military Service.—Major HAROLD D. CORBUSIER, M.R.C., read this paper which was a preliminary report on the reconstruction of recruits. The march constituted one of the chief duties of a man on campaign. A successful march placed the man at their destination in the best condition. Unless the soldier could reach his place in the firing line, he was useless as a rifleman. It was often seen in military maneuvers that many stragglers limped into camp late at night, as they were not able to keep up with the march. Napoleon had said that the general who produced the best military shoe would do most to produce an efficient army. This was most true at the present crisis. The American foot seemed particularly prone to disability. The man needed to be trained to make the best possible use of the legs and feet. Battles were won and lost by legs as well as by rifles. Military service put the most unusual strain on feet accustomed only to the demands of civil life. Flat foot was a common cause of disability. Of 12,000 soldiers, 960 had flat feet to some degree. Among the drafted men it was supposed that there would be exaggerated symptoms, but it was found that there were 9.25 per cent flat feet among the volunteers and 7.25 per cent among the drafted men. However there were always to be found genuine malingerers. The psychology of the men was a matter for careful observation. It was unwise to inform the malingerer that he was suspected. The best treatment was by hard and unpopular duty. These men often asked to be sent back to regular line duty, the treatment having proved too vigorous for comfort.

Major E. R. RICH, M.R.C., said ideas had changed durinng the past six months, many having gone by the board. In the South the special point they had been laying emphasis upon was the weight bearing capacity of the foot. With this in mind feet were classified into four groups: (1) acute foot strain; (2) weak feet, requiring ordinary felt pad for support; (3) ankle valgus; in this the weightbearing function was thrown where it belonged; (4) lateral arch conditions. Here the weight was thrown outside of the foot. Correction and support were needed.

Lt. Colonel C. L. STARR said that he had learned by experience some things in regard to foot strain. One point was in regard to operation. No man operated upon would be fit for line duty. A certain degree of flat foot could be used in front line work, but when it passed that point it was no good to try and use it. The man was a nuisance to the officer and to his fellow soldiers. It was best to put these men into the line of communication. A man with claw feet could never make a soldier. It was impossible for him to march and carry a pack for 20 miles. He could be put into the labor battalion for the line of communication work. Many men come into the camp with muscularly weak feet, and the drill was made too hard at the beginning and carried too far, with the result that the feet gave way. A little more judgment in the early stages of the training would eliminate much foot strain. It was noticeable when many men were drilling that the drill sergeant made them place the feet at an angle of 45 degrees. He thought the Association should make its opinion known that this was very bad. The position of attention should be with the feet parallel instead of at 45 degrees.

Dr. MYERS, of New York said that there was a point to be observed in regard to the short tendon of Achilles. It would be well to consider whether a flat foot could be improved by exercise or would continue flat. A very short tendon indicated hypertrophy of the calf muscles and exercise would increase the difficulty. With the anterior muscle exercise would be more beneficial.

Major J. RIDLON, M.R.C., said the question was what flat feet should be rejected by the examination boards. The answer was that all rigid feet should be rejected. All flexible feet, so far as arches went, should be accepted. As to the short Achilles tendon, if not actively painful, it could be compensated in one of two ways: a stiff shank could be worn so that there was no motion between the os calcis and ball of the foot, or the heel of the shoe could be raised. The question as to what operations should be done on recruits to make them fit for service, should be answered by saying that no operations should be performed.

Major C. RYERSON, M.R.C., said that not enough had been said about traumatism of the foot due to arthritis. There were some cases in which the patient should be operated on. Simply to remove the part of the metatarsal head that was causing the trouble, by chiseling off the inner side, would result in producing a normal foot within three weeks.

Dr. H. P. H. GALLOWAY, of Ottawa, said he had listened with a certain degree of amazement to the account of efforts made for the salvage of physically imperfect men. He was glad to hear Colonel Starr speak of the Canadian view point in this matter. Canada had sent 100,000 soldiers and had made nothing like the attempts at reclamation which had developed already in the United States Army to fit the men for service abroad. Men operated on to make them fit for service in the front line would in time be found liabilities rather than assets. Positions should be found for these men in the army where there would be comparatively little demand upon their marching capacity.

Captain H. LEWIN, M.R.C., said that at Camp Grant he had found among the men a chiropodist and a masseur, and he had found them very helpful. The chiropodist taught him many useful hints in regard to putting pads on the foot. At Camp Taylor there was neither chiropodist or masseur and he would have been glad of their services. In regard to the making of flat feet by too strenuous drill there was another point to be noticed. Men in hospital with grippe and tonsillitis were allowed to walk around all day in slippers. This was at a time when all the body tissues were relaxed from recent infection and there was no support for the foot. This was extremely undesirable. He had always insisted that the regular shoes be sent over and the necessary support thus given.

Captain MARSHALL, M.R.C., said that the malingerer was a bad class of individual to deal with. Very often the medical officer was positive that there was nothing wrong and yet it was very difficult to prove. These persons were often of very low order of intelligence. One point he thought should be brought to attention of the line officers. At Camp Taylor he had noticed that the new recruits were put on 40 hours drill before they were fitted with army shoes, or when they had just been given new shoes. This was a very probable cause of disability.

Major S. C. BALDWIN, M.R.C., agreed with Colonel Starr that one could not make good soldiers out of men with bad feet, but it was necessary to give them what treatment one could. He could not agree with Major Corbusier, who objected to supporting the long arch of the foot and yet supporting the transverse arch. If the longitudinal arch should not be supported, why should the transverse; both would weaken the muscles. The thing to do was to give more treatment and use such supports as would keep the arches up until strong enough to be given more weight and tension. This could be done by giving more exercises and baths and keeping the feet in a correct position. The support should not be under the heads of the metatarsal arch, but back of the heads of the metatarsals. This would give support without irritation of the joints.

Dr. I. NATHAN said that he had never seen men with relaxed feet, that is those in whom the ligaments and muscles had been stretched, who were able again to use their feet as the normal person does.

Dr. C. RILEY said that in the examining boards they had been putting flat feet into class C. The direction of the os calcis should be considered. It should be slightly upward, forward, and outward, and if it were turned another way there would be trouble.

Dr. JOHN PORTER, of Chicago, said he had seen men with flat feet who were discharged although they had perfectly strong feet. He recalled the story of a mountaineer who had gone to the camp to enlist and was turned down because he had flat feet. He complained bitterly at this decision and said that he had walked 120 miles to enlist and did not want to have to walk back again.

Major H. CORBUSIER said that according to regulations one should not accept cases of subluxation of the foot. But one should find out if the man has symptoms or not. The suspected case should go into training camp.

Major J. T. RUGH said that the transverse arch condition was extremely rare. In regard to the special reconstruction sections, it was necessary for the orthopedic men to instruct the officers how to drill the men. The men would suffer if the regular officers did not understand these questions.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

THE STATE MEDICAL BOARD OF THE ARKANSAS MEDICAL SOCIETY.

Little Rock, May 14 and 15, 1918.

(*Continued from page 750.*)

BACTERIOLOGY.

1. (*a*) Give formula of Gram's strain. (*b*) Anilin water.

2. (*a*) What is the duty of the lymphatic system when the body is invaded by bacteria. (*b*) How is such duty performed. (*c*) Name five diseases that are manifested by lymphatic nodes.

3. Mention some of the bacteria of the normal body and give sites especially found.

4. Discuss autoinfection.

5. Differentiate infectious and contagious diseases. Give example of each.

6. Define active and passive immunity.

7. (*a*) Mention two or more diseases produced by spirochetic organisms. (*b*) Two produced by *Diplococcus intracellularis*.

8. What is the special value of Gram's method of staining.

9. Discuss the communicability of syphilis, giving the sources and essential factors in the infective process.

10. Discuss the distribution and pathogenicity of colon bacilli.

PATHOLOGY.

1. Discuss the etiology and pathology (*a*) of Hodgkin's disease, (*b*) of rheumatism.

2. (*a*) Define phlebitis. (*b*) Discuss etiology and mode of termination.

3. Discuss the mechanism of a rise in body temperature and name the more common tissue alterations that accompany the same.

4. (*a*) What is normal systolic and diastolic blood pressure. (*b*) Give cause of variations found in health.

5. Discuss the etiology of cervical and submaxillary adenitis.

6. Differentiate histologically sarcoma and carcinoma.

7. Discuss the etiology and pathology of trachoma.

8. (*a*) Discuss the criteria of malignancy. (*b*) Name three tumors giving sites which are usually malignant. (*c*) Name three tumors giving sites which are not malignant.

9. Discuss the etiology and pathology of chronic osteomyelitis.

10. Discuss the differential diagnostic value of hematuria as a symptom.

THEORY AND PRACTICE OF MEDICINE.

1. What diseases produce conditions of the skin which are of general diagnostic value?

2. What does the urine reveal as to color, specific gravity, quantity voided, abnormal constituent, etc., in a typical case of diabetes mellitus?

3. Define simple acute stomatitis; at what age is it most common, and what is its treatment?

4. Give the physical and rational signs of pericarditis before and after effusion.

5. Define epidemic parotitis. What complications may arise in the course of this disease?

6. What are some of the serious complications which may result from an abscess in the middle ear?

7. Differentiate between sunstroke and apoplexy. Give treatment for sunstroke.

8. Give the diagnosis and treatment of acute follicular tonsillitis.

9. Give the etiology, symptoms, and treatment of cirrhosis of the liver.

10. Give the etiology and outline the treatment for acute gastritis.

OBSTETRICS.

1. Describe the true and the false pelvis.

2. Describe the fully developed umbilical cord.

3. (*a*) Give causes of adherent placenta. (*b*) Method of delivery.

4. How would you treat a case of puerperal sepsis?

5. Differentiate vertex from breech presentations and L. O. A. from R. O. A.

6. What are the indications for the induction of premature labor?

7. State how you would perform the induction of premature labor.

8. Name accidents which may occur during the first, second, and third stages of labor, (*a*) to the mother. (*b*) to the child.

9. Is the performance of craniotomy justifiable? If so, when and how would you perform craniotomy?

10. Give indications for use of pituitrin. How would you use same?

ANSWERS.

BACTERIOLOGY.

1. *Gram's stain* is made as follows: Five c.c. of anilin oil are shaken up thoroughly in 125 c.c. of distilled water. This is then filtered, and is known as *anilin water*. To 108 c.c. of this anilin water are then added 12 c.c. of a standard alcholic solution of gentian violet.

Gram's iodine solution contains 1 gm. of iodine, and 2 gm. of potassium iodide, in 300 c.c. of distilled water.

2. When the body is invaded by bacteria, the duty of the lymphatic system is to protect the body. This is

done by the germicidal action of the lymph nodes, and the lymph nodes also filter out the microorganisms from the tissue fluids. The lymphatic nodes are involved in:—Tuberculosis, carcinoma, leukemia, Hodgkin's disease, and typhoid fever.

3. The colon bacillus is always present in the intestines; Doederlein's bacillus is found in the vagina; bacillus xerosis, on the conjunctiva; pneumococcus, various staphylococci, streptococci and spirilla in the mouth; staphylococci, streptococci, colon bacillus and tubercle bacillus, on the skin, and under the nails; the smegma bacillus under the prepuce; a micrococcus in the cerumen of the ear.

4. *Microbal autoinfection.*—"When the intestinal canal is injured, or its action hindered by strangulation, etc., *B. coli* or other bacteria ordinarily harmless may pass through the injured walls and cause peritonitis or general infection. Under certain conditions, as during the debility due to hot weather, the bacteria in the intestines cause, through their products, irritation, and in children even serious intestinal inflammation. Long after an acute gonorrhea has passed gonococci may remain in sufficient numbers to cause a new inflammation or produce infection in others. A cystitis may run on chronically for years, and then suddenly become acute or spread infection to the kidneys. A persistent gonorrheal vaginal infection may lead to a gonorrheal endometritis, or peritonitis or salpingitis, under suitable conditions. The staphylococci in the skin and the colon bacilli and pyogenic cocci in the fecal discharges may also be carried into the bladder and uterus and produce septic infection. Persons carrying diphtheria bacilli in their throats or typhoid bacilli in their gall-bladder may, under predisposing conditions, develop diphtheria or typhoid fever. Blind abscesses at the roots of the teeth or elsewhere may be the cause of a slow dissemination of pyogenic organisms to the joints, the heart and other parts of the body."—(Park's *Pathogenic Microorganisms.*)

5. An *infectious disease* is one which is caused by the entrance of pathogenic microorganisms into the body, and their proliferation there. *Example,* septicemia.

A *contagious disease* is one which is readily communicable, as smallpox. The term has long been abolished from scientific medicine.

6. *Active immunity* is that form of acquired resistance to infection which is brought about by the activity of the cells of a person or animal as a result of having had the disease, or as a result of artificial inoculation with a modified or attenuated form of the causative microorganism.

Passive immunity is that form of acquired immunity which depends upon defensive factors not originating in the person or animal protected, but is passively acquired by the injection of serum from one that has acquired an active immunity to the disease in question. It is a sort of secondary immunity acquired by virtue of having received antibodies actively formed by another animal that has had to resist the infecting agent in order to produce them.—(From Kolmer's *Infection, Immunity, etc.*).

7. *Diseases produced by spirochetes:* Syphilis, yaws, Vincent's angina, and relapsing fever.

Two diseases produced by Diplococcus intracellularis: Cerebrospinal meningitis, gonorrhea.

8. The *value of Gram's method of staining* lies in the fact that some bacteria retain the stain, while others give it up. This is made use of to differentiate certain microorganisms which resemble each other in size and shape.

9. *Communicability of syphilis.*—"The infective agent of syphilis is readily and most frequently conveyed by direct inoculation with the exudate from some lesion of a victim of the disease. This most frequently occurs during sexual intercourse, but may take place in many other ways, either through direct or indirect transmission to abraded or wounded surfaces of the infective exudate. Syphilis may also be congenitally transmitted, apparently, either from the father or the mother. But the transmission of the infective agent through the placental blood is the more common."—(Delafield and Prudden's *Pathology*).

10. The Colon Bacillus. *Distribution.*—In man the *Bacillus coli* appears in the intestine normally soon after birth, at about the time of taking the first nourishment. From this time on, throughout life, the bacillus is a constant intestinal inhabitant apparently without dependence upon the diet. Its distribution within the intestine is not uniform, it being found in the greatest numbers at or about the ileocecal valve, diminishing from this point upward to the duodenum and downward as far as the rectum. It has been found in the portal circulation and, at autopsy, in the tissues and blood without there being visible lesions of the intestinal mucous membrane.

Pathogenicity: In man a large variety of lesions produced by bacillus coli have been described. It is a surprising fact that disease should be caused at all by a microorganism which is so constantly present in large numbers in the intestine and against which, therefore, it is to be expected that a certain amount of immunity should be developed. It is probable that none of the poisonous products of the colon bacillus is absorbed unchanged by the healthy unbroken mucosa and that, therefore, the microorganisms are, strictly speaking, at all times, outside of the body proper. Under these circumstances, no process of immunization would be anticipated. It is also possible that when an infection with bacillus coli does occur, the infecting organism is one which has been recently acquired from another host, having no specific adaptation to the infected body. Virulence may possibly be enhanced by inflammatory processes caused by other organisms. Colon infection may also occur because of unusual temporary reduction of the resistance of the host. Altered cultural conditions in the intestine may possibly cause increased virulence of the bacillus. Conditions due to infection with the bacillus are: Septicemia, Winckel's disease, cholera nostras and cholera infantum, peritonitis, inflammatory conditions of liver and gall bladder, pancreatitis, cystitis, pyonephrosis, and localized suppurations particularly about the anus and genitals. —(From Hiss and Zinsser's *Bacteriology*).

PATHOLOGY.

1. *Hodgkin's disease.*—The etiology is unknown. There is a hyperplasia of the lymph glands interfering more or less with their functions. The enlargement may be confined to one isolated gland, or a number may be affected in different portions of the body, or a number in one location may be simultaneously affected, causing a tumor varying in size from an egg to an orange or even larger. The spleen and liver are involved in two-thirds of the cases. "The marrow of the long bones may be converted into a rich lymphoid tissue" (Osler). The red blood corpuscles are decreased in number and altered in size and shape; the white blood corpuscles may be slightly increased in number, but there is no approximation to anything like leucocythemia.—(Hughes' *Practice of Medicine*).

Rheumatism.—"While the excitant of acute rheumatism is unknown, there is much reason to believe that some phases of it at least should be classed among the infectious diseases. There are no characteristic lesions; but various joints are frequently the seat of slight exudative inflammation, serous or fibrinous in character. Albuminous degeneration of the visceral cells with hyperplasia of the spleen has been noted. The disease is not infrequently complicated by endocarditis or pericarditis, by exudative inflammation of the lungs or pleura. Various microorganisms have been found in the body in acute rheumatism; of these the pyogenic cocci have been most frequently isolated, but these are probably to be regarded only as excitants of the suppurative or other complications. It is possible that more than one form of infection is embraced under the designation of rheumatism."—(Delafield and Prudden's *Pathology*).

2. *Phlebitis* is inflammation of the wall of a vein. It may be *caused* by injury, pressure, thrombosis, gout, septic wounds, inflammatory lesions outside the vein. It often accompanies varicose veins. It may *terminate* in absorption of the thrombus and return of the vein to its normal condition, or the vein may become obliterated; embolism may follow the dislodgement of the thrombus; pyemia may result from disintegration of a septic thrombus; edema may also result.

3. The *rise of temperature* in fever depends primarily upon an increase in the metabolic combustion. Oxygen

is used in larger amount than is usual, while the combustion products, carbonic acid, and the nitrogenous substances, urea, uric acid, etc., are excreted in greater abundance. This increased combustion is usually associated with disturbances of digestion and assimilation of food, so that the abnormal heat production is effected largely at the expense of the body proteids of the various tissues and organs concerned in metabolism. But with the increased heat production there usually occur, in the earlier periods of fever, such disturbances in the vasomotor control of the cutaneous bloodvessels as lead to their contraction. Thus, heat elimination is retarded. In later periods the vessels of the skin may dilate so that, in spite of its persistent dryness and lack of the cooling effect of sweat evaporation, there is an excessive loss of heat from this source. This is not sufficient, however, to balance the excessive heat production. In the great majority of cases fever is due to the presence in the body of deleterious substances, either introduced from without, or, more commonly, produced within the body. These are most often formed in infections, and arise either from the growth in the tissues of pathogenic microorganisms or from the distintegration of their bodies; that is they are *toxins* or *endotoxins*. But there is abundant evidence that fever is not infrequently due to perverted metabolism of the tissue cells, leading to the formation of toxic substances. Such self-engendered substances are called *autotoxins*. Certain drugs, various bacterial toxins, and organic substances introduced from without may induce fever. Exactly how these various substances act in the incitement of fever is unknown. But one assumes that the cell metabolism is disturbed by the poison, while the heat regulating mechanism is so modified that the normal balance is overthrown. That the nervous system may play an important role in these disturbances is indicated by the fact that more or less persistent elevations of temperature may follow puncture or hemorrhage in the corpus striatum or lesions of the bulb or certain other affections of the nervous system.—(From Delafield and Prudden's *Pathology*).

4. The *normal systolic pressure* in man is about 120 mm. of mercury; the *normal diastolic pressure* is about 100 mm. of mercury.

Arterial blood pressure may be *increased* by the force and rate of the heart, by constriction of the peripheral arterioles, by increase in the volume of the blood. It may be *decreased* by dilatation of the arterioles, decrease in the force and rate of the heart, and decrease in the volume of the blood.

5. *Cervical and submaxillary adenitis*, may be caused by peripheral irritation such as eczema, pediculosis, otorrhea, and affections of the lips, throat, or salivary glands. Tuberculosis and syphilis are also causative conditions.

6.

SARCOMA.	CARCINOMA.
Origin; entirely mesoblastic (Connective - tissue type).	Epiblastic and hypoblastic (Epithelial-tissue type).
Stroma; intercellular. Rarely forms alveoli.	Vascular connective tissue, which surrounds and forms the walls of the alveoli; these communicate with one another, and contain masses of epithelial cells.
Cells; granulation tissue or embryonic connective-tissue cells; shape and size vary.	Epithelial cells contained within alveoli; shape and size vary.
Intercellular substance; may be present.	Absent, or merely fluid.
Vessels; embryonic in character. They are in direct contact with, or may be formed by, the special cells, slightly modified, of which the tumor is composed.	Well developed; entirely contained within the connective tissue stroma, and supported by the walls of the aveoli. Seldom in contact with the cells.

—(Coplin's *Pathology.*)

7. TRACHOMA.—*Etiology:* "Trachoma is caused by contagion from another eye, being transferred through the secretion. The danger of contagion depends upon the amount of secretion in any given case. The transfer from one eye to another may take place by the finger, but usually by towels, handkerchiefs, and the like, which are used in common by many persons. Hence the disease spreads most extensively in schools, asylums, and barracks, and among people who live crowded closely together, and who are careless in regard to cleanliness. It is found most frequently among the poorer classes. The contagious principle in the secretion is thought to be a microorganism; a number of such have been described, but so far no conclusive results have been arrived at."—(May's *Diseases of the Eye*).

Pathology: The conjunctiva is inflamed and follicles are formed; these latter, instead of being absorbed as in follicular conjunctivitis, produce permanent granular masses, spreading over the surface of the entire lid, and presenting, in extreme cases, the characteristic appearance of a bunch of grapes of a deep-red color. The upper lid is generally first affected. Where the follicles are abundant, the conjunctiva is destroyed. Ulceration takes place, and the necrosed membrane is replaced by scar-tissue. The disease is chronic, and progresses many years, new nodules forming while others are ulcerating and cicatrizing. The bulbar conjunctiva is not usually involved.

8. *Malignant tumors* are not encapsulated, tend to infiltrate the surrounding tissues, give rise to metastatic growths, have a tendency to recur after removal, give a cachexia, have a fatal tendency.

Three malignant tumors: (1) *Carcinoma* (breast, stomach, rectum, uterus). (2) *Sarcoma* (bone, lymphatic glands, breast, ovary). (3) *Epithelioma* (lip, tongue, bladder, stomach).

Three non-malignant tumors: (1) *Fibroma* (uterus, ovary, testicle). (2) *Adenoma* (breast, prostate, thyroid, ovary. (3) *Chondroma* (bones, salivary glands, testicle).

9. *Chronic osteomyelitis* "generally is a condition following the acute form as a result of a retained sequestrum. The changes in this disease are more marked in the bone than in the marrow. There are two varieties of the chronic form: *osteoporosis*, in which absorption takes place with an increase in the size of the Haversian spaces. The bone becomes more spongy, and the enlarged spaces become filled with marrow; *osteosclerosis*, in which there is an increased formation of bone, particularly beneath the periosteum, but also within the marrow cavity. The subperiosteal deposit may be very dense and possess an ivory-like eburnation."—(McConnell's *Pathology*).

10. *Hematuria* may be due to (1) conditions in which the blood is affected, as in the infectious diseases, in scurvy, pernicious anemia, and purpura; (2) to traumatisms or inflammations in any part of the urinary tract; (3) to congestion of the kidneys secondary to disease of the lungs, heart, or liver. In *renal* hematuria the blood and urine are intimately mixed, tube casts are apt to be present, and there may be renal colic or pain in the lumbar region. In *vesical* hematuria the blood and urine are not so well mixed, and pure blood is apt to be passed at the end of urination.

THEORY AND PRACTICE OF MEDICINE.

1. Certain infectious diseases (typhoid, typhus, variola, measles, scarlet fever, varicella, erysipelas, syphilis, leprosy), acute yellow atrophy of liver, biliary cirrhosis, Addison's disease, chlorosis, progressive pernicious anemia, purpura.

2. In *diabetes mellitus*, the urine is pale in color, the specific gravity is usually high (1030 to 1045), the quantity is greatly increased (5 to 30 pints or more), and it contains glucose; acetone, diacetic acid, beta-oxybutyric acid and albumin may also be present.

3. *Simple acute stomatitis* is an acute catarrhal inflammation of the whole or a portion of the mucous membrane of the mouth and tongue, characterized by pain, redness, swelling, restlessness, slight fever, fetor of the breath, and disordered secretion. It is most common in infants and children. It results from the introduction of irritants into the mouth, gastrointestinal disturbances, delayed dentition, and the infectious fevers. *Treatment* consist in removing the exciting

cause, cleanliness of the mouth, attention to the diet, washing out the mouth at frequent intervals with cold water, Dobell's solution diluted, or solution of nitrate of silver (two grains to the ounce).

4. *Pericarditis.*—The symptoms are somewhat obscure and may be masked by previously existing disease. Taking a typical case as it occurs in the course of rheumatic fever, we usually find precordial distress; sharp pain is rare, but when present it is most marked at the lower end of the sternum. Moderate fever, or exacerbation of already existing fever, at the onset; dyspnea, and dusky appearance of the face; rapid action of the heart, sometimes with feeble pulse; symptoms due to pressure by the fluid on the neighboring organs (trachea and esophagus, etc.); great restlessness. These symptoms, it must be understood, are due to the presence of fluid effusion. If the pericarditis remains dry, there may be no symptoms, or at most slight precordial pain.

It is evident that we must rely more upon physical signs than subjective symptoms for diagnostic information.

Physical Signs.—1. *Before effusion of fluid.*—On auscultation is heard the characteristic "to-and-fro" friction rub, variable in intensity, and not accurately synchronous with the cardiac sounds. It usually begins at the base of the heart and then extends more or less over the whole surface. The friction may sometimes be felt by the hand (friction fremitus). It becomes less pronounced as the effusion increases, but is rarely entirely absent at the base until complete resolution or organization takes place.

2. *Effusion stage.*—The physical signs are marked increase of the cardiac dulness; displacement of the apex beat; muffling of the heart sounds; displacement of other organs (if effusion is great). The shape of the dulness is characteristic. It is conical, the apex of the cone being truncated, and situated at the level of the second rib, owing to the close attachment of the pericardium to the great vessels at this point. The apex beat is generally pushed upwards and to the left. It lies, when it is palpable at all, distinctly within the left border of cardiac dulness, not, as in enlargement due to valvular disease, in close relationship to it. The marked distention of the pericardial sac surrounds the heart limits of the organ itself. The amount of bulging and displacement of organs will, of course, vary with the amount of fluid present. As resolution takes place the friction returns, and may be very coarse in character. Muffling of the heart sounds is not always present, and is not entirely due to the presence of fluid. The muffling is therefore due mainly to weakness of the cardiac muscle from accompanying myocarditis, although where the quantity of fluid is very great, in serious and chronic pericarditis, this may in part account for it.—(Wheeler and Jack's *Handbook of Medicine*).

5. *Epidemic parotitis* is inflammation of the parotid gland (or mumps), occurring in a large number of people at the same time.

Complications: Orchitis, vulvovaginitis, mastitis.

6. *Complications of abscess of middle ear.*—Abscess of cerebrum, cerebellum, or mastoid process; necrosis of the auditory ossicles or of temporal bone; meningitis; thrombosis of lateral sinus.

7. In *apoplexy* the temperature is usually normal, the pulse slow, the breathing stertorous, and there is local paralysis (hemiplegia or monoplegia). In *sunstroke* the temperature is raised, the pulse rapid, the breathing is not stertorous, and there is no paralysis.

Treatment of sunstroke.—The patient should be immersed in a bath gradually cooled by ice, an ice pack should be placed on head and neck, the body and limbs should be rubbed. The patient should be taken from the bath when his rectal temperature falls to 102°F. Cardiac stimulants may be necessary.

8. *Acute follicular tonsilitis.*—The onset is accompanied by chills, rigor, fever, severe pains in back, limbs and throat, dysphagia, and tenderness at the angle of the jaw. The tonsils are swollen and are studded with yellowish-white points; pain in the ear is common. Coated tongue, anorexia, depression, rapid respiration and pulse are also noted. The condition is to be diagnosed from diphtheria. In this latter condition the fever is not nearly so high, there is a white membrane, which spreads to the pharynx, uvula, and soft palate, which leaves bleeding points when it is removed, and which contains the bacillus of diphtheria; this membrane recurs after removal.

Treatment.—The patient should be in bed; calomel (followed by a saline) should be given to open his bowels; sodium salicylate, gr. x-xv, q.3 h. may be given; hot fomentations externally are of service; potassium chlorate may be used as a gargle or sucked, in the form of tablets. Antiseptic sprays have been used; if an abscess forms it should be opened. Tonics, and nourishing food are indicated during convalescence.

9. CIRRHOSIS OF THE LIVER. *Etiology:* "The prolonged use of alcoholic stimulants, gin, whiskey, beer, or porter is perhaps the most common cause. It may also be due to malaria, syphilis, passive congestion, and irritation of the gall-ducts. The cause may be undiscoverable. It usually occurs in men past thirty-five years of age. The uric acid diathesis may be a causal factor.

Symptoms: "All the manifestations of hepatic cirrhosis are due to the obstruction to the portal circulation which it induces. Persistent gastrointestinal catarrh attended by anorexia, fetor of the breath, nausea, epigastric distention and distress, flatulence, and constipation are present. When accompanied by attacks of jaundice in a drinking man, the early stage of cirrhosis of the liver should be suspected. As the condition progresses and the obstruction becomes more marked, hemorrhages from the nose, esophagus, stomach, or intestine, hemorrhoids, dilatation of the superficial abdominal veins forming the '*caput medusæ*,' ascites, enlargement of the spleen, and swelling and edema of the feet occur. The condition is afebrile, and emaciation, localized abdominal pain, and sometimes jaundice are present. In *atrophic cirrhosis* the liver dullness is enlarged at first, but later becomes markedly lessened. Splenic dullness is enlarged. The skin has a muddy appearance and there is gradual emaciation. The symptoms continue from two to four years, terminating fatally in about one year after the dropsy makes its appearance. The urine is scanty, high-colored, of increased density, and is loaded with urates. The quantity of urea is diminished, and blood and bile-pigment may be present. The ending of the affection is marked by drowsiness, delirium, convulsions, and coma, death resulting from toxemia, exhaustion, hemorrhage, or similar conditions. In *hypertrophic cirrhosis*, jaundice is an early and persistent symptom. Congestion of the digestive tract, enlargement of the spleen, hemorrhoids, and ascites are absent or present only in mild degrees. The liver is permanently enlarged, smooth, tender, and the seat of paroxysms of pain. The urine is bile-stained and the percentage of urea is normal. Blood is absent. The feces may be devoid of bile-pigment or may be normal. The red blood cells are diminished about one-half, and there is a relative increase in the leukocytes. This form of the affection is more rapid than the preceding, terminating with acute toxemic symptoms in death, usually in one or two years.

Treatment: "The diet should be restricted to milk and similar unirritating food. Fatty and saccharine substances should be eliminated. Alcoholic individuals should be advised to cease drinking. The gastrointestinal catarrh should receive symptomatic treatment. Bichloride of mercury, sodium phosphate, and potassium iodide are highly recommended. The portal congestion is best relieved by salines. The abdominal dropsy or ascites will require the administration of saline purgatives and diuretics. A half ounce of a concentrated solution of magnesium sulphate taken daily before breakfast is of value, as is also the pill containing 1 gr. each of calomel, digitalis, and squill when given after each meal. Acetate of potassium may also be used. Tapping is necessary when these measures fail.

"*Surgical treatment*, with a view to establishing an anastomosis between the portal and systemic circulation, has been employed; but it should never be considered in the presence of complicating renal or cardiac disease."—(Hughes' *Practice of Medicine*).

10. ACUTE GASTRITIS. *Etiology:* "It may arise from overloading the stomach, or from the presence in the stomach of undigested or indigestible foods, alcoholic beverages in excess, irritating medicines, such as the

bromides, iodides, and arsenic, and corrosive poisons such as the mineral acids, corrosive sublimate, copper, carbolic acid, etc. It may also be due to exposure to cold and wet and the infectious fevers.

Treatment: "The stomach should be placed at rest. When the stomach is overloaded ipecac should be given by the mouth or apomorphine hydrochloride, gr. ⅛, should be administered hypodermically. If vomiting has already begun large draughts of hot water should be given. Active purgation by calomel, gr. v to x and sodium bicarbonate, gr. v followed by an ounce of magnesium sulphate or a full dose of Hunyadi Janos water, is of great value in most cases. Fractional doses of calomel are sometimes preferred. After the stomach and bowels have been thoroughly emptied, feeding should be resumed, beginning with the most bland food. Nux vomica, pepsin, or papoid may then be administered."—(Hughes' *Practice of Medicine*).

OBSTETRICS

1. The *true pelvis* is bounded *above* by a plane passing through the iliopectineal line; in *front* by the pubic bones and the obturator membrane; *behind* by the concavity of the sacrum; *laterally* by the obturator membrane, the sacrosciatic ligaments and the internal surface of the acetabulum.

The *brim* is the edge of the superior strait of the pelvis.

The *false pelvis* is that part of the pelvis situated above the superior strait.

The *conjugate diameter* of the *inlet* of the pelvis is a line drawn down the middle of the sacral promontory to the top of the symphysis pubis. It is about four inches in length. The *transverse diameter* of the *inlet* of the pelvis is a line drawn right across the pelvis from one lateral margin of the brim to the other. It is about five inches in length. The conjugate diameter of the outlet of the pelvis is a line drawn from the tip of the coccyx to the lower surface of the symphysis pubis. It is about five inches in length. The *transverse diameter* of the *outlet* of the pelvis is a line extending across the pelvis from one tuberosity of the ischium to the other. It is about four inches in length.

The diameters and measurements of the female pelvis are easily remembered from the following table:

	ANTERO-POSTERIOR.	OBLIQUE.	TRANVERSE
Brim.....	4 inches.	4½ inches.	5 inches.
Mid-plane.....	4½ inches.	4½ inches.	4½ inches.
Outlet.....	5 inches.	4½ inches.	4 inches.

2. The *umbilical cord.*—"At term the cord has been compared to a 'twisted rope of tissues,' extending from the placenta to the child. The cord is of a glistening grayish-white color, of varying thickness, and is usually about 22 inches long, but may be either much longer or shorter. In structure the cord consists of a covering of epithelium continuous with that of the amnion, which surrounds a jelly-like matrix called Wharton's jelly. This consists of mucin, branched corpuscles, and embryonic connective-tissue cells. Within this substance the two arteries and one vein run in a spiral course, usually from left to right; it is to the fact that the growth in length of the vessels exceeds that of the rest of the cord that the twisted appearance of the latter is probably due."—(Jewett's *Practice of Obstetrics*).

3. (*a*) *Adherent placenta* is probably due to some diseased condition of the endometrium, resulting in inflammation of the decidua or placenta. The diseased condition probably antedates pregnancy. There may be partial absence of the decidua serotina, so that the chorionic villi are in direct contact with the uterine muscle.

(*b*) *Treatment of adherent placenta:* "A finger—one or two—must be insinuated between the uterus and placenta at some point already partially separated, or, if no partial separation exist, at a point where the placental border is thick, and then passed to and fro transversely through the uteroplacental junction, acting like a sort of blunt paper knife, until separation be complete. Another mode is to find or make a margin of separation as before, and then peel up the placenta with the finger-ends, rolling the separated portion toward the palm of the hand upon the surface of the still adherent part. Great care is necessary to avoid peeling up an oblique layer of uterine muscular fiber, which might split deeper and deeper until leading the finger-ends through the uterine wall into the peritoneal cavity. Should such a splitting begin, leave it alone and recommence the separation at some other point on the placental margin. It is sometimes only possible to get the placenta away in pieces. These should be afterward put together and examined to indicate what remnants are left behind. It may be quite impracticable to get out every bit, but small remnants or thin layers too firmly adherent for removal do not distend the womb enough to create hemorrhage from their bulk, and the subsequent danger of septicemia from their decomposition may be obviated by injecting warm (2 per cent.) creolin water into the uterus twice daily until everything has come away." (King's *Obstetrics.*)

4. "*The treatment of puerperal sepsis* is both local and general. Locally a thorough disinfection of the whole genital canal is called for in every case. It may appear unnecessary, and may prove, on actual experience, to be even harmful, but no one can tell beforehand how necessary this procedure is. In the vast majority of cases it is productive of the greatest good. It is only occasionally useless, and vary rarely actually harmful. It should precede all other treatment for puerperal infection. The method of disinfecting the genital canal may be described as follows: A double tenaculum, a large, dull curette, a placental forceps, and an intrauterine catheter are boiled for fifteen minutes. The operator disinfects his hands and arms and wears sterile gloves. The patient is placed in the dorsal posture across the bed, with her buttocks resting on a rubber pad. The external genitalia and the vagina are scrubbed with tincture of green soap and pledgets of cotton; the vagina is douched with a sublimate solution, 1:2000. The operator then seizes the anterior lip of the cervix with a tenaculum. An intrauterine douche of sterile water, at least a quart, is administered. Then, with the placental forceps, and, if necessary, with a dull curette, the uterine walls are gone over thoroughly but lightly in all directions, six to twelve times, until nothing is brought away but bright blood. A second intrauterine douche concludes the treatment. If the womb is flabby and large, with a tendency to flexion, so that the drainage of the uterine cavity is not good, it is advisable to pack it with iodoform or sterile gauze. In addition to cleansing the uterine cavity, false membranes or areas of inflammation and localized infection on the cervix or vagina should be treated by the application of a solution of nitrate of silver, a dram to the ounce. It may be necessary to repeat the intrauterine douches several times—in fact, several times a day for many days; in this case plain sterile water only should be used. The general treatment is stimulating. The patient should have as much food of an easily digestible character, chiefly milk, as she can assimilate, and as much alcohol as she can consume, without showing the physiological effects of it. Digitalis is useful as long as the pulse is above 110. Strychnine may be combined with it in suitable cases. To tide the patient over emergencies, carbonate of ammonium in large doses, by the bowels, and nitroglycerin, hypodermically, may be required. Inhalations of oxygen may be of service. Absolute rest and freedom from all disturbances, mental and physical, must be insisted upon, and the patient should be given the best nursing that the family can afford." (Hirst's *Obstetrics.*)

5. *Breech presentation.* Abdominal palpation reveals the head above, which is round, hard, and freely movable; the breech below, soft and irregular in outline. The heart-sounds are heard above the umbilicus. Vaginal examination shows a high position of the presenting part; after dilatation of the os the characteristic features of the breech may be detected—the sacrum and coccyx, the external genitalia and anus, the nates and thighs. There is usually evacuation of meconium.

Vertex presentation. Abdominal palpation reveals the breech above, which is less mobile, not so hard as the head. The heart sounds are generally below the umbilicus. Vaginal examination shows a smooth, rounded tumor at the brim or in the pelvic cavity, and the sutures and fontanelles can be recognized.

L. O. A.: Abdominal palpation reveals the child's back to the left; the extremities above and to the right; the head below. The heart-sounds are most distinctly heard to the left and below the umbilicus. Vaginal examination detects the sagittal suture in the right oblique diameter of the pelvis; the small fontanelle looking toward the left acetabulum.

R. O. A.: Abdominal palpation reveals the child's back to the right; the extremities above and to the left; the head below. The heart-sounds are most distinctly heard to the right and below the umbilicus. Vaginal examination detects the sagittal suture in the left oblique diameter of the pelvis; the small fontanelle looking toward the right acetabulum.

6. *Conditions that justify the induction of premature labor:* (1) Certain pelvic deformities; (2) placenta prævia; (3) pernicious anemia; (4) toxemia of pregnancy; (5) habitual death of a fetus toward the end of pregnancy; (6) hydatidiform mole; (7) habitually large fetal head. The methods that may be employed are: Partial dilatation of the cervix and the introduction within the cervix (and vagina) of a tamponade of sterile gauze; (2) dilatation of the cervix; (3) puncturing the membranes; (4) introduction of a soft rubber bougie into the uterus; (5) intrauterine injection of glycerine, water, or some other fluid.

7. *Method of performing premature labor: "Catheterization of the uterus:* The first step consists in separation of the membranes from the lower uterine segment by means of a uterine sound or with the finger. The operation must be aseptic. Detachment of the membranes with the sound may be done with the woman in either the left lateral or dorsal recumbent position. For the use of the hand the dorsal position is best. The second step consists in the insertion of one or more No. 12 English bougies, or a sterile rectal tube, between the membranes and the uterus. No anesthetic is required.

Usually the bougie or rectal tube is most readily passed with the aid of the Sims position, the Sims speculum exposing the cervix, which is drawn forward and held with a volsella. The bougie is sterilized by boiling or steaming, the proximal end is cut off, and a stylet inserted. To facilitate introduction the bougie is bent to nearly a right angle at about three inches from the distal end, giving it a large curve. Great care must be used to avoid rupturing the membranes. The instrument is then pushed up gently and in the direction in which it passes most easily. After it has entered between the membranes and the uterine wall, the stylet is drawn down about one inch. The flexible tip of the bougie finds its way readily with little risk of perforating the membranes. The bougie fully in place, the stylet is withdrawn. A second bougie may be inserted if it can be pushed into place without too much difficulty. Bleeding is probable evidence that the instrument has passed behind the placenta. The hemorrhage may occasionally be excessive. It is then best to withdraw the instrument and pass it in another direction. A light tampon of gauze may be packed in the vagina, but it is not required to support the bougie. The instrument is left to be expelled with the child. Labor usually is established within twenty-four hours. This method is not suited to cases in which immediate delivery is called for." (Polak's *Obstetrics.*)

8. *Accidents which may occur to the mother during first stage of labor:* Eclampsia; prolonged labor; rupture of uterus. *During second stage:* Hemorrhage; placenta prævia; laceration of cervix, vagina, perineum, or uterus; premature separation of placenta; rupture of uterus; inversion of uterus; vaginal fistulæ; eclampsia; sepsis; sudden death. *During third stage:* Subinvolution of uterus; postpartum hemorrhage; eclampsia; sudden death; sepsis.

Accidents which may occur to the child: Prolapse of cord; rupture of cord; asphyxia; death; ophthalmia neonatorum, or other septic condition; paralysis; dislocation; hematoma.

9. *Craniotomy.* "The operation may be indicated upon a dead or upon a living child. In the former case the indications for the operation may be comparatively trivial. If the mother can be saved any additional risk or suffering by the rapid delivery of the mutilated child, craniotomy is not only justifiable, but advisable. In case of prolapse of the umbilical cord, with a contracted pelvis, the commonest condition that calls for craniotomy upon a dead infant, it is far better to open the head and to deliver the child easily with a craniocast than to apply the forceps to the head at the superior strait and to subject the mother to the delay, pain, and danger of a prolonged forceps operation, when nothing is to be gained by it.

Craniotomy upon the living child is only justifiable in exceptional circumstances. To condemn this operation, however, unreservedly and without exception is a mistake. In cases of difficult labor, if the pelvis is contracted or the child overgrown, and the physician must make a choice between cesarean section, pubiotomy, or craniotomy, if he has no skill in surgical work and is unable to procure expert assistance, it is better, unquestionably, to sacrifice the child for the mother's sake, rather than to attempt a serious surgical operation, amid unfavorable surroundings, and performed by an unskillful operator whose mortality must be very great.

"Every attempt must be made to avoid the destruction of a living child, of course; and if the operator feels himself possessed of sufficient skill to attempt the more serious operations of cesarean section or pubiotomy with fair prospect of success, or if he can summon to his aid an expert surgeon, he should not think of performing craniotomy upon the living child."

The operation: "The woman should be anesthetized and placed in the lithotomy position, and brought well to the edge of the bed or table. The child's scalp is seized by a strong volsella forceps, which is handed to an assistant, who pulls upon the instrument firmly, so as to fix the head at the superior strait. The operator then inserts two fingers of his left hand and feels for a suture or a fontanelle. The perforator is inserted into the vagina, along the palmar surface of the fingers, and is plunged into the skull at a point upon which the finger-tips rest—that is, through a fontanelle or suture. When it has entered the skull the perforator is twisted about in all directions, in order to break up the brain, and is also opened in several different directions to enlarge the opening in the skull. The large catheter is next inserted and attached to a syringe. A column of water is injected into the cranial cavity to wash out the remaining brain substance. Next, if necessary, the size of the emptied head may be reduced with a cephalotribe.

This is only called for in case of extreme pelvic contraction or in the presence of some pelvic tumor seriously diminishing the capacity of the pelvic canal. In the majority of cases a craniocast may be used instead of the cephalotribe. The internal branch of this instrument is inserted within the skull. The outer branch is next introduced in the same manner that one would insert a blade of the forceps. The two branches are then locked, and the handles are screwed firmly together, care being taken that the internal branch is inserted deeply within the cranial cavity, so that it shall get a firm grasp upon the skull. The child is now extracted in the same manner that one would extract the head with the forceps, except that the tractive efforts are made uninterruptedly and with greater force. In certain cases it is sufficient simply to perforate the skull. This applies particularly to cases of hydrocephalus.

The head being evacuated, the forces of nature are sufficient to insure the child's delivery. If it is necessary to perforate the aftercoming head, the perforator may be inserted behind the ear, in the lambdoid suture, under the chin, through the roof of the mouth, or, possibly, through the foramen magnum. In a case of hydrocephalus with breech presentation, should there be great difficulty in reaching the aftercoming head, it is possible to evacuate the fluid by perforating the spinal column and passing a catheter through the spinal canal into the cranium." (Hirst's *Obstetrics.*)

10. *Pituitrin* is an extract from the posterior lobe of the pituitary gland; it may be given cautiously in cases of uterine inertia. As it may cause very severe uterine contractions, it should not be given unless the os is dilated and there is no obstruction to delivery. It is best administered intramuscularly in the gluteal region in doses of 1 c.c., which may be given two or three times at intervals of half an hour. Its use is not without danger.

(*To be concluded.*)

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TUBERCULOSIS: ITS DIAGNOSIS AND TREATMENT WITH THE ROENTGEN RAY.

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SINCE the discovery by Koch in 1882 of the tubercle bacillus when it was proclaimed to the world that the cause of the "white plague" had been found, tuberculosis, as a center of study and experiment, has stirred the imagination of the medical profession to intense activity with the hope that at last a remedy might be found that would overcome the disease which has placed to its discredit the death of one in every seven of the human race; and although one-third of a century has passed since that discovery, comparatively little has been accomplished in checking the progress of the infection.

In reviewing the history of the endeavor to find a means for the complete elimination of this scourge, we are impressed with one factor which stands out more prominently than all others, indicating a distinct advance in the direction of ultimate success.

Our greatest handicap in dealing with tuberculosis has been the difficulty in diagnosing the disease in its early stage; that is to say, before extensive involvement and degenerative processes are so pronounced that toxemia overwhelms the patient ere the remedial measures at our command become effective. For that reason, our efforts in the past were largely doomed to failure. But with the *x*-ray, used both as a diagnostic agent and as a remedial means, we are to-day in possession of the most valuable aid thus far known in overcoming tuberculous infection.

So much has been written and so many diverse opinions have been stated in regard to the value of the *x*-ray as a means of diagnosis that confusion and distrust abound. It is evident from the reading of recent literature that differences of opinion on the subject are in some degree owing to the faulty interpretations arising from a study of the flat plate. It is true that in advanced conditions the single plate may show evidence sufficiently positive for a diagnosis; but it is not the advanced condition that is important; were this true, physical signs would be all-sufficient for a diagnosis without the aid of the *x*-ray.

With the flat plate radiograph in the early stages of the disease, the evidence cannot be positive, even though the radiographer be faultless in his work and the single picture is well backed up by clinical history. But the use of stereoscopic plates has clearly demonstrated that no one is justified in making a diagnosis of incipient tuberculosis without their aid.

Physical signs, even in the first stage cases where infiltration can be detected by percussion, fremitus, or whispered voice, are less positive in this evidence than the stereoscopic plates, not only as to the extent of infiltration, but more important as showing the location of the original focus, whether it be in the hilus, in the apex, or in the pleura.

The unreliability of physical technique even by experts, in this field, is so well known that it would be difficult to find two technicians of unquestioned ability who fully agree as to their findings in incipient cases, while with the stereoscopic plates, plus clinical history and physical signs, we more closely approximate the positive than by any other method of diagnosis.

If the disease has reached a stage where a positive diagnosis can be made by physical signs, we are already face to face with a malady where loss of time has become a deterrent factor in the early establishment of repair.

It is a well-established fact that in caseous tuberculosis, on account of the virulent strain of the tubercle bacilli and the rapid development of degenerative processes in the tissue, an early diagnosis becomes a most valuable asset in the treatment and unless we can begin our treatment before large areas are involved, the rapid development of toxins overcomes the patient, without even a protest of a remedial nature.

Another reason for an early diagnosis is the value of positive evidence of infection, though this evidence be a healed lesion in a quiescent state. If we are to prevent reinfections later in life, we must insure the patient's escape by overcoming the tubercle bacillus before resistance is lowered in the adult, or the intenser activity is ushered in, resulting in an open tuberculosis which becomes the cause of infection in children in a greater number of cases than any other factor; and it is only reasonable to assume that if we could control the disease before the resistance is lowered, or this activity takes place, it would go a long way toward universal prophylaxis.

So much time and thought have been given to the question of healed tuberculosis, latent infection, and immunity following early stages of the disease, that we have grown to feel unduly secure; and thus, after the initial stage has become quiescent, we too often assume that the future will be safe if sufficient food, sleep and rest are provided; in a word, if

proper hygienic conditions, avoidance of dissipation, etc., are maintained. Indeed, if we can be sure of an ideal mode of living for the patient, all will be well, and no one can ignore the importance of "the simple life" as an aid in thwarting any infectious process; but how many are going to heed the wisely given advice? Knowing that "to err is human," can we rely on a system of education as a prophylaxis for such a scourge?

It is a well-known fact that tuberculosis is primarily an infection of childhood; that 90 per cent of infections occur before the fifteenth year of life; and that 50 to 70 per cent. of these infections occur before the fifth year; consequently the problem which confronts us to-day is the treatment after infection has become manifest.

"The observation of Bloss, who followed 160 cases of tuberculosis of the lymphatic glands from Czerny's Clinic in Heidelberg during a period of from three to twelve years determined that 40 per cent of the subjects developed pulmonary tuberculosis." (Pottenger: "Clinical Tuberculosis.")

"Aufrecht in an examination of tonsils found that 20 per cent contained tubercle bacilli and 19 per cent of adenoids were involved."

"Dieulafoy extirpated 61 hypertrophied tonsils and he injected a preparation of them into guinea pigs, with the result that 13 per cent of the pigs were infected."

"In the first examination made by the officers of the Federal Meat Inspection Service (from the report of which I quote) the superior cervical glands were nearly always affected. At the postmortem examination held by bureau inspectors, over a consecutive period on 120,000 tuberculosis hog carcasses, 93 per cent were found to contain lesions of these glands."

"In the cattle, they found the lesions of tuberculosis were located in the cervical glands of 66 per cent, in the bronchial glands 54 per cent and in the mediastinal glands 63 per cent of the cases examined."*

From the foregoing we are impressed with the fact that the lymphatic system plays a very important rôle in the development of tuberculosis. It is during the child's early years that the lymphatic system is most active; and the location of the lymphatic glands is such as to give protection to the body as an outer defence.

In consideration of the fact that the tonsils and adenoid tissue frequently are the first points of infection in the child, are we not justified in assuming that the susceptibility of the child is dependent largely on the pathological state of these organs?

Normal lymphatic tissue in itself has resisting power which becomes vitiated by frequent and prolonged inflammatory changes. These changes must be recognized in order to be corrected so that the natural protection to the child may be maintained. But the unnecessary sacrifice of these organs removes the first line of defense, which nature has provided, so important to the resisting power of childhood.

The diagnosis of early tuberculous disease depends largely on the clinician's viewpoint rather than on that of the pathologist. Starting with the fact that sooner or later virtually all human beings are infected, the interest of the clinician centers largely on the early constitutional symptoms of infection; these effects are so subtle and varied that the average physician is inclined to underestimate their importance until physical signs reveal the far advanced disease as first discovered in the lung; and while the prognosis in this stage may be fairly favorable, depending largely on its form of development and constitutional dycrasia, nevertheless our greatest hope for the complete eradication of the "white plague" must necessarily depend on our recognition of it during its inception.

Children suffering from tuberculous infection, which is subject to frequent states of activity, often suffer from general malnutrition; they are stunted in growth; they show lack of endurance and a failure to develop in a normal manner. They may be bright mentally, even precocious, but they lack both physical and nervous endurance.

Loss of weight, or failure to gain weight, is shown early; although the child may have a ravenous appetite, there is defective assimilation; and it grows thinner daily; or there may be great loss of appetite—no desire to complete the ordinary meal; and even the small quantity of food taken often produces indigestion which may be followed by nausea, vomiting and diarrhea.

When these disturbances are not directly traceable to improper food, colds, or the ordinary infections of childhood, our suspicions should be aroused; particularly so if an intermittent temperature accompanies the other symptoms.

With a constitutional disturbance of this character, we should be on the lookout for glandular involvement, either in the tonsils, the cervical or the bronchial glands.

If we are still in doubt as to whether or not we are dealing with a tuberculous infection, a positive von Pirquet will give us evidence on which we are justified in making a tentative diagnosis.

Radiography, while it does not invariably tell us whether we are dealing with an active or a latent infection, does show calcified tubercles if present; and, in my opinion, a calcified tubercle in its quiescent state should be considered important, not only on account of the positive evidence of infection, but more important still from the therapeutic considerations.

A latent tuberculosis of the glands may be the center at any time of an active process; and it should be dealt with while in its active state in order that the future of the patient may remain safe.

While I am conscious of the fact that early tuberculous infections may have an immunizing effect on the organism and thus possibly prevent the development of phthisis later in life, nevertheless, many cases do become active through vicious environment and lowered resistance; and though the percentage of reinfections may be small, we have no right to ignore, however slightly, the possibilities of an infection carrying such evil import.

As an evidence of secondary infection, or rather a flaring up of a smouldering fire from the calcified glands, the *x*-ray shows in many cases the hilus thickened with caseous deposits; and from these foci frequently appears an extension of the affected area to the parenchyma of the lung, more often to

*Dieulafoy: *Bulletin de l'Académie de Médecine*, 1895, Nos. 17-20. Bloss: Mitteilungen aus den Grenzgebeiten der Medizin und Chirurgie, 1899.

the apex, which becomes an additional center of infiltration.

The fan-like extension from the hilus to the periphery is considered by some of our best Roentgenologists as positive evidence that the primary foci are found at the roots of the lung, rather than at the apex; and, although the radiograph does not give us any clue as to when these glands became involved, we have presumptive evidence that the infection occurred during childhood.

Consequently, concealed or clinically inactive cases of tuberculosis call for active measures rather than "watchful waiting" for an evil day when the body is less resistant.

The final consideration, and to me the most important, as an aid to the complete control of this scourge, lies in the use of the *x*-ray, not only on account of its diagnostic value, but more especially on account of its importance as a therapeutic factor.

The earliest recognition of its use in this respect dates back to the early history of this wonderful agent in the field of therapeutics. My first experience with it began in 1899; at that time a few reports had been published showing unquestionably its effect in overcoming tuberculous adenitis. I was early impressed with those reports on account of a boy 14 years of age under my care with a tuberculous mass in the cervical region, whose mother, at that time, was dying of pulmonary tuberculosis, and I decided to test the value of the *x*-ray in this case. The affected glands had been enlarged for over two years and several had coalesced into an enormous mass.

Treatments were given three times a week; at the end of two months the enlarged mass had entirely disappeared. This boy has since married, and he is the father of several children. No further evidence has appeared of his early infection. Since that time so many cases have been reported that today the *x*-ray may be considered practically a specific in this variety of tuberculous infection.

During the past three years while treating cases of tuberculous adenitis with the *x*-ray, I have been impressed with its therapeutic power over tonsillar and adenoid involvement; but up to this time, so far as I am aware, no reference to its action on these glands has been published. In three cases of cervical adenitis under my care I found very large tonsils and adenoids; all these had been treated by other physicians who had advised removal. In one of the three, the tonsils and adenoids were so large that the child's mental and physical development had been retarded.

It was while treating the cervical enlargement that an improvement in the breathing of the one child was noticeable; also the mental and physical disturbances became less evident. An examination of the throat showed a marked improvement in the size and the character of the tonsil itself. The spongy gland, with numerous pockets, had undergone a distinct change; and at the end of the treatment of the cervical glands, the tonsils and adenoids in all three had assumed a normal aspect. The improvement in each one of these cases was not confined to the glands alone, but it was more marked still in the constitutional change.

The tendency to frequent colds, which was marked in all, practically disappeared; and a general improvement in every part showing underdevelopment soon became obvious.

I am convinced, from the results in these three cases and of many others since, that we have in the *x*-ray a therapeutic power potent in many cases to relieve one of the commonest affections of childhood, at the same time destroying tuberculous infection in these glands without robbing the child of a part of its natural inheritance and defense.

An important question in this interesting subject is—What are we going to do with the 1,000,000 patients in this country who are already far enough advanced in the disease to leave little doubt as to the correctness of the diagnosis? How many of this vast army of suffering humanity can be restored to health and made immune from further infection? The answer involves so many phases of the subject that we become bewildered and at the same time, fascinated with its possibilities.

Some years since, a systematic campaign was undertaken in this country to eliminate the "white plague." The results of this undertaking are given in a report recently issued by the Bureau of Public Health Education. I quote from the report: "A period of apathy has followed the tremendous enthusiasm evoked by the antituberculosis campaign conducted some ten years ago. Despite the strenuous work of these ten years, the annual expenditure of hundreds of thousands of dollars, one-seventh of all persons who die, die because of tuberculosis infection. In the city of New York the deaths from all forms of tuberculosis have varied but little from 10,000 a year since 1905. At the present time there are 35,000 recognized cases of pulmonary tuberculosis in this city, and only 10 per cent. of these are under the care of private physicians." From the foregoing we are impressed with the fact that 90 per cent. have been cared for through the benevolence of the public in hospital and sanitarium. The period of apathy was a natural sequence to the enormous energy put forth and the large amount of money spent with the meager results shown.

The National Tuberculosis Association is to-day seriously considering the question of enlarging the hospital and sanitarium facilities, co-operating with the Federal Reserve Board to meet the requirements of a large increase of tuberculosis cases resulting from the war. Judging from the report given above, little may be expected from this source in the stamping out of the plague, no matter how conscientious the endeavors nor how much money is spent to that end.

For several years experiments have been going on with the *x*-ray, not only as means of diagnosis, but also as a therapeutic aid, with varying degrees of success. Some have recognized its potential power as a therapeutic agent, but they have failed to impress the profession at large with the value of its universal adoption.

In the résumé of cases which I have chosen to report, are represented the most serious classes of tuberculosis, as well as the latent or quiescent forms of the infection, showing the power of the *x*-ray as a prophylactic as well as a curative agent in overcoming the disease in all its varied aspects, even in advanced and rapidly degenerative processes with cavitation.

Case I.—*Latent or Healed Tuberculosis.*—G. K., age 18. *Family History:* Mother died of tuberculosis at

Davos, Switzerland, twelve years ago. Uncle died of tuberculosis at thirty years of age.

Patient's History: Never developed normally either mentally or physically, grew rapidly; height 6 feet 3 inches. Always thin, pale, anemic and tired, no ambition. Enormous appetite, yet emaciated. Eats all kinds of food, except fats. Craves meat three times a day in large quantities. Has had frequent colds, but never suffered from bronchitis, pneumonia, pleurisy, whooping cough or measles. Temperature normal, respiration normal, pulse 94. No cough. Volunteered for service when war was declared, but was refused after a physical examination on account of a tuberculous right elbow and slight involvement of the right apex, discovered by physical signs. Patient came under my care in May, 1917. A physical examination confirmed the previous report. The right elbow was one-third larger than the left, without pain, but with restricted motion and stiffness.

Stereoscopic plates made of the lungs showed the normal markings distinctly. There is diminished aeration of both upper lobes, more marked in the left. The diaphragm is normal. The heart is normal in size, shape and position. There is thickening along both roots extending up along the branches of the left ascending bronchus. There is evidence of infiltration in both upper lobes, more pronounced in the right. Numerous calcified tubercles are in evidence scattered over both lungs. Extremely narrow intercostal spaces are shown as an evidence of superficial respiratory action.

Treatment with the Roentgen ray and high-frequency auto-condensation was begun in May with daily exposures over the lungs as well as over the elbow. Four months later a second pair of stereoscopic plates were made showing the following changes: The normal markings of the lungs are shown distinctly. Both upper lobes show normal aeration. Thickening of the roots diminished; no extension up along the branches of the bronchus. No evidence of infiltration. No calcified tubercles to be found. The intercostal spaces normal, showing a normal respiratory action.

The circumference of the right elbow is one inch greater than the left. The development of the patient in general has been most marked in every way—posture is erect; color normal, digestion good. He has gained twenty pounds in weignt—is ambitious and does not tire easily.

Case II.—*Fibroid Phthisis.*—Mrs. S., age 34. *Family History:* Several members of the family died of tuberculosis.

Patient's History: Had measles and whooping cough when a child. Five years ago suffered from pleuro-pneumonia of left lung; was confined to the bed during two months, which left her with a persistent cough. After four years of treatment by her family physician she was sent to Liberty Sanitarium, New York, where she remained one year, gradually failing in strength and weight.

Her story as told by herself is virtually as follows: On arriving at the Sanitarium, weight was 113 pounds, a loss of 16 pounds since an attack of pneumonia. While in the Sanitarium her weight gradually fell until it reached 94 pounds. At this time, the attending physician advised her to return to her home and spend the last two or three weeks of her life with her husband and children. After returning home she was advised to consult the writer. An examination showed the left lung completely involved with a large cavity in the apex. The right apex showed infiltration down to the third rib, anteriorly. Sputum contained numerous tubercle bacilli.

Treatment with *x*-ray and high-frequency autocondensation was given three times a week, the patient coming from her home in Brooklyn by trolley in all kinds of weather during the entire winter. Improvement began immediately and progressed so rapidly that at the end of four weeks she had gained 18 pounds in weight. Cough and expectoration were less; appetite, color and general condition showed marked improvement.

The treatment was continued six months, when she was discharged entirely well. Sputum examination was negative, cough and expectoration absent. No râles were heard in any part of the lungs. Weight 153 pounds, 20 pounds more than she had ever weighed before. During her treatment she became pregnant, and when the child was born it weighed more and looked healthier than any of her previous children at birth. No further trouble with her lungs was experienced. This patient, three years later, went violently insane, and she died in an asylum; a history of insanity ran through three generations.

Case III.—*Caseous Tuberculosis* (Galloping Consumption).—A. S., age 14. *Family History:* Good.

Patient's History: Had the usual diseases of childhood, including whooping cough and measles. Was always considered an unusually healthy boy. In November, 1907, he suddenly developed a cough, accompanied by an afternoon temperature running from 104° to 105.5°, with rapid loss of flesh. One month after the onset of his trouble his weight was 84 pounds, having dropped from 128 pounds.

At this time he came under my care. Physical examination revealed an active process which had involved the entire left upper lobe. Percussion dull over entire lobe, bronchial breathing; fremitus and crepitant râles —all pronounced. Temperature in morning up to 1 P.M. 99°, pulse 102, respiration 32. Afternoon temperature gradually rose until it reached 105.5° at 7 o'clock, pulse 128, respirations 36. Sputum filled with tubercle bacilli.

Treatment with the *x*-ray and high-frequency autocondensation was given daily. Improvement began immediately; at the end of four weeks the patient had gained twenty pounds, temperature was normal, pulse 104, respiration 24. Cough and expectoration much less. Appetite good—in addition to his regular meals he was able to take the whites of eight eggs a day with four glasses of milk.

Physical examination showed a marked improvement. Auscultation found numerous râles; tubular breathing slight; fremitus less; percussion still dull. Treatment was continued three months, when the patient was discharged cured. Sputum negative; cough entirely gone; all physical signs normal. Six months after beginning treatment patient weighed 145 pounds, 17 pounds more than he had ever weighed before. No further trouble with his lungs has been experienced, now eleven years since.

Case IV.—*Fibro-Caseous Tuberculosis of the Lungs.* —Mr. R., age 42, Feb. 13, 1916. *Family History:* Good.

Patient's History: Patient had pneumonia of left lung ten years ago, since that time has coughed more or less continually, especially mornings. Three months ago he began having an afternoon temperature ranging from 100° to 105°, with severe coughing spells, worse in the cold air and still worse on lying down and at rising in the morning. Expectoration yellow and at times streaked with blood. Voice hoarse. Weight 153 pounds.

Auscultation found numerous râles over the roots of the left lung along the spine. Percussion over left apex dull with increased vocal fremitus. Whispered voice marked over apex, also over hilus.

Roentgen diagnosis by Dr. Lewis G. Cole follows: "Stereoscopic and plain roentgenograms of the chest show distinctly the normal markings of the lungs. There is diminished aeration of both upper lobes. The diaphragm is normal; the heart is normal in size, shape and position; a thickening of the mediastinum somewhat obscures the arch of the aorta. There is increased density around the roots of the lungs, and extending out along the branches of the bronchi, and involving both apices. There is an infiltration of both apices, more marked on the left side than on the right. The process has not gone to the stage of consolidation, but the infiltration is very extensive. I believe the case is one that demands radical treatment to check the extension of the process." In answer to my question as to what he meant by "radical treatment," Dr. Cole answered, "Mountain air and sanatorium treatment."

An examination of sputum by Dr. Heitzman showed 15 tubercle bacilli per field.

Treatment by *x*-ray and high-frequency electricity was begun on February 13th, and continued daily. Fourteen days after beginning treatment, temperature was normal and has remained so. Patient had improved in every way. Cough and expectoration were gradually reduced, weight increased. Color better, ap-

petite improved. At the end of two months an examination of sputum did not show any tubercle bacilli. No râles were found on auscultation. Cough slight.

At the end of four months from the beginning of treatment, another Roentgen examination of the lungs was made by Dr. Cole, who reported to me the following: "Roentgen findings: The normal markings of the lungs show distinctly. There is diminished aeration of both the upper lobes. The diaphragm is normal and the heart is vertical. The arch of the aorta is slightly thickened. There is a thickening along both roots extending up along the branches of the right ascending bronchus. Both apices are involved. There is evidence of infiltration of both upper lobes. The area in the left apex shows more evidence of fibrinization and less evidence of exudation than was present when the first examination was made. From a study of these plates and from a comparison with those made previously, I feel that I am justified in stating that I find no evidence of an extension of the tuberculous process and the fibrinization suggests that the process has been checked."

An examination of a small exudate which the patient was able to get from clearing his throat did not show any tubercle bacilli. The cough having entirely ceased and his weight increased, he told me he weighed twenty-three pounds more than he had ever weighed. The patient expressed himself as being mentally and physically in as good condition as he had ever been in his life; he was discharged and has not shown any further trouble with his lungs.

Case V.—*Tuberculous Peritonitis with Ascites.*—Catherine N., age 17. Referred to the tuberculosis clinic May 5, 1916. *Family History:* Father died of tuberculosis, age 52. Father's mother died of tuberculosis. Mother living and well; one brother died in infancy of spinal meningitis. Two brothers and one sister died of pneumonia during childhood.

Patient's History: Had measles during childhood. At 15, menses developed normally and continued regular in time and character. At 16 suffered from the grip, which lasted one week, leaving her much prostrated, with a loss of eight pounds in weight. Three months ago menses stopped, followed by profuse night-sweats and accompanied by pain over entire abdomen, worse on the right side and worse also on the least pressure which caused nausea and vomiting of bile, great prostration, headache and constant sleepy condition. Abdomen distended.

May 5, patient came under my care. An examination showed the abdomen completely filled with fluid; the patient suffering from great pain over entire abdomen; worse on the least pressure, and great difficulty in breathing. Physical examination of the chest posteriolily revealed marked whispered voice over upper lobe of right lung extending from apex down to the fourth intrathoracic vertebrae. Anterior chest. Whispered voice over upper right lobe from apex down to fifth rib. Heart: No murmurs, pulmonic and aortic second sound accentuated. Temperature 102.6°, pulse 120, respirations 26.

Urine, twenty-four hour specimen, 14 ounces, color yellow, specific gravity 1022, albumin trace, urea 3 per cent., indican 2 plus. Total solids 375 grs. Red blood corpuscles occasional, pus corpuscles few, epithelia, kidney and bladder few.

Blood: Hb 60 per cent.; erethrocytes 4,020,000; leucocytes 8,120, neutrophiles 76 per cent., small lymphocytes 19 per cent.; large lymphocytes 7 per cent. Von Pirquet 4 plus positive. Sputum negative.

A pair of stereoscopic plates made of the chest showed the normal markings of the lungs. There is diminished aeration of the right upper lobe. The diaphragm is displaced upward on both sides. Heart normal. There is thickening of the hilus extending upward along the branches of the right ascending bronchus, with evidence of slight infiltration of the right upper lobe.

Treatment with Roentgen ray began May 5, exposure being made daily over the abdomen as well as the chest. On June 1 patient reported free from pain for the first time since set-back. Night-sweats much less. Vomiting of bile occurred occasionally. Urine had increased from 14 to 40 ounces in twenty-four hours. Abdomen much softer. At this time patient began suffering from diarrhea, with flatulence and indigestion, although the vomiting of bile was less.

Treatments were continued as before. On August 12, the menses reappeared, having been absent six months. Digestion had improved; vomiting had ceased; headache and diarrhea with flatulence had entirely cleared up. Appetite returned and patient began increasing in weight. Abdomen entirely free from fluid. Patient virtually normal in every respect. The second stereoscopic plates did not show any abnormal condition in the chest.

Blood: Hb 85, erethrocytes 4,000,000; leucocytes 8,000, neutrophiles 78.5 per cent., large lymphocytes 6 per cent, small lymphocytes 12.5 per cent., eosinophiles 3 per cent.

Case VI.—*Fibro-Caseous Tuberculosis of the Lungs.*—M. F., stenographer, age 22, came to clinic in September, 1917. *Family History:* Father, mother, five sisters and two brothers all living and well. No history of tuberculosis.

Patient's History: Had measles when five years old, whooping cough when very young. Was always subject to frequent colds, often ending in bronchitis, which was difficult to cure. Appetite always poor. Pale and anemic all her life. Menstruation developed during the eleventh year, regular, bright red flow lasting five days, accompanied by more or less pain. Digestion good, does not like milk or eggs, prefers meat to all other food. Bowels regular. Sleeps well. Not nervous as a rule, but much depressed over present condition. Has had a cough for the past two years which has not responded to any treatment. Cough always worse when lying on the left side; constant tickling in the throat accompanied by hoarseness. No expectoration until one year ago. Sputa grey and frothy. Sleeps nine and ten hours at night with occasional naps during the day. Menses always regular, profuse flow, much prostrated during first two days. No night-sweats, but suffers from profuse perspiration of feet; maximum weight 90 pounds, present weight 85 pounds. Temperature 100.4°, respirations 22, pulse 96.

Physical examination. Right anterior. Percussion dull over right apex down to fourth rib with increased fremitus and marked whispered voice. Numerous räles below clavicle over small area. Left anterior: Percussion dull below clavicle, increased fremitus and whispered voice extending to third rib. Posterior chest: Percussion dull, increased fremitus and marked whispered voice with crepitant râles below seventh cervical down to fourth thoracic vertebra, on both sides of spinal column, more marked on right side.

Sputum, twenty-four hour specimen, showed 40 to 50 tubercle bacilli per field.

Blood: Hb 60 per cent.; erethrocytes 4,140,000; leucocytes 11,700, neutrophiles 86 per cent.; small lymphocytes 105, large lymphocytes 7 per cent. Von Pirquet 3 plus positive. Urine, reaction acid, specific gravity 1022, albumin trace, urea 2.3 per cent., indican normal.

Stereoscopic plates made of the chest show the normal markings of the lungs distinctly. There is diminished aeration of both upper lobes. Marked infiltration on left side below the clavicle with distinct mottling. On the right side below the clavicle two cavities are shown surrounded by fibrous rings.

Treatment with the Roentgen ray was begun on Sept. 21st, and continued daily until Feb. 11th. Physical examination at this time showed an occasional râle in right chest over region occupied by cavities. All other physical signs were modified from first examination as a result of increased fibrosis.

Sputum showed occasional tubercle bacilli. Blood: Hb 80 per cent.; erethrocytes 5,760,000; leucocytes 7,000, neutrophiles 76 per cent., small lymphocytes 12 per cent., large lymphocytes 9 per cent., large mononuclear 1, transitional 2.

Temperature between Sept. 21 and Nov. 30 fluctuated between 99° plus and 101° plus; after Dec. 1 to Feb. 11, temperature did not go above 99° but five times. Respirations during this period ran from 22 to 25; pulse 80 to 120. Weight increased from 85 to 98 pounds. Cough seldom.

Two months later stereoscopic plates made of the chest showed complete fibrosis of diseased areas. Cough entirely gone; râles absent; sputum negative.

Case VII.—*Tuberculosis of the Kidney and Bladder.*—E. V. L., age 42.

Patient's History: Patient always healthy until 1894, when he suffered from an attack of pleuropneumonia. Sick one month. After the attack had apparently subsided he was examined by Dr. Janeway, who found evidence still of non-resolution. In 1900 he had a second attack of pneumonia which kept him in bed for six weeks. This attack was accompanied by high temperature and delirium, followed by slow convalescence. Following these pneumonic disturbances, patient was apparently well until 1912, when, without warning while urinating, a slight hemorrhage occurred, consisting mostly of two or three small clots. Recurring attacks followed on an average of about one a month for six months. Examinations for the tubercle bacilli were made frequently with negative results. Eight months after the first hemorrhage, Dr. Keyes found positive evidence in the urine of tuberculosis; further examination showed that the left kidney was the focus of infection. An operation for removal of the kidney by Dr. Keyes followed. Three weeks after the wound had healed, it reopened. Patient at this time consulted Dr. Osler at Oxford, who advised the sun cure at a sanitarium in Leysin on Lake Geneva, Switzerland, the treatment consisting of exposure to the sun's rays 5 to 10 hours daily and continued from July 10 to Sept. 22. While he was undergoing this treatment an abscess developed in the scrotum which was opened. An examination of the pus showed tubercle bacilli.

On returning to New York, patient was under the care of Dr. Adrian Lambert; six months later an abscess developed in the prostate which opened into the bladder and continued to discharge for six months. At this time, May, 1917, the patient was referred to the writer by Dr. Lambert. The patient's condition at this time, as later described by Dr. Bugbee, who had examined him cystoscopically and had treated him locally, was virtually as follows: The entire bladder was a solid mass of tubercles with numerous tuberculous ulcers over the entire area and, while it was impossible to determine positively whether the remaining kidney was involved or not, owing to the inability to pass a catheter on account of so much swellng at the ureteral opening, in his opinion the kidney was involved. The urine at this time was filled with tubercle bacilli, also a large amount of pus and mucus from the extensive cystitis.

In answer to inquiry regarding Roentgen examination of the lungs, it was stated that Dr. Cole had made radiographs of the chest in 1913 and had reported that, while infection was evident, there was no activity, the findings being a latent or healed process. Consequently, further diagnostic evidence from this source at this time was not considered necessary.

Treatment began with the *x*-ray in May, daily exposures being made over the entire genito-urinary tract. After four months of treatment an examination of the urine, made by several pathologists, did not show tubercle bacilli.

A report from Dr. Adrian Lambert was received Oct. 6th, regarding the physical as well as the urinary examination made at this time follows: "I examined Mr. L. the other day and had his urine gone over. I found that, locally, there was some change in the prostate, not a great deal, but yet some, it was less tender and not as soft. His urine still contained pus, but no bacilli were found."

A cystoscopic examination at this time by Dr. Bugbee was made to determine objectively the condition of the bladder, the result of which showed that the inflammatory condition had entirely disappeared; the ulcers were healed, and instead of the bladder being one solid mass of tubercles, only three pinhead tubercles were found. Treatment was continued as before; one month later, on Nov. 9, a second pair of stereoscopic plates was made of the chest by Dr. Cole, with the following report: "Plates made of the chest show the normal marking of the lungs distinctly. There is diminished aeration of the right apex. The diaphragm is normal. The arch of the aorta is normal. There is definite evidence of infiltration of the extreme right apex. Comparing these plates with the previous ones (1913), I believe that the findings are identical in both degree and character with the findings of the plates in the previous examinations, although I believe that the infiltration of the right apex was not reported in the previous report, although the involvement was present at that time."

The following letter from Dr. Lambert, received Jan. 17, 1918, is interesting and confirmatory of previous examinations: "The guinea pig which was inoculated with the urine of E. V. L. on Nov. 28 was killed six weeks later and no signs of tuberculosis were found anywhere in its body. There were a few white nodules in the spleen, but, on being sectioned, these proved to be chronic inflammation of a non-tuberculous type. The lymph nodes were somewhat enlarged but there were no tubercle bacilli to be found."

In reviewing the history and *x*-ray findings as well as the results of treatment in this case, the following deductions I believe to be justifiable. The report on the stereoscopic plates made in 1913 distinctly showed infection and infiltration, although clinically no evidence of activity was present. In addition there was no evidence of lowered resistance to account for a renewal of the infectious process. In fact, the patient was physically and mentally in sound health, living a perfectly normal life, surrounded by all the comforts that money could give. At the same time a relighting of the early infection became manifest through metastasis.

I believe we have here a good illustration of the danger to an individual, with a healed tuberculous infection, even when he is surrounded by everything in life that could possibly give security against future trouble. *If such a patient is not free from grave possibilities, what can be said of those who are less fortunate?*

In the stereoscopic plates of the lungs many calcified tubercles were shown; consequently, I believe that the original foci of infection were here; and my contention, already stated in the foregoing pages, is that in a remedial agent disposing of these calcified tubercles lies our only security in preventing future activity.

The results of treatment in the foregoing cases show conclusively that we are to-day in possession of a powerful agent which is capable of overcoming tuberculosis in its most active, as well as in its latent and quiescent stages; and at the same time we are able to demonstrate its mode of application so that the medical profession at large can utilize this power in all manifestations of the disease.

Speculation as to the manner in which the *x*-ray exerts its power for good in tubercular troubles as well as in malignant neoplasms has been an interesting one ever since its introduction into the therapeutic field.

It is a well-established fact that the tubercle bacilli exposed to the sun's rays can live but a few hours, while cold, even to the point of freezing, does not inhibit their inherent power for evil. This fact in itself suggests that in *light* we are dealing with a power which is potent in showing at least the first step in the process of cure.

The fact that the *x*-ray is a thousand times more powerful than the sun's rays, and that this power is capable of penetrating the hidden recesses of the body, would suggest that in its use in tuberculosis each patient is constantly setting free within his body bacillary substances producing an autogenous vaccine which is sufficient to inhibit the motility and multiplication of the tubercle bacilli.

In this connection the statement of Pottenger in discussing the value of artificial tuberculin in the treatment of tuberculosis is suggestive; he states: "Could we make our tuberculins from tubercle bacilli

grown upon the tissues of the individual to be treated, and could we make a preparation which would contain all of the various bacillary products in proper proportions, I do not doubt that we could attain a highly immunizing product, but, inasmuch as this has so far proved unattainable, we must realize that our artificial products lack some of the properties which are greatly desired in them." The reasoning set forth so forcibly by Pottenger shows why an autogenous vaccine has therapeutic value in every case, while the artificial product lacks something in its manufacture which would make it a specific in all cases.

We have abundant evidence of the value of the artificial tuberculin in the cure of some cases of tuberculosis; and the question naturally arises, *Why* does it not have the same effect in all cases? Does it not suggest that the bacillary products of one individual differ from the bacillary products of another individual to the extent that a vaccine from the one cannot represent the symptom complex of all cases in its therapeutic value?

Again, does it not show why a drug is capable of curing diseased conditions in individual cases where the syndrome of symptoms closely resembles the toxic effects of the drug used, and why it fails when that similarity does not exist between the symptoms of the individual and the symptoms produced by the drug in toxic doses?

Tuberculin being a poison and capable of producing toxic effects in the human economy, varying in their toxic symptoms according to the source from which they are obtained, the individual *something* cannot be the same in all cases. Consequently, its curative value must depend on the similarity of symptoms of the patient to the symptoms produced by the tuberculin used. With the autogenous vaccine there can be no variation in the therapeutic effects, as it represents the product of each individual and must cover the totality of symptoms produced by its own poison. If this be true of an autogenous vaccine, does it not suggest that a law of nature is playing an important rôle in the choice of a remedy for all diseased conditions?

Another factor in the use of tuberculin which has caused much discussion has been the question of dosage. In the history of medicine we have abundant evidence as to the effects of massive doses in the treatment of disease. The principle involved in regard to dosage has been, it would seem, to give as much of the drug as the body could tolerate in the process of cure, instead of determining how little was necessary to cure. While this principle has been modified in recent years, we are still cognizant of its evil influence, and especially so is this true in the dose of tuberculin in the treatment of tuberculosis.

With the introduction of the *x*-ray as a therapeutic agent the same principle of dosage has been observed by those enthusiastic students in the *x*-ray realm, to the extent that massive doses have been given, producing in many cases a toxemia with such a rapid breaking down of tissue that the patient has succumbed under its toxic influence.

My investigation in the use of the *x*-ray in tuberculosis has been not to determine how much the body would tolerate in the process of cure, but *how little was necessary to that end.* At the same time to determine the dosage which would be sufficient in all tuberculous conditions, whether in adenitis, in latent infection in the lungs, or in an active degenerative process with intense toxemia.

The greatest problem in this experiment was the question of dosage in the active process; a relatively large dose would materially increase the toxemia present in active processes, through the breaking down of large quantities of bacillary proteins, reducing the resisting power of the patient so necessary to the cure. Reasoning from the fact that the remedial power did not depend on the death of the bacilli *en masse*, but on the vaccine produced by the *x*-ray, I decided to begin with the smallest dose that might be considered capable of producing an autogenous vaccine of sufficient power in overcoming the enemy, at the same time manufacturing interstitially that vaccine in sufficient quantities and strength to keep up a certain daily bombardment.

In 1915, through the generosity of a patient, $10,000 was given for the establishment of a clinic at Flower Hospital in order that experiments on a larger scale might be carried out in the treatment of tuberculosis. For this purpose a complete outfit, made by the Wappler Co., was installed, consisting of a 7½-kw. high-tension transformer (Bellevue model) with a separate switchboard in a lead-lined cabinet for protection to the operator. A Universal stereoscopic and fluoroscopic table. Treatment tube-stand with Coolidge tube and tube cover. Radiographic stand and plate holder. Wheatstone stereoscope. High-frequency machines for autocondensation.

Up to this time the gas tube had been used for all purposes, and while its use resulted in many cures, the dosage was never uniform, owing to the uncertainty in the vacuum, which was ever changing, and consequently unreliable for general use. By the use of the Coolidge tube, complete control for all requirements in a scientific study became possible, particularly so in regard to dosage, which had been, up to this time, a stumbling block in *x*-ray therapy.

In the experiments which followed, a dose sufficient for any or all tuberculous manifestations has been obtained whether in active or quiescent states, at the same time free from danger to the patient, though extended over long periods with daily applications. The combination used for dosage follows: Spark gap 8½ inches. Current 4½ milliamperes passing through the tube. Skin-focus distance, eight inches. Filtration, four millimeters of aluminum. Time of exposure, two minutes. Treatments have been given through the clothing, which acts as a slight additional filter.

Where both lungs are involved, the area of the chest is divided into four parts for treatment; two anterior and two posterior—exposures being made consecutively over the four parts; raying of one part each day, beginning on the right anterior; next day, on the left anterior; third day, right posterior; fourth day, left posterior, repeating in same order. Where one lung is involved, four divisions still being made; upper and lower anterior and upper and lower posterior.

In case of the entire involvement of both lungs, the surface of the chest is divided into eight parts. Exposure being made over any one part once in eight days, while in the four divisions an exposure is made over each part once in four days. The importance of these divisions of the chest-surface is

to cover frequently all parts of the lungs involved, thereby keeping up a continuous inhibitory action.

With this technique I have never produced a dermatitis, even when treatment has been extended over a period of one year, although in sensitive skins a brown discoloration has been observed.

Considerations in addition to the use of the *x*-ray in the care and treatment of these cases may be mentioned. Electricity, air, rest and food.

The influence of high-frequency I consider very important. It is well known that in anemia, which invariably accompanies tuberculous dyscrasia, lies one of the greatest obstacles to its cure, and the influence of high-frequency autocondensation in anemia is as near a specific as we can hope for. Its value in increasing metabolism is also well known, and this combined with red blood so increases the resistance of the body that electricity becomes a valuable aid in the cure, second only to the *x*-ray itself.

Air. The influence of a dry climate and fresh air in high altitudes has so long been considered of such great value in the treatment of tuberculosis that to argue counter to this opinion might be considered by some almost a sacrilige; but my experience in the treatment of tuberculosis has been without this aid.

Of course, no one could object to pure air at any time in any condition; but as a valuable aid, outside that which is possible in every home, it does not materially influence the cure. I have not treated any cases where any change in the usual mode of living has been made. I consider the home comforts of a patient suffering from tuberculosis, no matter how humble that home may be, surrounded by family and friends, of more value than any benefit from a better atmosphere, minus the comfort of home and friends.

Still another consideration in the treatment of these cases at home, and which is, in my estimation, far reaching in its possibilities, not only to the home but to the State as well, is the fact that, among the poor, often the bread-winner of the family is the victim, and unless the patient be suffering from active disease with fever, tachycardia, and prostration, the treatment may be given without his giving up any responsibility on which his family is dependent.

And if patients can be cured in a climate in which they have contracted the disease, there is no reason why they should not remain cured. Patients who have apparently been benefited by living in mountain air are often compelled to remain there for the rest of their lives.

The value of rest during the course of treatment is unquestioned. No one suffering from an intense toxemia, whether typhoid, pneumonic, or tuberculous, can be better off out of bed than in bed, yet, in the cases I have reported several were suffering from a high temperature and rapid pulse. While this does not prove an advantage to the patient, it would rather seem to argue that the treatment was sufficient to overcome the ill effects of such care in many cases. I am sure that if in the cases reported those who were treated under such adverse circumstances could have had the advantage of hospital care, much more might have been accomplished in less time.

The question of food has not been considered of any great importance, other than the best the paitent can afford. Some years ago I was much impressed by the value of concentrated food in large quantities; but I am quite sure now that little has been accomplished by forced feeding. I have seen just as good results among the poor clinic patients as among those who have had every advantage that money could give.

Some Conclusions.—1. Control of tuberculosis is possible in one generation.

2. The Roentgen ray is curative in all stages of the disease.

3. One hundred per cent. of incipient cases are curable with a few months' treatment.

4. A large percentage of third stage cases with cavitation is curable.

5. Quarantine, education of the public against exposure to infection, or State control, cannot materially lessen its dangers.

6. Prophylaxis can be secured by early *x*-ray treatment in the child.

7. All children showing infection, whether in the tonsils, adenoids, cervical, bronchial, mesenteric, or any part of the lymphatic system, as well as in all other tissues, should be placed immediately under the influence of the *x*-ray, thereby arresting the incipient condition and producing immunity for the future.

8. Patients can be treated at home, while living among family and friends.

9. Hospital care is necessary only in cases of great activity and intense toxemia.

10. Ambulant cases can continue in their work while undergoing treatment.

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CANCER OF THE THYROID GLAND.*

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It is, I believe, the common opinion of clinicians and surgeons that cancer of the thyroid, at least if it has progressed to a stage in which the clinical diagnosis is certain, is incurable. When early malignancy is discovered during the course of operation this pessimistic attitude is not mitigated even by a radical extirpation of the entire gland. Whether such an attitude is justified by the results obtained in the routine employment of the most advanced clinical, pathologic, and surgical methods, is open to some doubt; it is my purpose in this investigation to determine the facts.

The frequency of cancer of the thyroid, as compared with benign enlargement of the thyroid, can only be estimated, since an unknown and probably a relatively small percentage of the so-called "simple" goiter group of patients seek medical or surgical advice. Of 6,359 cases of goiter, exclusive of the exophthalmic group, seen in the Mayo Clinic during the six years from January, 1910, to January, 1916,† we have classified 103 cases as cancer, a percentage of 1.6. The cancer incidence, based on all patients with goiters (14,456) coming to the clinic from January 1, 1910, to August 1, 1918, is 1.19 per cent. The age incidence in the 103 cases is:

*Presented for publication August 21, 1918.

†This period was chosen in order to give a fair indication of results of operation, and to furnish a basis for prognostication as to ultimate results.

8 cases (7.9 per cent.) between 20 and 30
10 cases (9.6 per cent.) between 30 and 40
30 cases (29.1 per cent.) between 40 and 50
30 cases (29 1 per cent.) between 50 and 60
25 cases (23.3 per cent.) more than 60

Eighty-one and five-tenths per cent. of the 103 patients were more than 40 years. Sixty-eight (65 per cent.) of the patients were females, 35 (35 per cent.) were males.

In reviewing this series from the standpoint of etiology the most impressive fact is that in almost every cancer of the thyroid we have seen in the clinic there has been a history of a long pre-existing goiter. In the very few instances in which we have been unable to obtain such a history, it is quite probable that small adenomas existed within the gland, the presence of which were not known to the patient. In our own experience we have not met with a single instance of cancer of the thyroid which gave unmistakable evidence of having developed within a normal gland. This fact parallels the low primary cancer incidence in other ductless glands—the thymus, pituitary, adrenal, the spleen, etc. The significance of this point, that is, the marked difference in tendency toward malignant degeneration possessed by the normal thyroid and the thyroid in which benign tumors (cysts and adenomas) have developed is, that such tumors can be justly considered as points of chronic irritation in an otherwise normal organ.

Langhans stated that cancer of the thyroid originates from unutilized embryonic tissue, and that such tissue remains quiescent until the necessary factor of irritation is introduced, which may be and usually is adenomatous. A further factor of interest in the agency of irritation is that of external trauma. Although patients with small goiters frequently erroneously attribute various sensations in the neck to a direct blow, we have not seen any evidence that malignant change has been occasioned by injury to the gland. However, there have been observed in the clinic seven cases in which malignancy occurred in an enlarged thyroid that had previously been "treated" by injections of various irritants and by the application of "absorbents." Such cases are even more convincing examples of the fact that chronic irritation is the chief factor in inducing malignant changes and should be the final argument against useless and dangerous methods of treatment. As pointed out by Plummer, the disease has never, in our experience, developed in a distinctively and purely hyperplastic gland.

The clinical diagnosis of cancer of the thyroid is relatively simple when the process is advanced, but it is impossible when the malignancy is in the early stage. The diagnosis of malignancy, before it can be recognized as such by palpation, can only be based on the rate of growth. Malignancy must always be considered when a history is obtained of rapid growth of a goiter that has been more or less stationary in size. In well-developed cases the board-like resistance and the fixity of the gland are sufficient to justify a diagnosis of malignancy, if the history and Wassermann test have excluded the rarer conditions of hemorrhage, acute thyroiditis, and syphilis. Moreover, when the disease has become recognizable by palpation, symptoms and signs of pressure, either tracheal or esophageal, are usually present. Rarely hoarseness and dysphagia may be early in evidence, and, in the absence of other symptoms, may be suggestive.

The relative frequency of thyroid malignancy in which there is an absence of signs or subjective symptoms, is well shown in this series of cases. In only 18 per cent. could a positive clinical diagnosis of cancer be made. In 36 per cent. malignancy was considered as a possibility in the preoperative diagnosis, while in 46 per cent. the condition was not even suspected until it was discovered during the course of operation or later by pathologic examination. It should be stated that the latter figure (46 per cent.), although it represents the number of cases of cancer of the thyroid in which no note was made of such a possibility, could be lowered if in the large group of hard, firm adenomas which we see in the clinic, the possibility of malignancy should be regularly noted. In doing this, however, the total percentage of accuracy in diagnosis would be considerably lowered, because of the small percentage of such adenomas that are malignant, and as surgical treatment is clearly advisable in the entire group, the discussion as to the question of malignant change is not only merely of academic interest but dangerous in its tendency to delay.

It is, of course, true that not infrequently malignancy has been clinically suspected, although no evidence of it was found at operation. This is chiefly explained (1) by the fact that certain changes simulating malignant degeneration occasionally take place in an enlarged thyroid (the most confusing cases are low-lying adenomas in which there has been a considerable deposition of lime salts), and (2) because the clinician, being aware that this large percentage (46) of malignant cases found at operation shows insufficient evidence to support even a provisional diagnosis of malignancy, accepts the chance of an error in the hope of exhibiting diagnostic acumen.

These figures are most eloquent testimony of the difficulty of diagnosis of early carcinoma of the thyroid; in no other region of the body is beginning malignancy so well concealed. The explanation of this fact is found in the close analogy between benign nodules and malignant masses, as in both there is a marked tendency for the masses to remain covered by healthy thyroid tissue and not to reach the thyroid capsule until each has attained considerable size. This similarity should be stressed for it means that the signs of malignancy are not noticeable until the process has been in existence for some time, and for this reason a strong argument is added for early operative interference in cases of nodular goiter. It means, too, that only by such interference will the cancer incidence in the thyroid be lowered. Just as in other conditions that are either definitely precancerous or provocative of cancer, such as chronic gastric ulcer, gallstones, and cervical erosions, it is criminal to agree to delay operation in the belief that malignant changes can be recognized in time, so in cases of nodular goiters, waiting for evidences of malignancy is even more inexcusable and is fatal to the best interests of the patient.

The difficulties of diagnosis, moreover, are not wholly concerned with the clinical manifestations of the disease. Carcinoma of the thyroid gland may be of such a broken down character, particularly when the malignancy has developed within a cyst, that it is occasionally difficult, either at operation or by pathologic examination, to differentiate benign and malignant necrosis.*

An atypical microscopic picture is responsible for the fact that in several instances a surgical diagnosis of malignant goiter has been made at operation without a confirmation by the pathologist. It is of importance to note that in some of these cases, although the surgical opinion remained unsupported after repeated pathologic examinations, the later developments proved that the surgical diagnosis was correct. It is advisable, therefore, in such cases, to recognize the relative value of the surgical record, and of the pathologic report. A discrepancy between the surgical record and the pathologic report is most likely to occur in those cases in which the malignancy is of very low grade activity, and in which the pathologic picture is that of simple goiter.

Diagnostic difficulties at operation are also found in those cases in which muscles and thyroid capsule are adherent, due to the inflammatory changes that have followed injections, or other local treatment. The diagnosis, however, in this group can usually be made at the operating table from the fact that if the condition is benign the indications of malignancy become less with further exposure of the gland, while in cancer the reverse is true.

Errors in diagnosis have also occurred because of the fact that a malignant process may develop in close relationship to but quite independent of an enlarged thyroid. The following case will illustrate: The patient, Mrs. J. O. A. (Case 82318), had an adenoma the size of a large grape fruit in the right lobe. Following the enucleation of this adenoma, I found a mass the size of a small lemon crowded up in the right submaxillary triangle. It was hard and adherent to the surrounding structures and at first was thought to be a malignant superior pole of the right lobe. Further investigation, however, proved it to be a carotid body tumor, which necessitated an extensive dissection for its removal.

Rarely have the clinician, the surgeon, and the pathologist all erred in pronouncing a given case to be malignancy of the thyroid when the future course of the condition proved the error in the diagnosis. This occurred, however, in one case in the present series. The patient exhibited a hard infiltration of the entire gland with a history of rapid enlargement and marked tracheal pressure. A clinical diagnosis of probable carcinoma was made and at operation the condition was thought to be malignant and the tumor irremovable. A section for microscopic examination was pronounced carcinoma. The patient seven years later is in good health with no marked enlargement of the gland. In all probability this was a case of thyroiditis of the "woody" type described by Riedel.* The thyroid gland being unique in its power to develop hyperplasia of its cellular elements, in certain types of infections, occasionally simulates very closely a malignant degeneration.

In considering the indications for operation and the surgical problems to be met in the operative treatment of malignant thyroid tumors, it may first be stated that when the clinical diagnosis is positive, surgical interference should be advocated only under exceptional circumstances. In our own experience, at least, infiltrating, diffuse, advanced cancer of the thyroid, when the capsule has been perforated and muscles and glands involved, has never been cured even by the most radical methods, and such methods are attended by a prohibitive risk. Under such conditions, therefore, the only purpose of surgery would be the relief by tracheotomy of tracheal pressure with actual or impending suffocation, and even this procedure may be one of considerable technical difficulty, great risk, and dubious results. As a rule, therefore, it is much better to advise the use of radium, roentgen ray exposures, and whatever other palliative measures there are available.

Even when the malignant process is less extensive and the anterior and lateral relationships of the gland make it appear possible and reasonably safe to remove the entire gland, it is important to remember that there is a liability to encroachment of the disease on the trachea, the esophagus, or both. This complication may vary between actual invasion of these structures and firm attachment to them without involvement. In the first complication the possibility of obtaining a cure is rendered very unlikely, although we have had one case in which the lateral wall of both the trachea and the esophagus was excised with the thyroid; the patient is alive and well seven years afterwards. In the second complication, the malignant mass may be crowded between the trachea and the esophagus, so that in the traction necessary to expose this portion of the tumor the esophagus may be dragged out of its bed and injured before being recognized. An esophageal fistula is, therefore, one of the possible secondary complications, and has occurred after the removal of a malignant thyroid.

The more frequent and more urgent surgical problem concerns the trachea. When there is marked tracheal obstruction prior to operation in a malignant thyroid, the tracheal rings, even if not invaded by the disease, are oftentimes so softened that tracheal collapse may occur at a most inopportune moment and with comparatively little provocation. As C. H. Mayo early pointed out, the trachea in malignant goiter is more apt to flatten itself in an anteroposterior direction than to develop the scabbard trachea which is seen in benign and bilateral enlargements of the gland. Therefore, when there is evidence of tracheal pressure, especially if malignancy is suspected, any measure should be made use of that will minimize the technical difficulties and the risk of operation. Among such measures the most important is local anesthesia.

Since tracheotomy is not an unusual emergency

*Dr. L. B. Wilson, when he left for active service in France in February, was independently preparing a complete study from a pathologic standpoint of the malignant thyroid tumors.

*Riedel: Quoted by Crotti, A., "Thyroid and Thymus," Philadelphia, Lea & Febiger, 1918, 109.

operation in malignancy of the thyroid, the surgeon, who has acquired the ability, by practice in surgery of nontoxic goiter, of quickly isolating the trachea as the first step after the surface of the gland has been exposed, is in an advantageous position when such an emergency arises. In some cases the necessity for tracheotomy may occur while the patient is being prepared for operation; it may occur at any time during the course of the operation, or, more rarely, during the post-operative period, even though the gland has been entirely removed.

Tracheal obstruction, after total or subtotal thyroidectomy, may be owing to one or all of the following causes and conditions: (1) Injury during operation to the nerve supply of the laryngeal muscles; (2) secondary edema of the tracheal mucous membrane; (3) secondary hematomas, and (4) softened tracheal rings. As a measure of safety, following operation for malignant thyroid, it is wise to have in the patient's room the equipment necessary to perform an immediate aseptic tracheotomy.

In this connection it is of interest that the possibility of secondary tracheal obstruction is not restricted to malignant conditions. I have had one such case occurring in a nontoxic goiter. There had been nothing unusual in the operation except that it was necessary to remove a large amount of thyroid tissue, as the enlargement was due to multiple degenerating adenomas, which had extensively involved both lobes. After enucleating the tissue from all the diseased areas of the two lobes by the double resection method, comparatively thin shells of thyroid tissue remained. Further, along with the treatment of the lateral lobes, the removal of a large pyramidal lobe, which had wrapped itself around the upper rings of the trachea, necessitated a rather extensive stripping of the trachea. Nothing occurred during the course of the operation to give warning of the immediate or late complications, but the following day the patient complained of difficulty in breathing, which gradually increased; the breathing became crowing in character, and, thirty hours after the operation it was necessary to do a tracheotomy. It was a surprise to find no visible cause for the obstruction, as the operative field was in perfect condition. The tracheotomy tube was left in place for forty-eight hours, and its removal did not cause any recurrence of the difficulty. The complication in such a case was probably the result of an edema of the mucous membrane brought about by the close dissection of a large surface of the trachea.

Total thyroidectomy must, of course, be followed by the administration of thyroid substance. The recent studies of Plummer, which establish the exact relationship between thyroid activity and metabolism, for the first time have made it possible to determine with absolute accuracy the amount of the active principle of the thyroid necessary to maintain normal metabolism in such cases. Since this is possible, and since Kendall has been able to isolate and synthetically to produce the active principle in thyroxin, any objection to total thyroidectomy in malignancy of the gland on the score of postoperative disturbance in metabolism is practically eliminated.

In those cases in which malignancy has not been suspected, but is discovered at operation within the substance of an adenoma, the question of total extirpation of the gland must be determined at the time. In reviewing the results in such cases it has been interesting to find that total thyroidectomy was rarely performed under such circumstances, and the indications are that radical extirpation is unnecessary.

Before discussing the results of operation in malignant cases, it is well to consider the question of the danger of malignant change taking place after operation for simple goiter. The fact that occasionally patients who have been operated on for a simple goiter have later developed malignancy in the remaining portion of the gland, raises two questions, first, whether malignancy has been overlooked, and second, whether real cancer-prophylactic value is secured in operating in simple goiter.

The first possibility of overlooking a malignant process in the portion of gland remaining cannot be denied. This apparently occurred in one patient in the series, from whom a lobe had been removed, and who returned to the clinic in about six months with malignancy well developed in the opposite lobe. We believe, however, that with the present methods of conducting operations in simple goiter the risk of such malignant development is a negligible factor. In 90 per cent. of operations at the clinic for simple goiter, a double resection which insures a thorough exploration of both lobes for adenomatous masses, both small and large, is done. With such a principle carried out as a routine procedure, the danger of leaving adenomas that might attain further growth, either benign or malignant, is reduced to a minimum. Inasmuch as cancer in the thyroid almost invariably develops from within outward, as pointed out by Kocher, this exploration of the interior of the gland is of the greatest importance in making possible the early detection and removal of cancerous or precancerous adenomas.

The further question as to the assurance which can be given a patient in regard to the danger of malignant change taking place in the thyroid after the operation can be answered by saying that, although such assurance cannot be absolute, it can be practically so. An incontrovertible argument for operation in cases of adenomatous goiter is the fact that cancer is practically not known to have developed in a healthy thyroid gland. Pre-existing disease has always been in evidence, so that adenomatous goiter may be looked on, to a certain extent, as a precancerous condition. It is to be hoped, therefore, that adenomatous goiters in the future, will not be permitted to develop malignant changes, but that surgical assistance will be sought opportunely and, with the correction of the deformity, the catastrophe of malignancy be obviated.

In considering the results, the investigation of which was my primary object in writing this paper, it was found that of the 103 cases of cancer of the thyroid seen in our clinic, 63 patients have come to operation. The remainder, constituting 38 per cent. of the number in which there was a positive preoperative diagnosis of cancer, have been put on x-ray or radium treatment.

Definite information* regarding 42 of the 63 patients was secured. Four of the patients operated on died while under our observation. Twenty of those who survived the operation are now dead, all apparently of the disease. They lived from a few weeks to four and one-half years. Of the remaining 22 patients the information is positive in five instances of extensive recurrence, and a probable early death. In 17, however, there is freedom from any evidence of recurrence, and the patients are in good health. In three of these the operation had been done less than one year, in three between one and two years, in four between two and three years, in one between three and four years, in five between four and five years, and in one more than five years. To recapitulate, 6+ per cent. is the operative mortality; 47.6 per cent. died soon from recurrence; 11 per cent. have recurrence; total 65.6 per cent. deaths or probable early death from the disease.

Thirty-five per cent. show no evidence of recurrence in from one to five years, but this percentage cannot be taken as representing the actual utilmate results because of the short time which has elapsed since some of the patients have been operated on and of the fact that in cancer of the thyroid unusually late recurrences are not rare. Only 14.6 per cent. of patients with diffuse carcinoma are alive without recurrence. Of the cases of carcinoma within an adenoma, without gross or microscopic evidence of malignancy in the gland-tissue outside the wall of the adenoma, 69 per cent. of the patients are alive without recurrence. A study of these results in the series of cases and of the individual cases gives us valuable information as to what can be accomplished in the surgical treatment of cancer of the thyroid:

1. The most important lesson is presented in the fact that in 46 per cent. of the cases of cancer of the thyroid, no clinical manifestations of the disease were in evidence. This group shows by far the highest percentage (about 70) of patients free from recurrence at the present time. In other words, the great majority of apparent cures have occurred in those cases in which the malignant change was an unexpected finding. Total thyroidectomy was rarely performed in this group. In most instances the lobe containing the tumor and the malignant process was removed, but in many the enucleation of an adenoma was the procedure.

2. In any nodular goiter suddenly exhibiting an increased rapidity of growth, immediate surgical treatment should be urged.

3. When clinical evidences of cancer are present the results of surgical treatment are discouraging. Total extirpation of the gland appears to be indicated only when both lobes are grossly involved in the disease, and when past experience warrants surgical interference in the particular case.

4. Recognizable involvement of cervical glands usually means that the time for surgical cure is past. Occasionally, however, just as the unexpected occurs in the treatment of extensive cancer elsewhere, an apparent cure is obtained. In 1913 I removed from a patient (Case 81854) the right lobe of the thyroid containing a malignant adenoma. A mass of glands in the submaxillary region was also proved to be carcinomatous. A week later a block dissection was done. The patient is now alive and well, with no evidence whatever of recurrence. Such cases are, however, notable exceptions to the rule.

5. Gross involvement of trachea or esophagus is almost a certain sign against curability, and yet one may be tempted into an extensive and dangerous operation to remove the diseased tissue because of the knowledge of an unexpected result in the past. A patient (Case 73753) was operated on (by E. S. Judd in 1912) for a malignancy of the left lobe which was found to involve the lateral walls of both trachea and esophagus. The involved areas were both excised, with primary closure, and although bougies were required later to maintain the caliber of the esophagus, the patient is now, six years after operation, in perfect health and has no local disability.

6. The last and most important lesson learned from the standpoint of prophylaxis is the fact that in this series the average number of years of abnormal growth in the thyroid preceding the operation was 11.6. This is proof positive of the advisability of the early removal of well-developed thyroid nodules, and it is a regrettable fact that not infrequently we meet with cases of hopeless thyroid cancers in which a tumor has been present for many years, but the patient had been able to secure the advice of "leave it alone, it will never bother you."

Finally, the treatment of cancer of the thyroid should be that of the treatment of precancerous lesions elsewhere; that is, prompt surgical treatment of the precancerous condition in the thyroid —the adenoma.

*These data were secured during 1917-1918.

SHALL WOMEN STUDY MEDICINE.*

By ANNIE S. DANIEL, M.D.,

NEW YORK.

In an address by Doctor Elizabeth Blackwell on "The Medical Education of Women," delivered Dec. 27, 1855, she said, "I want it clearly borne in mind that the medical practice of women is no new thing, but a necessity of society which must always be supplied."

In an address by Dr. Mary Putnam Jacobi in 1878, quoted by Dr. Cushier in an unpublished history of the College, she called attention to the fact that the study of medicine by Dr. Elizabeth Blackwell had long been preceded by the practice of medicine by women, and it was not until educated women *asked* to study medicine that oppositions arose. The goddesses of Egypt and Greece practised medicine. In the 11th century B. C. there existed in Egypt a College of Physicians who seem to have been of the sacerdotal class and were certainly of both sexes.

Women studied medicine in the school of Hyppocrates 420 B. C. But the Greeks thought to add dignity to the practice of medicine by forbidding the study to slaves and women. Then 300 B. C. a young woman of Athens disguised herself as a

*Read before the Woman's Medical Association of New York City, October 16, 1918.

man, and studied and later practised as a man. (It will be remembered that Doctor Elizabeth Blackwell was urged to study medicine in the same way.) But trouble came when this disguised woman was found treating women patients. She was obliged to disclose her sex and then was prosecuted for violating the law prohibiting slaves and women from the study of medicine. But the wives of the most influential Athenians arose in her defense —and this woman of Athens by her skill brought about the legal opening of the study of medicine to all free born women of the State. Dr. Blackwell by her genius in overcoming obstacles brought about the same results two thousand years later. Apparently women have always practised medicine, but it seems that there have been periods in which they have been admitted to the medical schools and then others in which they were refused admission.

It is claimed for the schools of Italy that they have never been closed to women. The same claim has been made for France, but in 1866 a woman applied to the Faculty of Montpelier and was refused; later she applied in Paris and was allowed to study on condition that she would practise in Algeria. In 1871 Doctor Mary Putnam Jacobi graduated from the Paris School. Always both men and women have practised medicine and at the same time have been teachers of religion. Even to this day medicine has never been entirely separated from religion. The first medical work published in America in 1677, entitled a "Brief Guide in the Treatment of Smallpox and Measles," was written by a clergyman. In March, 1638, under the heading "A Female Practitioner Restrained," we read that Jane Hawkins, the wife of Richard Hawkins, had liberty until the third month called May, when the magistrates threatened to dispose of her if she did not depart before, and in the meantime she was not to meddle in surgery or physick, drinks, plasters, or oils, nor to question matters of religion except with the Elders for satisfaction. Just what Jane had done to bring upon her this punishment I cannot find out—probably after the manner of her sex she had asked some questions which no man could answer. Jane Hawkins lived in Massachusetts, where the men have always had trouble in restraining the desires of their women for knowledge. Until shortly before the Revolution there was no distinction between the educated and uneducated physicians. The first medical school in America was founded in Philadelphia in 1765. The first medical law in this State in 1760 was made to regulate the practice of Physic and Surgery in the City of New York. No provision was made for the study of medicine, no one could practise medicine unless approved by one of His Majesty's Judges of the Supreme Court, the Attorney General, and the Mayor; they could if they saw fit call other persons to their help, and a certificate could be given the candidate.

In 1650 an ancestress of our Doctor MacNutt was called to practise medicine on the Island of Nantucket. She was especially skilled in the treatment of fevers.

The first autopsy was made in New York in 1750. Then the Revolution came. Doctor Putnam Jacobi said, speaking of the men at this time, their public services in the military hospitals, though apparently not very useful to the sick, yet served to bring the profession for the first time out of obscurity. Probably the women also wished to be brought out of obscurity and had asked for rights which had called forth these remarks from a Boston physician —"It was one of the first and happiest fruits of improved medical education that females were excluded from practice, and this has only been effected by the united and persevering efforts of some of the most distinguished individuals in the profession." They were excluded not only from the practice of general medicine but from that of obstetrics. Then followed violent discussions opposing man midwifery, and curiously the same objections were made against men practising obstetrics as were later brought forward against the admission of women in medicine.

In 1792 the first law in this State was made concerning the study of medicine before coming before the Judge of the Supreme Court. The applicant must have studied with a physician two years if the preceptor had studied in Europe, or three years if his education had been in America. This law directed the judges to call to their assistance physicians. The men had taken a step forward, quiet reigned, and women practised medicine. But the women generally were restless; they wanted to study about everything, and opposition arose. Boys had studied in schools and colleges since 1636; girls in schools since 1771. Two hundred years elapsed between the founding of the first college for boys and the first college for girls. Then in 1845, after teaching school, Elizabeth Blackwell felt that she needed an "absorbing occupation." She states that she was rather repelled by the thought of the practice of medicine. She had been told that there was no way for a woman to study medicine, but again she writes, "This idea of winning a doctor's degree gradually assumed the aspect of a great moral struggle and the moral fight possessed immense attractions for me." The story of this fight is familiar, and the final victory—January 23, 1849, when she received her doctor's degree. In her writings, Doctor Blackwell lays great stress on the necessity of the practical study of medicine in hospitals. Her first vacation at college she decided to study at Blockly Hospital in Philadelphia. She was told that the institution was dominated by party feeling—one of the directors told her that he was a Whig and should he bring forward the application it would be much opposed by the other two parties, the Democrats and the native Americans—so she did what she calls "lobbying." The result was the vote was unanimous for her admission; the first time that it had ever been unanimous. She spent a very profitable summer of study.

Harriet Hunt, who had been practising medicine at Boston for several years *without opposition*, applied to Harvard Medical School for admission to study medicine in the fall of 1847. She was promptly refused. In 1850 she again applied. The medical faculty took it up and voted five for and two against admitting her. A week later, the President and Fellows voted no objections to admitting female students, but expressed no opinion as to the claims of such student to a medical degree. At the beginning of the Session, two colored men and then a third "black" had appeared

among the students, then the announcement of the woman. The indignation of the student body was great. They met and passed resolutions against "the amalgamation of sexes and races." They threatened to go to Yale in a body. No record is made of the fate of the "blacks," but the woman was advised by the faculty to withdraw, which she did. Dr. Putnam Jacobi writes, "The storm subsided, and the majesty of Harvard, already endangered by the presence of the negro, was saved from the further peril of the woman." So, unable to study medicine, Miss Hunt went back and practised medicine for more than twenty-five years.

In strong contrast to this attitude of the Harvard students was the behavior of the farmers' sons at the Geneva College. On Oct. 20, 1847, when they met, they passed resolutions that "one of the radical principles of a republican government is the universal education of both sexes, and that in every branch of scientific education the door should be open to all," and they pledged themselves that no conduct of theirs would ever make Elizabeth Blackwell regret that she had become a member of their class—and they kept their promise. Other women were asking to study medicine, and, being refused, they were told to get their own school. So the Boston Female Medical School was opened Nov. 1, 1848, with twelve students and two professors. It had rather a stormy existence, and in 1874 became merged into the Boston University. Then followed the Women's Medical College of Pennsylvania—which seems to have originated with Doctor Fussell, a poor schoolmaster, who had been educated by an elder sister, and he thought that such as she ought to have a chance of studying medicine if they desired. Women applied at the University of Michigan. The Medical Department had been opened in 1851; in 1870 a committee was appointed to study the question of coeducation. Mighty reasons for and against were brought forward, and this committee suggested separate schools with a female medical college at either Ann Arbor or Detroit. Women were admitted in 1871. In New York, Dr. Blackwell, after trying to open the colleges by collecting money and offering to pay for students in existing colleges, was told to get her own colleges.

The two prominent features of our college, the Woman's Medical College of the N. Y. Infirmary, was first, the establishment of the first Chair of Hygiene in this country. Men had long been talking of the necessity of studying the prevention of disease, and in an address before the State Medical Society and the members of the legislature in 1849 called "The Plea of Humanity in Behalf of Medical Education," Dr. Alex. Stevens spoke of the little knowledge among medical men in regard to hygiene, and suggested that it be taught in the medical schools. This lack of knowledge was deplored, but nothing was done until the Blackwells made the study obligatory. The second distinguishing feature of this woman's college was its board of examiners. Various laws had been made by the State (the first State law was 1797) to regulate the study and practice of medicine. In 1806 the law to incorporate medical societies for the purpose of regulating the practice of medicine had been made, and various penalties had been more or less enforced until 1843, when the laws relating to penalty for practising without a license were repealed. Much discussion had also arisen as to the wisdom of allowing the college to grant with its diploma the right to practise medicine. The result of this was the springing up of colleges granting diplomas with little or no education. The women of Doctor Blackwell's college were required to pass their own faculty and then the Board of Examiners before the diplomas were granted, and this the college continued to do until the State Board of Examiners was establishd by law. From the first also residence in the infirmary and attendances upon a certain number of obstetrical cases were obligatory. In an address before the Medical Society of the State of New York in 1837, suggestion was made that every one before he aspired to the degree of M.D. should have had practical experience in some hospital for at least six months, and it was urged that in New York this arrangement be made at once. It remained for the Blackwells to carry this arrangement out.

Now the needs of a world war have opened practically all the college doors to women. This has ended one phase of the struggle of women to study medicine. Shortly after the Revolution, medical men formed societies as a means of mutual education and to control first the practice of medicine and later the study of medicine. For admission into these societies women applied, but met with opposition, long and bitter. In 1859 application was made to the Philadelphia County Medical Society, with the result that a resolution was passed declaring that any member who consulted with women should forfeit his membership. The resolution was taken to the State Medical Society, and the only county refusing to endorse it was Montgomery County, which resolved that "females should receive the same treatment as males." The contest continued at every State meeting until 1870, when Montgomery County elected Dr. Anna Lukens to membership. Equally long and bitter was the war waged in Massachusetts, where not to be a member of the County Society meant that the woman was classed among irregular practitioners. For twenty-five years they were refused; then on October 9, 1879, an editorial appeared in the *Boston Medical and Surgical Journal* stating "We regret to be obliged to announce that at a meeting of the Counsilors, October 1, it was voted to admit women to the Massachusetts Medical Society." Soon after that Dr. Emma Call passed a satisfactory examination and was admitted to the society. What was called the "female physicians question" was brought before the American Medical Association in 1871, and all the old familiar excuses for refusing admission to women were repeated. Dr. Johnson of Missouri said, "Let women have their own associations; this body will stultify itself by the admission of women." The question at one time was debated on the ground that once a month women's judgment could not be depended upon—this from a Boston doctor. A California man came to the rescue of the women by saying that "It is a fact that a large majority of male practitioners fluctuate in their judgment—not once a month with the moon, but every day with the movement of the sun," and then stated that one-half of the

medical men were to a greater or lesser extent under the influence of alcohol at some period of the twenty-four hours. These discussions continued until 1876, when Illinois sent as a delegate Doctor Sarah H. Stevenson, who was admitted without debate. The first States to admit women were Kansas and Iowa in 1872, then New York in 1875.

In 1888 there existed a national Woman Physicians' Association, of which Doctor Mary A. Allen was president. Dr. Putnam Jacobi says that the first admittances of women to any medical society was in 1869, when Doctors Elizabeth and Emily Blackwell were admitted to the Medical Library and Journal Association—distinctly a society for education. With the opening to them of the medical societies women secured another opportunity to study medicine.

After coming to New York to begin the practice of medicine, Doctor Elizabeth Blackwell applied at the existing dispensaries for the opportunity of increasing medical knowledge which such institutions afford. She was told to get her own dispensary, which she did in 1853, and immediately made it a teaching center for young women, either undergraduates or those with diplomas. Then wishing to study medicine further, she applied for admission to study in hospitals, only to be told again "Get your own hospital." Then in 1857 was begun the "cautious experiment" of opening a hospital, one of the objects of which was the opportunity for women to study medicine at the bedside of the sick. The study of medicine by women will never be complete until every dispensary and every hospital is open on equal terms to every physician without regard to sex. What have we in New York? The first general hospital to appoint a woman interne was Mount Sinai in 1874, another woman was interne at the same hospital, which is now closed to women. Internes have been received in the Babies' Hospital, Bellevue, and the Lying-In Hospital. This much can the recent graduate find to study medicine. A woman assistant attending physician is at the Woman's Hospital. Dr. Mary Putnam Jacobi was attending physician at St. Mark's Hospital, but when she became too ill to perform the work they refused to appoint another woman. Doctors MacNutt and Peckham Murray have been attending physicians at the Post Graduate. Dr. Putnam Jacobi was the first Professor of Pediatrics at the Post Graduate Hospital Medical School. Women occupy certain specialties as anestheticists and radiographers, but the hospitals are not yet fully open to women. A woman may, as stated, enter and do good work—and then the door closes upon other women. They are not open any more than the Geneva College was open to women when it admitted Elizabeth Blackwell. The only hospital in this city which was really open to women is closed. That women may study medicine it is absolutely imperative that the infirmary doors be reopened wide that any woman may take her patient there and treat and study disease. Last spring Doctor Lambert, in his address, said that women entering Columbia would need the infirmary, and we were told to get our own hospital. Upon the medical women of New York depends the answer to my question—Shall women study medicine?

26 Gramercy Park.

THE ETIOLOGY OF FIFTY CASES OF DRUG ADDICTIONS.

By CARL SCHEFFEL, Ph.B., M.D.,
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The following is a study of the etiological factors involved in the causation of the drug habit in a series of fifty patients voluntarily presenting themselves for treatment for the purpose of being freed from the clutches of the drug to which they became addicted.

The offending drugs include bromides, chloral, cocaine, heroine, opium, and morphine; the latter named being the habit-forming drug in forty-one of the fifty addictions. The statements as to the causes of their addictions were obtained as a part of the patient's medical history, and were verified whenever possible by the physician referring them for treatment.

Etiology.	Drug.	Number.
Asthma	Morphine	2
Biliary Calculi	Morphine	3
Chronic Gastritis	Morphine	1
Chronic Dysentery	Morphine	1
Chronic Dysentery	Opium	1
Chronic Headaches	Morphine	4
Chronic Headaches	Heroine	1
Chronic Headaches	Bromides and Chloral	1
Chronic Vomiting	Morphine	1
Chronic Appendicitis	Morphine	1
Chronic Rheumatism	Morphine	1
Duodenal Ulcer	Morphine	1
Dysmenorrhea	Morphine	3
Insomnia	Morphine	5
Insomnia	Chloral	1
Luetic Stomach	Morphine	1
Brachial Neuritis	Morphine	1
Neuroses of Stomach	Morphine	1
Overwork	Bromides	1
Post Operative Adhesions	Morphine	3
Renal Calculi	Morphine	1
Sciatica (Chronic)	Morphine	1
Social	Morphine	3
Social	Cocaine	1
Treatment for Alcoholism	Morphine	5
Treatment for Alcoholism	Chloral	1
Tri-facial Neuralgia	Morphine	1
Tri-facial Neuralgia	Heroine	1
Traumatic Neurosis	Morphine	1
Unknown	Opium	1
Number of causes		23
Varieties of drug		6
Number of patients		50

From a careful study of the above table it becomes at once apparent that insomnia and various types of recurrent headache rank foremost in the list of etiological factors. There seems to be, in the light of our modern therapeutic knowledge, no good reason why morphine or any other habit-forming drug should be resorted to in the treatment of insomnia; and yet every one of the six cases cited were given the drug to which they became addicted, by physicians for the relief of insomnia before they finally resorted to its use of their own initiative.

Next to insomnia as an unjust cause for which morphine is very frequently administered is the treatment of alcoholism. To be sure, jabbing morphine into a patient recovering from the effects of "the night before" may be the easiest way for the physician to relieve his patient; but when cognizance is taken of the fact that this procedure is apt to be repeated over and over again, and that it directly caused 8 per cent. of all the drug addicts in the table above, it becomes apparent what a really dangerous method it may become to the patient. Creating a morphinist out of an alcoholic is simply pulling him out of the frying-pan and throwing him into the fire.

Many physicians, and most laymen, have the impression that most drug addicts are a type of social outcasts who became addicted to the use of narcotics of their own accord. Nothing is further from the truth than such or similar impressions. From the table—which presents a good average of the etiology of drug addictions—it will be seen that about 92 per cent. of all addicts were caused either through the inability of the profession to relieve or cure difficult chronic conditions; or by the careless and promiscuous administration by physicians of dangerous habit-forming drugs over long periods of time, and many times in conditions where habit-forming drugs were not absolutely indicated.

Out of the fifty patients only 8 per cent. resorted to the use of habit-forming drugs entirely of their own accord, not due to some form of illness for which they were first given some form of dope. Two of these addicts were males, and two were females; all were below thirty years of age, and all were of a high intellectual type. One of the males drifted into bad company and commenced by smoking opium in the slums, later shifting to morphine for a "stronger sensation." The other male became addicted to the use of cocaine as the result of frequenting a house of prostitution whose inmates all used it. Of the females, one was a prostitute and the other a woman who used to attend regular "dope parties," at which a number of girls and women would regularly meet to "shoot dope and sniff snow." Of these fifty patients, eleven, or 22 per cent., were physicians.

What lessons may we learn from the foregoing figures? In the first place, and it cannot be too strongly emphasized, physicians are making more addicts to habit-forming drugs than the profession would like to admit. Most hypnotics and practically all analgesics that are given internally may be habit-forming under certain conditions. They should be used with extreme caution, and not promiscuously as is now only too often the case.

In insomnia and allied conditions it is not justifiable to give veronal, trional, bromides, chloral, or the opium derivatives over long periods of time, even though so doing may be easiest for the physician and for the time being most pleasing to the patient. Past experience has repeatedly demonstrated that insomnia, nervousness, and allied conditions may be efficiently combated with other therapeutic agents than the dangerous administration of habit-forming drugs.

Where pain is the dominating factor, its cause should, if possible, be removed. As may be seen from the table, conditions producing various degrees of pain are by far the greatest etiological factors in producing drug addictions; and for the same reason morphine is the most frequent drug resorted to. Not always is it possible to subdue pain by ordinary means, and, in many acute painful conditions a hypodermic of morphine is the only appropriate remedy. It is in the chronic conditions associated with more or less continuous or recurrent pain that extreme caution is called for in the administration of habit-forming drugs. It is nothing unusual to see some chronic condition treated with morphine until the habit has been established, which might have been remedied by surgical or other means. Various forms of colic and dysmenorrhea are often the cause of drug addiction, only to be cured after the removal of renal or biliary calculi or proper gynecological treatment. Why not remove the cause first instead of making the sufferers slaves to drugs only to require surgical interference eventually?

It is true, all physicians cannot be expected to be expert diagnosticians; neither are pain-producing conditions always relieved by means other than the use of morphine; but to those dealing with drug addicts it is apparent that there is a tendency on the part of too many physicians to administer analgesics or sedatives promiscuously rather than to take the pains to make exhaustive diagnostic investigations or to utilize time-consuming therapeutic measures.

There is no denying the fact that almost all hypnotics and analgesics, if used any length of time, will produce in most patients a desire for more, provided they temporarily relieve them. If one physician refuses to repeat the prescription, the other very likely will. What usually follows is that if the patient is able to learn what he is taking it will be only a matter of time before he will obtain and use the drug himself—and so another drug addict is created!

The various hypnotics and analgesics are not safe in the hands of the laity, and when our table shows 22 per cent. of physicians to be the victims, it may be safely stated that such drugs are not safe for self-administration by patients of any class.

When suffering humanity have access to something that will even temporarily relieve them of their pains and discomforts the temptation to use it is too great to be withstood by the average individual. The comforts and sensations temporarily derived from them inhibit the powers of reasoning and judgment, even of those who have been taught the dangers of their continuous administration; they give no thought to the future that is sure to come, when the drug that once gave them temporary relief will have become their master and enslaved them in its clutches. If this effect is so on physicians themselves, what may we expect of the laity? Before resorting to repeated doses of habit-forming drugs in any given condition, physicians should make doubly certain that nothing else will be effective—and always as a last resort. Greater caution and conservation in the use of habit-forming drugs must be practised by the medical profession if we wish to avoid being the creators of a large percentage of all drug addicts.

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Exotic Drugs of the War.—Guérin writes that ergot of rye, once obtained from Russia, must now be had from Spain. The cantharides which was once shipped from Libau is now imported from China. Pyrethrum, once a Montenegrin staple, must now be obtained from Japan. Instead of Hungarian, domestic leeches are used. Tarry products which came from Finland have now been replaced. Numerous drugs once received directly from remote countries must now be bought of the English.—*Revue Scientifique.*

A NEW METHOD OF PERCUSSION.

By ALBERT ABRAMS, A.M., M.D., LL.D.,

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In percussion, despite its antiquity and supreme clinical importance, it is difficult to eliminate the personal equation and the prejudiced preconception of perceiving what is expected to be perceived. In dwelling on the deficiencies of this art the writer does so not as a rebuke to the herculean efforts made by traditional investigators, but to arraign our complacency which accepts things as they are and to view as a sacrilegist any one who questions establish methods. Five physicians of local prominence in San Francisco were in attendance on a patient. All concurred in the diagnosis of appendicitis and the necessity of an immediate operation. "Gentlemen," said the patient, "I do not doubt the accuracy of your diagnosis, but, insomuch as the operation necessitates an anesthetic, will you not assure me that my heart is in good condition." All the physicians located the heart by percussion in its conventional position. "Now, gentlemen," remarked the patient, after all the physicians had agreed on the area of heart dulness, "permit me to question the infallibility of your diagnosis and to announce, as this radiograph of my chest will show, that my heart is located on the right side and that I am in consequence a victim of what is technically known as dextrocardia."

After many years of experience in teaching physical diagnosis to physicians the writer is impressed with the fact that errors in percussion are most frequently perpetrated not because of a faulty execution, but owing to a failure to recognize nuances in sound.

The interpretation of sound is a matter of education, otherwise the notes of the musician would be cacophonous and the messages read by the telegrapher would be erroneous.

The writer has constantly endeavored[1] to eliminate certain factors which are elicited in percussion and conduce to so much confusion in interpretation. This refers in all cogency to certain ventral[2] and pulmonary areas[3] of dulness which are constantly present in certain diseases.

Topographic Percussion.—Percussion of the chest or abdomen produces a sound which is the product of the vibration of the air-containing tissues and the thoracic and abdominal walls. It is the summation of this vibration which interferes with the elicitation of the dulness of the airless in juxtaposition to the air-containing organs. By eliminating one factor of vibration the topographic definition of solid viscera would be more easy of attainment.

Much ingenuity has been displayed by clinicians in devising new methods of percussion, but unfortunately an ideal method has not thus far been attained. By means of the method presently to be described uniform results can be achieved by the merest tyro and this uniformity in interpretation which can alone dignify a method as scientific is easy of execution.

Method.—This embodies the principle of transsonance and is executed by continuous or intermittent direct percussion (without the interposition of a plexímeter) with the finger at the acromial extremity of either clavicle. In very fat individuals a plexímeter* may be used and the latter struck by aid of a plexor with a soft rubber end. The following results are attained with the patient standing (the writer's usual method of examination).

In the execution of the method cognizance is taken of the following components which make up the maneuver: (1) Dulness; (2) palpatory percussion; (3) auscultatory percussion.

Dulness.—In delimiting the heart, aorta, liver, spleen, or kidneys, or in the detection of lung or abdominal dulness, one executes a series of percussion blows with the finger of one hand at the acromial extremity of either clavicle and with the finger of the other hand moderate pressure is made. The approach to an organ or area of dulness by the latter finger is executed as in conventional percussion. The moment that an area of dulness or the border of a solid organ is attained, a conspicuous, easily recognized dulness is heard which the striking finger also appreciates.

Palpatory Percussion.—Striking the acromial extremity of the clavicle as before, the finger of the other hand approaches the borders of the heart in an *intercostal space* and the moment the border is attained (if the patient is not too obese), a slight impact of the cardiac border is demonstrable to the palpating finger provided the clavicular blow is sufficiently strong. The sensation is not unlike that in ballottement. It is surprising with what accuracy the right and left borders of the heart can thus be defined. The orthodiagraph proves the correctness of the method. The lower liver border in the parasternel, mammary, and axillary lines may thus be defined. The splenic borders are similarly demonstrable.

Auscultatory Percussion.—Percussing the clavicle as before, one approaches the solid organ or a dull area with a small bell of a stethoscope and when the border of the organ is attained there is an immediate transition from resonance to dulness.

In demarcating any of the areas of ventral or pulmonary dulness (by this method) peculiar to disease by the "electronic method of diagnosis,"[2] the results are most striking. Shifting the patient from a position facing the west to the magnetic meridian and back from the latter to the west shows respectively the transition of dulness to resonance and from resonance to dulness. I have shown elsewhere[4] that visceral tonicity varies with the points of the compass. A relaxed organ will yield a smaller area of dulness than an organ in a state of tone. Any physician can prove the foregoing by percussing the heart alternately with the patient facing west, east, north, and south. To achieve uniform results in topographic percussion it is the writer's invariable rule to execute percussion when the patient faces the geographical west.

The foregoing effects are accentuated by striking the fourth cervical spine directly with a plexor or indirectly with a plexímeter if the subject is obese. The latter maneuver necessitates an assistant. In thin subjects looking from above in a propitious light the repercussive effects may be noted during suspended respiration by direct inspection, viz., borders of heart, spleen, lower liver border, and site of the pylorus.

*A Goodyear soap rubber eraser No. 15 is most efficient as a plexímeter for this purpose.

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2135 SACRAMENTO STREET.

THE VALUE OF THE SALICYLATES IN THE TREATMENT OF INFLUENZA.

BY BEVERLEY ROBINSON, M.D.,

NEW YORK.

FORTUNATELY for us, the epidemic of influenza now seems on the wane in New York and elsewhere. However, it may come again, and probably will. It is therefore not untimely to insist again, upon what I have learned as to treatment of it with the salicylates, especially as to why they are at present the best remedies we have. After trials, I came to the conclusion that the salicylate of ammonium is the preferable salt, and, so far as possible, should always be used as a preventive and curative remedy. As an ammonium salt, it is the most stimulating and disagrees with the stomach least. It eliminates itself, in part at least, through the respiratory passages, and is therefore preferable to the sodium salt. Like all the salicylates, it has a decided antimicrobic action in the blood. When taken into the system in sufficient quantity, and frequently, it prevents, as I believe, the transport of contagion to others. As to the proper dose, and its frequency, these depend somewhat upon the individual and the reaction or effects produced. The essential matter is to get the patient under the influence of the drug in a manifest manner and yet not cause unpleasant results, such as are not uncommon with all the salicylates at times, but less, in my observation, with the ammonium salt than with the sodium salt.

To a sensitive stomach intolerance is obviated with the use of essence of pepsin at the same time. Preferably, and when convenient, the salt should be given in solution. To an adult, from five to ten grains may be given for several doses every two hours. Whether or not the use of a protective vaccine would interfere or neutralize the good effects of the salicylate of ammonium I do not know, but up to date I would prefer not to take them at the same time, on the principle that what is unknown should be avoided, or treated with great prudence. One thing is sure to my mind, *i.e.* that the salicylate of ammonium, both in influenza and acute spinal paralysis in children, has a very pronounced protective and curative effect. It is not a specific, and thus far I know of none, but it is the least objectionable and most effective remedy now known. Science may tell us truly later precisely why it is; art for the while, guided by observation and bedside experience, affirmed a clinical fact of very considerable value.

There is no doubt in my mind at this time that, taken properly and in the beginning of influenza, salicylate of ammonium would save many lives otherwise lost either through the influenza itself or the pneumonia which frequently develops very rapidly.

42 WEST THIRTY-SEVENTH STREET.

Medicolegal Notes.

Professional Judgment in Use of Appliances.—In an action for alleged malpractice the alleged negligence of the physician for which the plaintiff sought to recover lay in the use by him, in an operation, of nonabsorbable silk sutures instead of catgut. The only testimony in the record to show that this was improper was contained in an answer to a single question propounded to one of the plaintiff's witnesses, who testified that a careful surgeon would not use silk in the place where it had been used. On cross-examination he admitted, however, that, where a physician requires a ligature that will hold fast to prevent needless bleeding, he may with propriety use the silk, and he made it clear that his previous answer was based entirely on the conditions as he found them at an operation performed by himself six months after the operation by the defendant. The only other medical witness for the plaintiff testified that the choice between silk and catgut is a matter of judgment in each particular case, and there was no testimony in the record to show that, under the conditions as they appeared to the defendant when he performed the operation, the use of silk was negligence. It appeared from the plaintiff's testimony that he had performed two operations on the plaintiff, that on the first occasion he had had trouble from hemorrhage as a result of the use of catgut, and that therefore he had used silk on the second occasion. It was true that the results of the use of the nonabsorbable silk had proved unfortunate, as the silk caused certain perforations of the intestine, which produced serious trouble, but it was clear that on the second operation the defendant was in a dilemma. The use of catgut had resulted in hemorrhage before, which he wished to guard against, and the use of silk might produce irritation. Under the circumstances, he should not be held liable for what was at most a mistake of judgment in weighing the probable consequences of the different methods that might be pursued. A physician is required to possess only ordinary skill in his profession and to use his best judgment in the exercise of that skill, and, if he complies with these requirements, he is not liable for the nonsuccess of his treatment. Judgment for the plaintiff was reversed and a new trial ordered.—Linn v. Piersol (Cal.) 173 Pac. 763.

Promise to Pay for Professional Services to Another.—In an action for services as physician and surgeon the only question was whether the evidence warranted the court in finding that the transaction between the plaintiff and the defendant created an original or primary obligation on the part of the latter, it being his contention that he was, at most, a guarantor, and that the obligation was void because not in writing. The services were performed for one F. J. Williams, and the plaintiff was called upon to attend him on the 5th day of October. Two days thereafter, according to the plaintiff's testimony, he had the following conversation with the defendant at the Sacramento Valley Hospital:

"I asked him whether he would pay Mr. Williams' bill. I told him I had an understanding he was going to pay the bill, and he said he would. I told him perhaps we had better make the sister feel more easy about the money. When we went downstairs, I repeated the conversation in front of Sister Marie, and the substance was that he was to pay Mr. Williams' bill."

He further testified:

"I made three calls on the 7th; on the 8th three calls; on the 9th there were five calls made; and on the 10th he was operated on by myself, Dr. Johnson and Dr. Wilson. I called on him twice subsequent to the operation; on the 11th I called three times; on the 12th I called four times; and on the 13th three times, the day he died." These services, performed after his conversation with the defendant, were reasonably worth, so he said, the sum of $305, and this was allowed by the trial court. It was held on appeal that it was a fair inference from the foregoing that these services were performed upon the reliance that the defendant would pay, and it was also a fair inference that the latter directly promised to make such payment. This constituted an original contract, with a sufficient consideration for its support. Judgment for the plaintiff was affirmed.—Meyers v. McKillop, (Cal.), 173 Pac. 773.

Military Medicine.

Rehabilitation of the Disabled Soldier in Canada.—In Canada the terms "Occupational Therapy" and "Industrial Reeducation" are employed, the first to denote the work done in the hospitals of the Department of Militia and Defense, which is principally curative but also includes vocational work under the direction of medical officers, that is, the man is given whatever training is considered desirable with due regard to his physical and mental condition. Training given in the wards to such men as cannot leave the hospital is called "Ward Occupation."

"Industrial Reeducation" is the term given to the work undertaken by the Department of Soldiers' Civil Reestablishment, after the man has left the military hospital; this was formerly under the direction of the Military Hospitals Commission. In the development of a policy of reeducation by the Department of Soldiers' Civil Reestablishment, it became apparent that something must be done to prevent reeducated soldiers competing against each other in a certain narrow group of occupations in which training was practicable in the institutions established for that purpose. An industrial survey of the Dominion was therefore undertaken and the country has been divided and subdivided into districts; in each industry an analysis has been made of the different occupations therein, with information as to the kind of work done, the payment, working hours, qualifications required, and so on, and it has been decided to train the men, whenever possible, in shops where they will later be employed, as this gives greater diversity of opportunity. The character of the work to be undertaken is considered in relation to the man's disabilities; for instance, it is determined whether the position at work would aggravate any weakness or disability, etc.

In deciding upon the training to be given to each individual, the vocational officer first considers the man's choice—first and second—his hobbies and natural preferences, and the productivity of and demand for the class of work chosen, leading the man if possible to take up a technical or industrial rather than a clerical occupation. In short, the combined knowledge of the medical and vocational officers is utilized to guide the disabled soldier into a field of productivity compatible with his state of health, which will make him independent in the years to come when people may begin to forget the cause of his disability and the service he has rendered his country. When training is completed and the man placed in a position, every effort is made to keep in touch with him by means of a "follow-up" system. At the present time, training is given in occupations to the number of 179. It has been found in Canada, as well as in England, that the positions of chauffeurs and clerks are those most frequently chosen, and this is so much so that whenever possible the man is persuaded to take up some other line in which the demand for his labor will be greater.

One of the difficulties in the problem of rehabilitation of the disabled soldier is to bridge over the period between convalescence and readjustment to civilian life. The public, and particularly the employer, can do much by a little sympathy and kindness toward the soldier who is trying to adjust himself to his new environment.

The following figures give some idea of the work being done in Canada: On August 1, last, 5045 courses in industrial reeducation had been granted. In the curative workshops, 1991 convalescents were working at that time, and 1990 men were taking courses in industrial reeducation. During the month of June, 1743 men attended classes in occupational therapy conducted by the Department of Soldiers' Civil Reestablishment in military hospitals.

Cases of pulmonary tuberculosis are discharged from the army as soon as diagnosed and their care and treatment are undertaken by the medical branch of the Invalid Soldiers' Commission. The duties of this branch include also the medical care of all men undergoing industrial reeducation, the dental care of such men, and also of discharged soldiers suffering from dental defects due to war service, the care of the permanently insane, the epileptics, feebleminded and incurables, as well as cases requiring prolonged institutional treatment. Tuberculosis patients, of course, are treated in the various sanatoria throughout the country, and the insane are sent to the provincial asylums. The case of the feebleminded and epileptics is still under consideration; it is probable that they will be given institutional care and one institution has already been established for their treatment; others will probably be opened and it is possible that a farm colony may be established. Homes for the care of incurables are to be established in each district, one —Euclid Hall—has already been opened in Toronto. In case of recurrence of war disability, the patient will be sent to an Army Medical Corps or local hospital and taken on the strength of the Invalid Soldiers' Commission, *i.e.* he will receive I.S.C. pay and allowance and be treated by I.S.C. medical officers, the great majority of whom have seen active service during the war and therefore are familiar with the soldier's problems.

In Alberta a 300-400 bed sanatorium is in process of construction at Bowness, about 8 miles from Calgary. This will later be expanded to accommodate 500 tuberculous patients. It is the intention to build a recreation building with theater, a billiard room, library, post office, and vocational training shops. When no longer required for military patients, these buildings will constitute a sanatorium for the civilian needs of the province. At the Conference of Medical Superintendents Caring for Tuberculous Soldiers in Canada, last May, it was the general opinion that it was not desirable to establish a course in motor mechanics for patients suffering from tuberculosis, and it was resolved that a committee be appointed to consider what courses of training were suitable for such patients. It was pointed out that the wage earning capacity of the tuberculous soldier was of the greatest importance, as

in order to maintain his efficiency and as high as state of physical condition as possible such a man required a higher standard of living than the average. It was also thought inadvisable to plunge a man into civilian life at once upon leaving the sanatorium. The question of a Central Research Laboratory for the Dominion was brought up at this meeting. It was pointed out that advantage ought to be taken of the present opportunity for research work. It is probable that a Central Laboratory will be established near Toronto with facilities for research in tuberculosis. In the meantime, it may be possible to make arrangements with University and Provincial Health Laboratories to carry on some of this work.

A new branch of the Invalid Soldiers' Commission has been formed which is called the Orthopedic and Surgical Supplies Branch, which has charge of all matters relating to the issuance and repair of artificial limbs and other appliances. The headquarters of this department is in Toronto, but branch depots are being established at Calgary, Edmonton, Victoria, Regina, and Saskatoon.

Treatment of Tetanus and Gas Gangrene.—Col. A. Primrose of Canada recently delivered his presidential address to the Academy of Medicine of Toronto, in the course of which he discussed the treatment of tetanus and gas gangrene and pointed out that the incidence of tetanus in this war has proved the value of the experience which has been gained in the treatment of the wounded. A study was made of the number of cases which occurred in home hospitals among the wounded returned from France. In October, 1914, there were 32 cases per 1000 wounded. In November, 1914, there were two cases per thousand, and during the subsequent two years the average number per month was only one per 1000 wounded. There were several factors which produced a very large number of cases of tetanus in September and October, 1914, such as the character of the soil in the fighting area, the heavy fighting with its heavy toll of wounded, the difficulty of properly caring for the wounded, etc., but it was not until the middle of October that prophylactic inoculation was introduced in anything like a complete scale. Immediately a remarkable fall in the incidence of tetanus occurred, the number affected being less than one-thirtieth of that prior to the employment of prophylactic treatment. But experience has led to further conclusions and it has been found that antitetanic serum is curative as well as preventive. Large doses of the serum are given by the intrathecal route immediately on tetanus manifesting itself. From 50,000 to 100,000 units may be given in the first few days, the object being to saturate the body with antitoxin as quickly as possible. The curative value of such treatment has been determined in many instances. Then again it has been learned that the bacillus of tetanus may remain incapsuled within the tissues for prolonged periods and may, independently of any fresh transmission, cause a recurrent attack. This is very prone to occur as the result of any secondary surgical operation and in certain specific instances has brought about fatal results.

Knowledge of gas gangrene, its etiology, prevention, and treatment has been greatly advanced. Its spread along lymph spaces and the invasion of damaged muscle fibrils; the absence or scanty occurrence of leucocytosis; the proliferation of epithelium with thrombosis of veins resulting in rupture of vessels with extravasation of blood and rapid spread of infection, and the characteristic appearance of certain cases in *x*-ray plates are some features of this infective process regarding which knowledge has been greatly increased.

The treatment consists first in prophylaxis, encouraging personal cleanliness in the soldiers, treating trench walls with slaked lime, etc. Every wound should be looked upon with suspicion and should be submitted to immediate and thorough cleansing, the use of antiseptics and the removal of all foreign matter. Particular attention is paid to the removal of all lacerated muscle tissue and all fragments of bone and the securing of complete hemostasis. If gas gangrene supervenes the entire wound is freely opened up in all its ramifications, all dirt and foreign matter are sought for and carefully removed. Hematomata which may harbor infection are eradicated, all contaminated muscle tissue is widely excised, and hemorrhagic oozing is carefully checked. Free incisions are made in the long axis of the limb, all tension is relieved and the wound is left freely open avoiding all pressure and possible constriction of blood-vessels, free drainage is provided and the wound irrigated with a potent antiseptic. If amputation is considered necessary the flaps are left widely open without suture.

The results obtained by such treatment may be illustrated by those published by Ivens: of 464 cases of gas infection, 42 were fatal, 25 died from gangrene, 4 died from tetanus and the rest from severe injuries which they had sustained. When the gangrene was limited to a group of muscles it was possible in 41 cases to do a local excision, of these 33 recovered. Amputation by the open method and with lateral skin incisions was done 68 times, and 48 of these recovered.

The Diagnosis of Death.—Some soldiers wounded or suffering from shock are brought to the surgeon apparently dead, and, of course, if there is any doubt in the matter, it is essential that the true facts of the case be established. In many instances it is not easy to make a certain diagnosis, and owing to the severe press of work thrown upon a medical officer after an engagement perhaps, on occasions, he may be somewhat too apt to recognize the similitude of death as death itself. Some of the medical officers also who have been drawn from civil life have not had much experience and are not likely to endeavor to distinguish between apparent and real death. Dr. A. Satal, a French medical officer, some time ago contributed a paper dealing with the diagnosis of death in the firing line to the *Medical Press*. In this he points out that Laborde recommended for the treatment of apparent death the practice of rhythmic traction of the tongue and stated that the procedure was an absolutely unfailing test, its failure to induce respiration promptly proving that death had already taken

place. Satal gives another diagnostic means. This, formulated by Itard, consists of a subcutaneous injection of fluoresceine at some point of the surface of the body. If some few sparks of life remain, that is if the circulation has not been entirely abolished, this substance is absorbed by the blood and carried round with it, and as it is remarkably diffusible it soon succeeds in impregnating all the tissues. The resulting coloration is readily appreciable, especially on ocular surfaces. When fluoresceine acts in this way it encourages the efforts of the medical attendant who will then direct the assistants to proceed with their manipulations.

In civil life such tests have their value but under the conditions of warfare prevailing in Europe, at the present time, the need for their utilization is obvious. There are numerous cases of syncope from shock brought about by the explosion of shells and by gassing in which death is exactly simulated. There have been also cases of wounded men who were apparently dead. Satal asserts that in several instances, by the employment of one or other of these tests, he and his colleagues have been encouraged to persevere in their efforts to stimulate the vital spark, and by means of this persistence to save the lives of soldiers apparently dead.

The After-Effects of Wounds of the Chest and Their Treatment.—Lieut.-Col. John Meakins and Captain T. W. Walker, C. A. M. C, discuss this subject in the *Canadian Medical Association Journal* for October, 1918, and point out that from available statistics the fact is apparent that injury to the chest is not necessarily a conspicuous factor in invaliding soldiers from the army. Even when they are discharged on account of the results of some such injury, they are still capable of doing a considerable amount of work each week in a civilian occupation. Among those patients who are not discharged as permanently unfit, there is a goodly percentage who eventually return to full duty with little or no impairment in the degree of physical exertion which they are able to accomplish. The conclusions drawn by the authors are as follows: (1) Deformity of the chest wall is a very important disabling after-effect of gunshot wounds of the chest. (2) The deformity follows most frequently prolonged involvement of the pleural cavity. (3) The early and persistent evacuation of fluid from the pleural cavity, either by aspiration or by operation, is of great importance in preventing the development of the deformity. Especially is this so in cases of hemothorax. (4) The early uses of special exercises is beneficial in preventing or overcoming this deformity. (5) The prognosis in this condition is exceptionally good under suitable treatment.

The Health of the Army.—With influenza out of the reckoning it could be said that the army was never physically so fit in a period of war as at the present time. The report of the Surgeon General for the week ending October 29 gives the malaria rate in the home forces as 1.51 per thousand; in the army in France it was only 0.64. The dysentery rate was 0.44 in the home camps; in France 3.97. The typhoid rate at home was 0.13 for the week, and in the American Expeditionary Forces only 0.03, which is very striking. Measles furnished the highest rate; 28.54 among the troops in the United States and 6.14 in France. There was very little scarlet fever, the rates being 9.57 in this country and 0.63 in France. Between September 13 and October 29 there have been 310,429 cases of influenza in the home forces. No less than 50,000 of these cases developed into pneumonia, which now constitutes the greatest menace to the American soldier. A vaccine prepared as a preventive of pneumonia by the Rockefeller Institute at the request of the Surgeon-General of the Army was recently administered to 12,000 volunteers at one of the camps at a time when pneumonia (not of the influenzal type) was more prevalent than usual. These men were to go overseas in ten weeks and during that time they were all immune. Some doubt is expressed as to whether the vaccine is effective against pneumonia occurring in influenza.

Red Cross Work Will Go On.—George E. Scott, general manager of the American Red Cross, announces that the Red Cross will continue its military relief work after the consummation of peace, until demobilization of the American forces is completed. The American Red Cross will in all probability be called upon to direct rehabilitation and reconstruction work in the war areas following the declaration of peace. An official report states that within forty-eight hours after the Austrians evacated Vittorio, Conegliano, and Oderzo, relief was distributed to the civilian population by the American Red Cross, and despatches from Rome state that the prompt measures taken by relief units prevented great suffering.

Red Cross Establishes New Activity.—Among its other activities the American Red Cross in France has established a Bureau of Medical Research and Intelligence Department, of which Lieut. Col. Alexander Lambert is the Chief. The divisions of the bureau are: Medical Library, Medical Publications, Medical Research, and Medical Intelligence Bureau. The Department undertakes to supply the field, camp, and evacuation hospitals with medical books and journals and also to reply to individual requests as to the most recent developments in war medicine and surgery. Major Thomas H. Halsted is Chief of the Medical Intelligence Bureau, which is occupied especially with looking up literature, reports of commissions, etc. It responds at once to all requests for information on medical and allied subjects asked for by any medical member of the American Expeditionary Forces or the Red Cross. An index is kept of all articles relating to War Medicine and Surgery, and also abstracts of the more important ones. Dr. Emil Mayer has been appointed representative of the United States for this Bureau. Writers of original articles on war subjects are requested to send two reprints thereof as soon as possible to the Medical Intelligence Bureau, American Red Cross, 9 rue de Mont Thabour, Paris, France.

King Gives Home to Red Cross.—King Albert of Belgium has presented his beautiful home adjoining the Pavilion Henry IV, at St. Germain,

for convalescent American officers. Henry P. Davison accepted the gift in behalf of the American Red Cross.

The American Army Laboratory in France.—The central Laboratory of the American Laboratory in France was formerly one of the large Pasteur institutions in central France, but has been turned over to the Americans with extensive grounds, where temporary buildings are going up to make provision for the increasing work. One of these buildings equips transportable field laboratories, one hundred of which have thus far been sent out. The laboratory is extending its research work into every branch of military medicine and surgery. It announces that at the present time it is making important advances in the investigation of shock following shell wounds and also in regard to the effect of gas attacks on the different organs and tissues of the body.

Public Health Service Reserve.—A recent bulletin announces the passage by Congress of a joint resolution approved by the President on October 27, establishing a permanent reserve force upon which the Public Health Service can draw in time of emergency such as that presented by the influenza epidemic. This consists of officers, none holding rank above that of Assistant Surgeon General, commissioned by the President for a period of five years, subject to call to active duty by the Surgeon General U. S. P. H. S. When in such active duty they receive the same pay and allowances as are now provided by law for the regular commissioned medical officers in the service. By far the larger part of the reserve to be organized under this act will be on active duty only during times of national emergency, though it will probably be necessary to establish periodic terms of training, so as to better fit the officers for such service. With the passing of the emergency these men will automatically go on the inactive list; always, however, subject to call to active duty by the Surgeon General. Detailed plans for the organization, training and assignment of the reserve officers are now under consideration.

Deaths in the Service.—Lieut.-Com. Frank Pennybacker White Hough, Medical Corps, U. S. Navy, died at sea aboard the U. S. S. *Huron*, on October 27, when the transport was nearing France. He was graduated from the University of Virginia, in 1907, and immediaely entered the Navy. He saw service in China and in the Philippines, as well as in the present war.

Lieut. Robert Kenton McGuffin, M. C., U. S. Army, of Imperial, Cal., a graduate of the Maryland Medical College, Baltimore, in 1911, and coroner of Imperial County, who was ordered to report for duty at Camp Kearney, on October 23, died from pneumonia at his home, on October 20, aged 33 years.

Asst. Surg. Rushmer Christian Christiansen, Lieut. U. S. Navy, a graduate of the State University of Iowa, in 1915, on duty at Mare Island, Cal., died from pneumonia, following influenza in the Naval Hospital at Mare Island, on October 19, aged 28 years.

Capt. Jean Paul Gay, M. C., U. S. Army, of McAlester, Okla., a graduate of the University of Louisville, Ky., in 1908, died at his home, on October 25, from pneumonia following influenza.

Lieut. Wendell James Phillips, M. C., U. S. Army, of Corvallis, Ore., a graduate of Jefferson Medical College, in 1915, died at Camp Lee, Va., of pneumonia following influenza, on October 13, aged 31 years.

Asst.-Surg. Norwin Batte Norris, U. S. Navy, of Memphis, Tenn., a graduate of the University of Tennessee, Nashville, in 1917, aged 27 years, is reported in the *Official Bulletin* of October 14, as missing on the U. S. S. *Ticonderoga*, sunk, September 30, by a submarine.

Lieut. Guy Chaille Haralson, M. C., U. S. Army, of Vicksburg, Miss., a graduate of Loyola University, Chicago, in 1917, died from pneumonia at Fort McPherson, Ga., on October 24, aged 36 years. Before entering the army he was assistant physician at the East Mississippi Insane Asylum.

Lieut. Timothy Joseph Moran, M. C., U. S. Army, of Pittsburgh, Pa., a graduate of the University of Pennsylvania, Philadelphia, in 1905, died of pneumonia, at Camp Greenleaf, Fort Oglethorpe, Ga., on October 17, aged 37 years.

Lieut. Homer E. Van Epps, M. C., U. S. Army, of Sterling, Ill., a graduate of Hahnemann Medical College, Chicago, in 1916, died recently of pneumonia following influenza, at Camp Mills, Long Island, N. Y., aged 31 years.

Lieut. Robert Archie Sherwood, M. C., U. S. Army, a graduate of the University of Oregon, Portland, in 1916, and of the Army Medical School, Washington, D. C., in 1918, aged 28 years; is reported to have died in action in France, on September 17.

Lieut. Carl Bibb Hudson, M. C., U. S. Army, of Montgomery, Ala., aged 30 years, a graduate of the Harvard Medical School, in 1917, died from pneumonia following influenza, on October 2, a few days after his arrival in France.

Lieut. Chester Cameron Wood, Past Assistant Surgeon U. S. Navy, a graduate of Jefferson Medical College, in 1910, on duty on the U. S. S. *Alabama*, died at sea on October 5, aged 30 years.

Lieut. Frank Benedict Rosinski, M. C., U. S. Army, of Cleveland, who had just been ordered to Fort Oglethorpe, Ga., died of pneumonia at his home, on October 21, from influenza.

Lieut. Herman Warner Krantz, M. C., U. S. Army, of Union Bridge, Md., a graduate of the University of Maryland in 1915, died from influenza, at his home, on October 5, aged 27 years.

Lieut. Wilburn Edgar Hampton, M. C., U. S. Army, of Ferris, Texas, a graduate of the University of Louisville, Ky., in 1910, died in Dallas, Texas, on October 21, aged 31 years.

Dr. Tribondeau, Medicin Principal de la Marine, died of influenza in the naval hospital at Achilleion, Corfu, at the age of 46 years. He was formerly professor in the École de Service de Santé de la marine, then head of the laboratory of bacteriology of the fifth arrondissement maritime and was then called to direct the bacteriological service of the Hôpital de l'Achilleion. Fatigued, ill ,and on the point of returning to France when the influenza broke out among the crews at Corfu, he insisted on remaining on duty to attend the sick until he was stricken by the disease.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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CEREBRAL ABSCESS AS A COMPLICATION OF BRONCHIECTASIS.

OUR knowledge of pathology teaches us that a change in the histological structure of the bronchi is essential in order that bronchiectasis shall occur. Therefore, it is for the pulmonary symptoms, or rather those of the bronchial tubes, that the patient seeks medical advice. Usually the patient is an adult, who reports numerous attacks of bronchitis with frequent coughing paroxysms in his antecedents. Expectoration is free and apt to be purulent and fetid, occurring in the morning and repeated several times during the day. There may have been hemoptysis or blood-stained sputum. Percussion gives dullness or, on the contrary, a cavernous note may be elicited if the cavity is large and superficial. Auscultation reveals the signs of cavities which will vary according to the degree of repletion of the latter.

These patients are frequently suddenly seized with chills and a rise in temperature, nausea with occasional vomiting, and always there is intense headache, often remittent and increased by pressure on the cranial bones. The pulse is almost always slow, there is photobia, with unequal pupils and tinnitus aurium. Stiffness of the neck and conjugate deviation of the head and eyes, as well as pupillary stasis are almost constant signs. The meningitic line and idiomuscular contractions are easily made to appear. The subject is always somnolent, answers questions slowly, and finally coma develops. But before this takes place, paralyses occur resulting from a cerebral purulent collection which has destroyed the cortical center or its routes of transmission. This is made evident by hemiplegia or a paraplegia with or without an apoplectiform ictus. Convulsions are common and progressively involve one limb after another. There may be aphasia, especially when the abscess is seated in the left temporal lobe. True motor aphasia is uncommon unless the third left front convolution is involved. The pulse is always slow, likewise the respiration, which proves that there is an increase in the intracranial pressure. There is sometimes a Cheyne-Stokes respiration. The paralytic phase may suddenly develop and last but a few days because the patient dies. When the cerebellum is involved the usual incoordination and staggering occur.

Cerebral abscess of bronchitic origin does not always assume the same clinical form and for this very reason the diagnosis is not always easy. Usually the evolution is rapid, recalling either meningitis or typhoid fever. In the meningeal type the phenomena of excitement are more marked, while the meningitic line and idiomuscular contractions are observed. Sometimes after this phase a remission occurs, to be followed by another phase of excitement, and this condition of affairs may continue until death takes place. This form is very difficult to diagnose and frequently the diagnosis is made only at autopsy. However, when a patient presents a bronchiectasis with meningeal phenomena a cerebral abscess should be thought of.

Another serious form of these cerebral metastatic abscesses is the typhoid variety. There are intense cephalalgia, chill, and prostration. The abdomen is distended and the spleen tumefied. Lenticular rose-spots may appear. All these signs certainly recall typhoid fever, but usually in brain abscess there is less delirium and the rose-spots are not so marked. The process is not always so rapid in its evolution, but on the other hand there is the fulminating form which brutally occurs with apoplectic accidents, convulsions, and death from asphyxia within a few hours in some cases. The latent form of the process is rather uncommon, but it ends in death after alternations of meningeal paroxysms and remissions. Therefore, the diagnosis is usually a matter of difficulty, but a correct conception of the case may be had if one recalls that meningeal symptoms with paralyses and convulsions in a subject with bronchial dilation probably indicate the development of a metastatic abscess of the brain.

THE PREGNANT WORKING WOMAN.

WE are getting away from those days of mid-Victorian modesty when to speak of a woman being *enceinte* was forbidden, and for a woman to go out into the public streets when her contours began to suggest her condition was nothing short of shameless. In fact, one of the stock arguments of the opponents of industrial occupation for women has been that women could not be considered trustworthy economic units as at any time a pregnancy might incapacitate them for many months. The present war has forced the issue to some extent. The military armies have been kept intact at the expense of the industrial ones which has meant that vast numbers of women have been enrolled. Many of these have been married women, and as England is not so far from the battle-front the problem of what attitude to take toward these war workers when they became pregnant was soon an acute one. Many employers took the attitude that the employment of expectant mothers would mean a financial loss and moreover

that a woman obviously pregnant should not continue to work day after day in sight of other employees. Fearful of losing their jobs when the money was so much needed to prepare for the expenses of confinement, many of these women, it was discovered, concealed their condition as long as possible and consequently were kept on work unsuitable and even dangerous. A great many others managed to terminate pregnancy in the early months.

During the early part of this year an effort was made to establish some sort of war work which could be done by women in this condition, and in April, 1918, a pre-maternity department was opened at the National Ordnance Factories, Leeds. As soon as a factory employee becomes pregnant she fills in a form of application which is sent to the superintendent of the scheme, who is a woman. She refers it to the factory medical officer for data regarding the number of the pregnancy, time of expected confinement, general physical condition, and date when a transfer to lighter work would be advisable. As soon as they have recorded their pregnancies they are transferred to work which does not require any heavy lifting or other severe physical exertion. At the end of the fourth month, or earlier if necessary, they are put at such light work as gauging and assembling fuse parts and are taken off night work altogether, working from 7.30 to 5.30 with breaks for meals. At the end of the seventh month another transfer is made, and these women are put at making and mending clothes from 9 to 5. The last hour of the day is devoted to preparing garments for the expected baby, which is done under the direction and help of the sewing depot forewoman. They make their own arrangements for attendance during confinement and can work up until the time labor pains start, if they wish.

It has been found that this arrangement works very well. Unmarried girls are treated the same as married women and thus a large part of the incentive to conceal pregnancy is lost. Miscarriages and abortions are rendered infrequent instead of being all too common. Furthermore, the health of the expectant mothers has been good and dystocia less frequent. The employers themselves report that from a business standpoint the scheme has been a success. So perhaps this humanitarian attitude toward the problem of the pregnant working woman will survive the declaration of peace and become part of civilization.

ORIGINAL RESEARCH FOR THE YOUNG PHYSICIAN.

Among the rainbow-hued dreams of youth which approaching age dims to ashen gray is the phantasy of original medical research. Who of us has not pictured himself as the discoverer of some germ, of some disease named after him, a diagnostic sign or a method of treatment which will perpetuate his fame and inspire some twenty-first century medical historian. Later on we find out our time is pretty well taken up with our daily rounds, our medical meetings, dispensaries, social obligations, medical periodicals, and occasionally even a little recreation, so that the dream of doing something startling is shoved further and further back in our minds and is finally represented only by an occasional paper in our favorite medical journal. Moreover, the sober reality is that even those who set out to do research, who gird up their loins so to speak, and deliberately court this goddess, seldom achieve such world-shaking results. Indeed the paucity of the results obtained and their lack of practical value are characteristic of nine-tenths of all medical research, and the pharmacologist of this year upsets the conclusions of him of last year.

Perhaps a reason for this state of affairs may be found in the conventions which govern medical research. In the first place, so many great discoveries have been made in laboratories that the young investigator naturally turns his attention first of all to this field. Here he seeks the advice of someone known to be doing what is euphemistically termed "research." Then it often happens that long hours of earnest labor are spent in pursuing some problem of only academic value or in the achievement of some result of inframicroscopic importance. In the wards of hospitals we perhaps come into closer touch with the triad which is present in all medical problems—the patient, the disease, and the physician. Here the limit to the clinical investigation of disease seems to have been reached, a result which is not surprising to anyone who has made rounds through hospital wards year after year, and seen the eternal sameness of the cases. In the hope of variety or novelty we acclaim each new diagnostic instrument hoping that it will be the key which will open to view new vistas of medical science.

An important and interesting field is being neglected in this attitude. Let us not forget that when we occupy ourselves with the laboratory, the ward, and the post-mortem room we are studying disease after it has gained a foothold in the human organism, in other words, in its latter stages. But what is being done to study it in its insidious beginnings when perhaps it can be prevented? The out-patient department of the hospital offers a large field for the study of preventive medicine. Here, if a young physician really wishes to conduct some worth-while researches, is a fertile field. Many of these patients when they first apply for treatment present symptoms which are entirely subjective. What is the origin of these symptoms, their value, prognosis, and treatment? Heretofore the general practitioner has been the one who has had the greatest opportunity to study disease from this standpoint and he has been prevented from investigating the subject properly for two reasons: first, because

he is too busy, and second, because his habit of thought is that research of value can be done only in the laboratory and hospital ward. Let us take for example, any of those symptoms for which people consult physicians, people who are not really ill, but who wish to know what their pains and discomforts mean. They will ask the physician what causes such and such a symptom, what it means, what will happen if it is not treated; will it recur if treated, and so on. A conscientious physician, wishing to answer such questions honestly, may turn to his library and search and search in vain. What he finds will convince him of the necessity and value of medical research along these lines.

Here then is a field lying fallow for the ambitious young physician. Let him take one symptom, such as irregularity of the heart, collect all the patients he can find showing this symptom, examine them frequently for twenty, thirty, or forty years and then publish a monograph on the subject. Sixty-eight copies of this will sell, he will get four-line reviews in all the leading medical journals, and two hundred years from now his name will appear in a footnote on page 417 of a history of medicine.

INSIPID DIABETES OR SO-CALLED ESSENTIAL POLYURIA.

SINCE Claude Bernard's researches on experimental polyuria, induced by pricking the floor of the fourth ventricle in the rabbit, and the discovery of the phenomena of the internal secretions, two principal opinions have been emitted concerning the origin and nature of insipid diabetes, namely, the nervous theory and the glandular theory. The partisans of the latter, basing their theory on the frequent coexistence of hypophyseal disturbances (infantilism, acromegaly, the adiposogenital syndrome, etc.), as well as on experimentation and therapeutic results, attribute a preponderating part to the hypophysis. The posterior lobe has been particularly incriminated and above all its middle portion or pars intermedia.

The study of clinical data and the results of therapeutic and physiological research have not been of a nature to determine positively either the nature or the origin of the disturbances noted. In fact that it is often difficult to localize exactly a lesion involving the organs at the base of the skull and in the cases in appearance the most limited in extent, it is quite impossible to make abstraction of regional reactions, be they from irritation, compression, or invasion. Injections of extract of the hypophysis have also proved themselves too unreliable, and physiologists have raised their voices against the idea of a too absolute specificity of organic extracts.

Experimental work, especially that undertaken by Harvey Cushing, appeared more demonstrative and for an instant it was thought that the hypothesis of the glanular theory of hydruria had become a fact. But the preceding objections have retained all their value, for it is to be recalled that Aschner, controlling Cushing's experimental work, found that in most of the cases there was a diffusion of the lesions which took away the greater part of the value of the experiments. The temporary character of the polyuria thus obtained forbids the symptoms being referred to the permanent lesion resulting from the removal of the hypophysis.

The more precise experimental researches made under a strict pathological control permitted Camus and Roussy, by eliminating all causes of error, to eliminate once and for all the primary part played by the hypophysis in the production of the syndrome. Operating on dogs by the buccal route, these writers were able to obtain a very considerable polyuria after partial or total hypophysectomy, but their early results appeared at first paradoxical, because in two bitches who had undergone hypophysectomy one presented an abundant polyuria while the second animal did not offer a trace. Researches undertaken to control these results showed that ablation alone of the hypophysis was without result, but on the other hand a lesion, no matter how minute, of the nervous structure situated immediately in front of the infundibulum resulted in the production of a marked polyuria, usually temporary, but occasionally permanent. These results were particularly distinct in cases where the integrity of the hypophysis had remained complete and these latter data would seem to prove beyond question that the hypophysis has nothing to do with the production of polyuria.

From pathological findings it would appear to result that the cerebral lesion susceptible of producing the syndrome in question must be seated in the opticopeduncular region at the level of the gray matter of the tuber cinereum in the neighborhood of the infundibulum. The lesions located in front of or behind this area do not ever give rise to polyuria.

In the very great majority of cases the regulating mechanism of the amount of water of the organism is not involved and the animals experimented on compensate almost exactly the loss sustained. In one experiment this mechanism was wanting and the animal died, and if this experiment was more frequently resorted to it might militate in favor of the area very close to the center of polyuria and that of the regulation in the content of water in the organism, a center which was first hypothetically suspected by Camus and Roussy. The pathogenesis of the syndrome is as yet poorly understood, but reference should be made to the similitude of action existing between the optopeduncular lesion and division of the splanchnics. Undoubtedly these nerve bundles represent the centrifugal track followed by the excitation, while the infundibular center may be regarded as the inhibiting center.

Fatal Septicemia of Buccodental Origin.

Although we hear much to-day of dental sepsis, these cases consist chiefly of suppurative local processes, sometimes remotely situated, referred to, often hypothetical, root abscesses. There is frequently difficulty in tracing effects to causes in these cases, and some conservative members of the profession profess to believe that these alleged dental infections often exist only in the minds of faddy practitioners. But there is no element of uncertainty in three cases of fatal sepsis reported by Dufourmentel and Frison in *La Presse Médicale* for August 8. In the first case a pyorrhea alveolaris was complicated by acute gingivitis and cellulitis of the neck—a condition evidently identical with Ludwig's angina. A study of the teeth failed to show any dental focus of suppuration. The phlegmon was freely incised and drained, but death occurred from acute sepsis. Autopsy did not illuminate the case further but the bacteriology was of the highest interest, for the offending organism appeared to be an anaerobe closely resembling the bellonensis, one of the most potent causes of gas gangrene. The microbe evidently induced a specific edema with a certain amount of sphacelation. In the present case no gas appears to have been formed during life, nor in an inoculated guinea pig. In the second case there was a dental abscess, evidently an ordinary gum boil connected with an upper wisdom tooth, which was at once extracted. The immediate results were good but in two weeks there was a renewed formation of pus *in situ*, and it soon became evident that a phlebitis was developing. The appearance of exophthalmus showed infection of the cranial sinuses and autopsy revealed that the cavernous, coronary, and some of the affluent sinuses were thrombosed. The third patient had a dental osteoperiostitis without extensive local reaction, death taking place from pure sepsis. Autopsy threw no further light on the case. Extraction of the roots had given vent to much foul pus and there were several pockets of pus in the immediate vicinity, but no extensive cellulitis, phlebitis, or other local mischief. Hemoculture in this case was negative. These cases of buccodental sepsis are in sharp contrast with the insidious and nonexplosive type so often mentioned at the present day.

Mumps Pancreatitis.

The opinion is sometimes ventured that certain mysterious cases of fatal diabetes in children are due to pancreatitis which originated as a metastasis in epidemic parotitis. Naturally this thesis is hard to sustain. In the *Correspondenz-Blatt für Schweizer Aerzte*, of September 14, Zimmerli takes up the symptomatology of mumps pancreatitis. It is clear that if this lesion can be diagnosticated at the time and such cases carefully followed up, the end results can be partly forecast; for a chronic interstitial pancreatitis is susceptible of recognition through the character of the stools and diabetes could hardly be avoided if the condition were sufficiently progressive and destructive. Zimmerli's case, however, occurred in an adult and in his remarks he does not allude to the problem of consecutive diabetes. It is common observation that epigastric pain occurs in certain cases of mumps, in about 25 per cent., while tenderness to pressure may often be elicited at or around the epigastric area. Other symptoms referable to the gastrointestinal tract, are seen in all general infections and cannot be straightway attributed to a pancreatitis. Generally speaking in all cases of acute pancreatitis the symptoms are not clean cut. Certain clinicians admit the existence of a benign pancreatitis with mumps with symptoms of spontaneous pains in the upper abdomen, vomiting, resistance in the epigastrium, fever, and relatively slow pulse. Several writers report expressly that there is no glycosuria at the time of the inflammation. The author's patient was a soldier of 26 with double parotitis and right orchitis. There was no general reaction at first. On the sixth day spontaneous pains were felt in the upper abdomen. This was followed by repeated attacks of vomiting and later by high temperatures. The stools showed pancreatic insufficiency. The left testicle now became involved. The general reaction subsided after a few days. By palpitation an enlarged pancreas could apparently be recognized. Sugar was absent throughout from the urine. The recovery was apparently prompt and complete.

Variolization of Vaccinated Heifers.

Students of the history of vaccination will recall that at an early period attempts to immunize human subjects with recently variolized calf vaccine led to the development of true variola in the vaccinated subjects. This experience brought about the custom of inoculation from calf to calf until a virus could be obtained which could be depended on for safe vaccination of the human individual. So far as we know, Jennerian vaccination has never been accused a second time on this count. Recently, however, an analogous phenomenon has been recorded by Wurtz and Huon before the Académie des Sciences of Paris, reported in *La Presse Médicale* of September 21. In general, eight days after the Jennerian vaccination of a heifer, the latter is considered to be immune to variolization; this has been attested by Kelsch, Camus, and Tanon. Nevertheless the present authors have succeeded in variolizing vaccinated calves beyond this eight-day limit. Proof is furnished by the normal clinical evolution of variola, backed up by the character of the eruption, the pathological anatomy of the lesions, and the positive results of inoculation of monkeys and rabbits. The Jennerian virus can immunize against vaccina, but for a brief interval the organism is sensitive to variolization. This simple criterion suggests in the minds of the authors that the two diseases have separate causations. It may be added that the serum of variolized animals could very probably be employed in the serotherapy of variola.

Magnesium in the Treatment of Cancer.

Recently a French surgeon announced that for a considerable period he had been using magnesium internally as a postoperative remedy for cancer. It was also pointed out that foods rich in

magnesium could be used under the same circumstances. The surgeon did not go fully on record, but his results appeared to be encouraging. From quite another angle the subject came up in a recent sessions of the Paris Academy of Medicine. Regnault had noted the effects of the magnesium salts when used locally on certain warts. With this as a starting point, together with the fact that the defensive zones about neoplastic tissue are magnesium-bearing, the author began the use of magnesium hydrate and silicate internally—from 20 to 25 cgm. of each twice daily. He tested this treatment in papilloma, epithelioma, and inoperable cancer. It must be remembered that silica is one of the alleged favorable remedies in epithelioma and is or was used extensively in the Czerny Cancer Institute as an internal as well as external remedy. Regnault reports excellent results in papillomatous formations and superficial epitheliomata, while in inoperable cancer he claims arrest of growth and relief from burdensome symptoms. After operation he administers inwardly the silicate of magnesium in the aim of preventing recurrence. Something depends on the mode of exhibiton because the response of the organism to a drug may be such that its good potentialities may be sacrificed. He therefore gives the remedy five days and then skips five.

News of the Week.

After Care of Influenza Patients.—The New York Health Department, in order to detect any ill after effects in those who have suffered from influenza and pneumonia, began, on November 11, to make physical examinations of such persons at the different relief centers throughout the city, where physicians of the department are stationed. Food for the extremely needy will be provided at these centers as an emergency measure. From a cursory examination of the death certificates the indications are that 2000 young children are orphans and that many of these are homeless. The Health Department is endeavoring to find good homes for as many of these children as possible. The closing ban has been lifted from all but a few sections of Pennsylvania. The total number of deaths from influenza and pneumonia in the State of Pennsylvania, since October 1, is 37,424. St. Louis is now in the throes of the epidemic. The Mayor has issued an order closing all business establishments in the city that are not essential to the prosecution of the war for a period of five to seven days on account of the influenza.

The Alvarenga Prize.—The College of Physicians and Surgeons of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about $250, will be made on July 14, 1919, provided that an essay deemed by the Committee of Award to be worthy of the Prize shall have been offered. Essays for competition may be upon any subject in medicine, but cannot have been published. They must be typewritten and if written in a language other than English should be accompanied by an English translation. Essays must be received by the Secretary of the College on or before May 1, 1919. Each essay must be sent without signature but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in the possession of the College. Communications may be addressed to Francis R. Packard, Secretary, 19 South 22d Street, Philadelphia, Pa.

The Medical Association of the Greater City of New York will hold its regular meeting in the New York Academy of Medicine, at 8.30 P. M., Monday, November 18. The program includes a paper on "End Results in Tuberculosis Treatment by Tuberculin," by Dr. Henry L. Shively, and one on "The Food Factor in the Causation of Health and Disease," by Dr. Joseph E. Winters, which will be discussed by Drs. Thomas S. Southworth, Graham Lusk, Warren Coleman, R. Cole Newton, E. H. Bartley, and A. F. Hess.

Dr. W. T. Slayton of Morrisville has been appointed to the Vermont State Board of Health to fill the vacancy caused by the decease of Dr. Charles S. Caverly of Rutland.

Dr. Nathan E. Caldwell has been appointed health officer for Burlington, Vt., to succeed the late Dr. F. J. Ennis.

Dr. Walter B. Swift of Boston has been appointed Instructor in Speech Disorders in the Cleveland Kindergarten Training School, where he will train teachers to take speech correction into all the infant schools of Cleveland.

New York Infirmary Fund.—The campaign to raise $200,000 for the New York Infirmary for Women and Children ended on November 9, with a total of $120,398. The Executive Committee will, however, carry on the campaign until the full amount is raised.

Dr. Hanson S. Ogilvie has removed his office to No. 2020 Broadway, near Sixty-ninth Street, New York.

Department of Labor Extends Welfare Work.—An announcement from Washington states that the Department of Labor has taken steps looking to the establishment of uniform working conditions in all districts of the country. There will be three branches of the new service, industrial, hygiene, and medicine, which will direct the formation of sanitary health codes and will be supervised by the United States Public Health Service, the Division of Labor Administration, and the Division of Safety Engineering. The National Safety Council and the Bureau of Standards have agreed to cooperate with the new service.

Polyclinic Hospital Transferred to Columbia University.—At the meeting of the trustees of Columbia University, held on November 4, it was announced that the trustees of the New York Polyclinic Hospital had proposed to transfer the property of that institution to Columbia University, "to be maintained and perpetuated for the public service and research in medicine and surgery." The trustees of Columbia University, in response to this offer, adopted resolutions receiving with grateful appreciation the proposal

of the trustees of the Polyclinic Hospital and appointing a sub-committee to arrange the detailed terms and conditions of accepting the offer. The University will not be able to use the Polyclinic Hospital until after the conclusion of the war, since it is now in the possession of the Government and administered as a military hospital.

Deaths of Foreign Medical Men.—GIUSEPPE GUARNIERI, professor of pathology at the University of Pisa died on August 15 last. Born in 1856 he received his medical degree at Rome in 1882. In 1888 he secured the chair of pathology in Pisa. His duties comprised normal and pathological histology, general pathology and bacteriology. His industry was prodigious and the discovery soon after his assumption of duties of Koch's bacillus gave a direction to his activities. Tuberculosis and malaria took up much of his time and he was the first to succeed in vitally staining the blood. He showed that the pneumococcus could form pus and incidentally cause ulcerative endocarditis. He demonstrated the important part played by the erythrocytes in the coagulation of blood. But amid many minor labors of this sort his principal eminence was in the study of variola and vaccina. He was one of the very few to reach a definite conclusion based on something tangible in the causation of these diseases. These studies began in 1892.

E. LESSER, the incumbent of the chair of dermatology and syphilography in the University of Berlin, died last June. He was for some years the holder of the chair of his special work at Berne, but in 1896 he was called to Berlin, and retained his position there until his death. He was almost a Swiss by adoption and continued to spend his holidays in that country after his removal to Prussia. He was better known as a venereologist than as a dermatologist and his best work was done with the treponema soon after its discovery. Much more modest and retiring than the average Berlin professor he performed unobtrusively a vast amount of first class work in his chosen field.

Obituary Notes.—Dr. JAMES JACKSON PUTNAM died suddenly at his home in Boston, on November 4, aged 72 years. He was graduated from Harvard University Medical School in 1870. He was instructor in diseases of the nervous system from 1875 to 1893 and Professor of Neurology from 1893 to 1912 in his alma mater. Dr. Putnam was widely known as a neurologist and author.

Dr. CHARLES M. SULLIVAN, a graduate of the Maryland Medical College, in 1910, died recently of a complication of diseases at his home in Harrisburgh, Pa., aged 37 years.

Dr. FRANK BAKER of Washington, D. C., died at his home in that city on September 30, aged 77 years. He was a graduate of the George Washington University, Washington, D. C., in 1880, a Fellow of the American Medical Association, professor of anatomy in the Georgetown University since 1883, and for many years lecturer on anatomy at the Corcoran Art Gallery. He was superintendent of the National Zoological Park from 1886 to 1916, president of the Association of American Anatomists in 1897, and once vice-president of the American Association for the Advancement of Science. Dr. Baker was also assistant superintendent of the United Life Saving Service from 1889 to 1890, and editor of the *American Anthropologist* from 1891 to 1898.

Dr. JOHN P. HEYEN, a graduate of New York University Medical College, in 1883, and health officer of Northport, L. I., died at his home in that town on October 30, aged 60 years.

Dr. JOSEPH KAUFMAN of New York died at his home on October 28, aged 30 years. He was a graduate of the Long Island College Hospital in 1910, a member of the American Urological Association, attending genitourinary surgeon to the People's Hospital, and physician to St. Mark's and Mount Sinai Dispensaries.

Dr. MYRON E. STEPHENS, a graduate of the Albany Medical College, in 1888, and health officer of Gardiner, N. Y., died of influenza in that town on October 30, aged 55 years.

Dr. HORACE R. BURNS, a graduate of Gross Medical College, Denver, Col., died of influenza at his home in Denver, Col., on October 14, aged 50 years.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

A CASE OF MEDICAL BOYCOTTING—THE MANUFACTURE OF DRUGS IN ENGLAND—THE DESTRUCTION OF RATS IN SHIPS—THE WAR RECORD OF THE LONDON MEDICAL SCHOOLS—UNCONSCIOUS HUMOR—INFLUENZA IN LONDON.

LONDON, October 18, 1918.

DURING July last a case was heard at enormous length against the organization of the British Medical Association, the complainants being certain doctors living in Coventry, who considered that the action of the Association had molested them in their practice and maligned them in their characters. The case was heard by Mr. Justice McCardie, one of the ablest High Court Judges, who sat, by consent of the parties, without a jury. The story unrolled by various witnesses was a very long one, dating back to as much as twelve years ago; the following are the salient points. In Coventry there has existed for many years an institution called the Coventry Provident Dispensary. To this institution persons paid a penny a week, say a dollar a year, in return for medical attention. By the rules of the Association no one was eligible for this semi-charitable kind of medical attendance who was earning more than £2 a week. The Coventry Dispensary had in 1906 20,000 members, that is to say, it possessed an aggregate income of over £4,000 per annum, half of which was shared up between the staff of doctors, from 5 to 7 in number, and half of which paid the establishment expenses and the drugs. A collector who not only collected the subscriptions but canvassed for new members received in lieu of salary a commission in proportion to his success. There were many such medical associations in the country at that time and medical practice suffered a good deal in consequence. Practitioners were urged to stand out against these contract jobs, and accordingly the local medical men in Coventry met the managers of the Coventry

Provident Dispensary in conference and asked to have the rules of the Dispensary altered so that, first, the collector should be paid by a salary; secondly, the medical officers of the institution should have a position in the management of the institution; and thirdly, the wage-limit should be properly enforced and made retrospective in action. For it was alleged that many of the members of the dispensary, though their wages might have been below £2 when they joined, were now in substantial positions and could well afford to pay practitioners properly. The managers of the Dispensary agreed to appoint a salaried collector, for they understood that otherwise their medical officers might be found guilty of canvassing through the collector's agency when they would be removed from the roll of the profession by the General Medical Council. But on other points reform of the dispensary was refused, with the result that the British Medical Association put the institution on a black-list, instructed their members to take no office in it, and to have no dealings either in private or consultant capacity with any medical man who did take such office. Several of the medical staff of the Coventry Dispensary at once resigned their posts, but their places were taken by other medical men in defiance of the fiat of the British Medical Association. A group of these doctors brought an action against the British Medical Association, by whom they had been relentlessly ostracised, on the ground that the boycott by the Association comprised acts of conspiracy, libel, and slander. The case has been maturing for years but only reached the law courts last summer. Mr. Justice McCardie gave the plaintiff doctors a verdict on all substantial counts, and awarded damages variously divided among three medical men of a total sum which fell little short of £4,000. He found the action of the British Medical Association coercive, illegal, and inspired by malice, giving to the word "malice" not the meaning of spite so much as unnecessary harshness in carrying out their program of boycott. The Association, moreover, is to pay all the costs of the lengthy and expensive trial as well as to submit to an injunction.

At the opening meeting of the October session of the School of Pharmacy of the Pharmaceutical Society of Great Britain, Dr. Addison, the Minister of Reconstruction, said that after the war was over it would be necessary to guard against what had been the greatest danger to the country, namely. the acquiescence in the manufacture for us by Germany of numberless things which British trade ought to have made at home. He made no secret of his belief that in a country where no proper training in the applications of science can be easily obtained—a sadly true description of England—the months and even years of absence from laboratories and dispensaries will mean for many men a serious set-back; but he told his audience that the State intended to minimize such results of the war as far as possible. Pharmacologists, as a matter of fact, have done a great deal to help themselves in this plight. For years before the war we had been dependent in this country on Germany for the supply of many medicinal chemicals and certain herbs which provided the basis of a number of essential drugs. We were dependent on Germany for salicylic acid—the discovery of a British physician; for salvarsan and for many convenient forms of local anesthetic. Aspirin we knew how to make, but had no market for our manufacture. Now we have been able to make most of these anesthetics quite successfully, while developing an interchange with America of such commodities; we have turned out a salvarsan as good as Ehrlich's; our novocain is admirable and is being supplied to our Allies, and all over the country laboratories are engaged in restoring to the country a valuable and interesting scientific calling.

The report of Dr. E. W. Hope, medical officer of health to the Port Sanitary Authority of Liverpool, contains interesting figures with regard to the destruction of rats. Next to London and New York, the position of rat-borne infection is more important to Liverpool than perhaps to any port at the present juncture. Speaking of the recent destruction of some 70,000 rats on quays and in the adjoining sewers, in vessels and in warehouses, he points out that to effect the complete destruction of rats on board vessels it is not sufficient to fumigate with sulphur the holds only, and he strongly recommends the use of various gaseous fumes in the saloons also. In United States ports I understand that hydrocyanic acid gas is employed, but the methods of use must require very careful application. Rat-borne infection is going to be a world problem as a league of nations is being welded closer.

The war record of some of the larger metropolitan medical schools is assuming significant importance. Mentioning only the two largest, St. Bartholomew's and the London Hospital Medical College, we find such figures as the following, taken from the records, compiled by the various deans of the schools for the columns of *The Lancet:*

St. Bartholomew's.—From August 24, 1917, to August 22, 1918, 100 joined the Army and 27 the Navy, making a total of 1918 for the four years. There were: Killed in action, 13; died from wounds, 5; died, 4; wounded, 38; gassed, 1; missing, 2; prisoners of war, 10; repatriated from Germany, 3; interned in Holland from Germany, 1; mentioned in despatches, 147. Distinctions: K.C.B., 2; K.C.M.G., 2; K.B.E., 1; C.B.E., 1; C.B., 4; C.M.G., 8; C.I.E., 2; O.B.E., 6; M.E.B., 1; D.S.O., 20; Military Cross, 39; Bar to Military Cross, 1. Promotion for Distinguished Services, 14; Knight of Grace of St. John of Jerusalem, 2; Associate of St. John of Jerusalem, 1; Order of St. Stanislas (3d Class, with Swords), 1; Order of Kara George (4th Class, with Swords), 1; Cavalier of the Order of the Crown of Italy, 1; Order of Star of Roumania, 4th Class, 1; Order of St. Sava of Serbia (3d Class), 1, (4th Class), 3; Serbian Red Cross Decoration. 1; Croix de Guerre avec Etoile d'Or, 1; Croix de Guerre, 2; Order of St. Anne, 3d Class, 1; Albert Medal for saving life, 2; Bronze Medal for saving life at sea, 1; Order of the Nile, 3d Class, 1; T.D. decoration, 2.

London Hospital Medical College.—The completed figures are: Joined, 1470; killed, 96. Honors: G.C.V.O., 1; K.C.B., 1; K.C.V.O., 2; K.B.E., 3; D.B.E., 1; knighthood, 1; C.B., 5; C.M.G., 9; C.B.E., 3; Companions of Honor. 3; D.S.O., 32; D.S.C., 4; 2d Bar Military Cross. 2; Bar Military Cross, 4; Military Cross, 112; Military Medal, 2; Order of St. John of Jerusalem, 4; Hon. Associates of St.

John of Jerusalem, 2; Legion d'Honneur, Croix de Chevalier, 2; Croix de Guerre, 1; Order Crown of Italy, 1; Order of St. Anne (3d Class, with Swords), 2; St. George's Medal, 1; Order of St. Vladimir, 1; Chev. de l'Ordre de Leopold et Croix de Guerre, 1; and l'Ordre de la Couronne, 2 (both conferred by King of Belgians); Order of the White Eagle, 1; Order of St. Sava, 5th Class (conferred by King of Serbia), 1; Jutland Bank Battle Despatch: Commended, 1; recommended, 3; Mentioned in Despatches, 45.

The main significance in the lists lies not in the category of multifarious and oddly named titles or honors, but in the heavy death-roll. There can be no doubt that the doctor's risk, especially that of the young doctor on the fighting front, is as heavy as that taken by any of his brother officers—as heavy indeed as he likes to make it; and this fact, becoming known to all members of the Services, has led to the complete breakdown in old distinctions between combatant and non-combatant commissions. The Navy has just marked this feeling by abolishing the main differences in the uniforms of the executive and engineering officers and the uniform of medical officers.

The claims of widows upon the pension establishment have been in many instances very humorous, and collections of these have emanated from the bureau, the leak being, of course, unofficial. There may seem something heartless in the publication of these unconscious lapses into the jocose when the subject of the letters is so terribly tragic, but on the other hand it must be remembered that those who deal in bulk with the claims of widows for pensions live in such a perpetual atmosphere of depression that they may well be excused if they pay attention to anything that comes before them of a lighter nature.

"I want the congratulation money for the death of my husband."

"I am the holy dependent of the late soldier."

"If you don't send my pension soon, I shall be obliged to lead an immortal life."

"In answer to yours my child was not born in Wedlock but in Brighton."

These are specimens of the "bulls" which can be noted in lay society, but a number of them, especially where it has been attempted to give a medical turn to the communication, become indecent. It appears that "to go to bed with a doctor" is a term for summoning the doctor to the bedside, and that "to cohabit with gentlemen at the War Office" means to communicate with them by letter.

Influenza has again become rife in London, but although the cases are very numerous, the type of disease does not seem to be so virulent as that prevalent in many other large cities.

The High Calory Diet in Spain.—Dr. Salvador Fernandez Alvarez y Cristobal Zaragoza Garcia of Seville calls the attention of his colleagues to the high calory diet of Dr. Coleman of New York. He thinks the account of this diet, as propounded by the American, "sounds good" and is worthy of trial. The Spanish writer is a little weak on nomenclature of proper names, for in one place he styles the American "Dr. Warren" and elsewhere "Mister Warren Colemann."—*Revista Medica de Sevilla.*

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

A NEW WOUND STERILIZER—LOVING CARE FOR THE AMERICAN SILENT CITIES IN FRANCE—NEW INVENTION FOR THE BLIND—NEW RED CROSS HEADQUARTERS IN PARIS—THE HEALTH STATISTICS OF OUR FIGHTERS—THREE AMERICAN WOMEN COMMISSIONED IN THE FRENCH ARMY.

PARIS, October 7, 1918.

MAJOR JAMES T. PILCHER, M. C., U. S. A., of Brooklyn, N. Y., has made a report on the use of the quinoformol solution in war surgery at a conference of the Research Society of the American Red Cross in France. Demonstrating the efficacy of the sterilizer, and the great advantages which had resulted from its application, he explained that it was a stable solution, easy of preparation, and could be used in an early stage of wound treatment at the field or evacuation hospital. The solution had been tested by a number of surgeons at an American Red Cross hospital on one hundred cases of severely infected wounds, mostly compound comminuted fractures, which had been treated for ten days to two weeks, or longer, with Dakin's solution, and in which the bacterial flora showed no signs of diminution in the great majority of instances.

Observations of the hundred cases showed that there was a pronounced drop in temperature and pulse in many cases on changing from Dakin's solution to quinoformol without any attendant operative procedure. Some wounds showing a count of ten to fifteen bacteria per field were apparently rendered free from germs within three days. Thirty consecutive cases treated within thirty-six to forty-eight hours after receipt of injury, in which preoperative smears were made and the presence of infection established, were rendered sterile within forty-eight hours, and continued to show absence of any bacteria on repeated counts subsequently with one exception.

From Mont-Valerien, at the end of the Bois de Boulogne, Paris spreads out in a panorama. On the eastern slope of the eminence has been located the army cemetery for the Paris district. Here are buried the American soldiers who die in the Paris hospitals. Yesterday, Lafayette's birthday, every one of the 280 graves was decorated with an American and French flag, placed there by the American Red Cross.

The cemetery has been used for only two or three months, but under an army engineer it is rapidly becoming as attractive as a cemetery can be. The engineer's efforts in this direction are helped immensely by the devotion of a large number of people who live in Suresnes, which also gives its name to the cemetery. These French people, most of them women, have adopted from one to fifteen graves; that is, they have assumed the duty of placing flowers on them and keeping them as green as the clay soil will permit. On most of the crosses is a little card, reading, "Adoptée par Madame ———," or "Entretenue par Madame ———." Vases, beadwork wreaths, many of them of very elaborate workmanship, and boxwood edgings, as well as flowers, are used to beautify the graves of the American dead. Back of the slope, and framing it, as one looks toward the cemetery from the roadway, is a fringe of

locust trees. The oldest grave in the cemetery is that of Private Boughet of the —— Infantry, National Guard, who died on March 26, 1918. Most of the dates on the plates tacked to each wooden cross are of a much later period, and the majority, as one might expect, bear the announcement that the soldier buried there was a U. S. Marine. Two of the graves bear marble slabs with the French and American colors, and the inscription, "Morts pour la Patrie," as indeed they did.

The Hotel Regina, situated at the corner of the Rue de Rivoli and Rue des Pyramides, has been taken over by the American Red Cross, and will become the headquarters of that organization in France. The new building is soon to be occupied by all the departments of the Red Cross, with the exception of the northeastern zone, which will remain at 4 Place de la Concorde. The bedrooms and bathrooms of the Hotel Regina are being converted into offices, and as soon as this work is done the departments of the Red Cross will begin moving into it. The large dining room, which will accommodate 200 persons, will be used as an assembly hall and the vast kitchens will be used for preparing cakes, candies, and ice cream, which are to be shipped to hospitals in the Paris district.

Experiments of great interest from a scientific as well as humanitarian point of view are being made at Nice on soldiers blinded in the war. M. Kann, a Polish savant, who is a soldier in the Foreign Legion, has invented an apparatus which may restore the eyesight of men blinded by an accident, and particularly of those who have lost their sight through wounds. His invention is based on the two following considerations: (1) There are no opaque bodies; that is to say, certain light rays can render objects visible through a screen; (2) blindness, even in the most serious case of enucleation of the eye, does not bring about the insensibility of the optic nerve, which, as long as it is living, remains susceptible to the influence of luminous impressions.

M. Kann has been authorized to come to Nice on special permission to carry out his experiments. He has constructed an apparatus of small volume, in the form of a mask, or half mask, which is placed on the face of the blind man, and which is connected by wires with a portable electrical induction apparatus. Lenses, total reflection prisms, a camera filtering the light rays, and phosphorescent plaques complete the apparatus. The principle of the invention is progressive reeducation, varying in period with each subject and the length of time which the blindness has existed. Gradually, in accordance with the exact prognostications of the inventor, the blind men who have been subjected to the experiment for a few hours daily have successively perceived, instead of the yellowish gray tint which habitually in their case replaces sight: (1) All the colors of the spectrum, beginning with red; (2) natural white light; (3) shadows, and then objects in this light. One of them has distinguished ordinary furniture, discriminated between two and three fingers of a hand, and indicated the limits of a well-lighted garden. These experiments have been interrupted for the moment, but are to be resumed.

A health rate that has been established by the American armies in France and back home, so far as is known, has never been surpassed. For the week ended July 26 the combined reports of the A. E. F. and of troops stationed in the United States show an annual death rate for disease of 1.8 per thousand, less than two per thousand per year. The annual death rate for disease of men of military age in civilian life is 6.7 per thousand. This new rate is based on an approximate strength of 2,500,000 men, and includes men living under abnormal conditions. The oversea record was made while American soldiers were participating in the heavy fighting in the Marne salient, when they were frequently compelled to sleep and eat under the most primitive conditions. That this record is truly representative of the general health of the troops is shown by the combined reports, which indicate the figure of 2.8 per thousand as the average death rate for disease during the past two months.

The American women physicians who have come to France with the "Women's Overseas Hospitals," under the National American Woman Suffrage Association, are making a name for themselves in France and for American women in general. The first commissions which the French government has given to American women physicians have been given to three surgeons of the Women's Overseas Hospital. Dr. Caroline Finley, Dr. Lee Edward, and Dr. Anna Sholly, who have been engaged in a French hospital at the Château d'Ognon, near Senlis, since last April, have been made first lieutenants in the French army, and this on the heels of receiving the Croix de Guerre last week. One of the nurses of the same unit, Miss McKeene, also received the Croix de Guerre. It seems that the entire unit has accomplished excellent work, its citations showing that it has been brave and courageous while performing its duties under fire. While working in a French hospital the members have been able to do a great deal for our own men, as many American wounded were received at the château during the summer.

The first unit of the Women's Overseas Hospitals arrived in France last March, and was immediately put into action by the French Service de Santé. A second unit is doing refugee work near Bordeaux, and the third unit has recently arrived in France and has been assigned to work in a French hospital for gas patients near the front. While waiting to be sent to this hospital the members of the unit are being instructed in the care of the gas patients in Paris. They have been visiting the various gas hospitals for the past few days, and expect to receive further instruction next week. Military Unit No. 1 is under the direction of Dr. Caroline Finley; No. 2, at Labouheyre, is under the direction of Dr. Marie Formad; and Dr. Marie L. Lefort is the director of No. 3 for the treatment of gas cases.

Were Columbus's Sailors the First European Syphilitics?—In *Il Policlinico* for April 14 appears a long digest of an article with this title written by Downing for the *Boston Medical and Surgical Journal* about two years ago in which Bloch's theory of the American origin of syphilis was adversely criticized. The editor while making but little comment appears to be in full sympathy with Downing's viewpoint. In addition to Bloch's failure to prove his case there is something unworthy in the attempt to dim the glory of Columbus's achievement by making him responsible for the spirochete's ravages in Europe.

Progress of Medical Science.

New York Medical Journal.

November 2, 1918.

1. New York State's Problem of the Care of the Feebleminded. Walter B. James.
2. Nervous and Mental Disturbances of Influenza. Smith Ely Jelliffe.
3. Psychopathic Control of Prostitution. J. O. Cobb.
4. Diseased Tonsils and Focal Infection. Harry Rodman.
5. The Allen-Joslin Treatment of Diabetes Mellitus. Albert Woldert.
6. A Few Avoidable Errors. Robert H. MacNair.
7. Reflex Convulsions During Dentition. Charles Rosenheck.
8. Medical Notes from the Front. Charles Green Cumston.

4. Diseased Tonsils and Focal Infection.—Harry Rodman reports a number of cases of joint conditions resulting from focal infection due to diseased tonsils, which were greatly benefited by tonsillectomy. Removed tonsils were examined in all cases; in most of them pathogenic bacteria were found, particularly various streptococci groups, and in some circumscribed abscesses were found imbedded deeply in the tonsillar tissue and near the capsule. Tubercle bacilli were rarely met with. The preoperative administrations of vaccines did not prove to be of benefit, but the writer believes that after tonsil enucleation, if symptoms have become aggravated temporarily, they may be of use. From his own experience and that of others Rodman feels justified in recommending removal of tonsils in all patients suffering with local and systemic infection and where the tonsils are at all diseased. On the other hand, the condition of the accessory sinuses, the teeth, ears, etc., should be studied for possible forms of infection and as connecting links in the chain of causative agents in the production of painful joints and other ailments. Such conditions as pyorrhea, sinusitis, gonorrhea, syphilis, colitis, state of the entire genital tract, must be investigated, and Wassermann tests, *x*-ray examinations of the ethmoid frontal sinuses, the antrum of Highmore, complement fixation tests, etc., should be made before arriving at a definite conclusion in regard to the seat of focal infection.

Journal of the American Medical Association.

November 2, 1918.

Etiology and Treatment of Pruritis Ani: Summary of Eight Years' Original Research Work. Dwight H. Murray.
The Subnormal Colon Function. William M. Beach.
Municipal Health Administration: General Considerations. Ernest C. Levy.
Health Administration in Cities of Less Than Twenty Thousand Population. D. B. Armstrong.
Public Health Administration in Cities of from Twenty Thousand to One Hundred Thousand. J. M. Furstman.
The Organization of Health Departments in Cities of One Hundred Thousand to Five Hundred Thousand Population. J. H. Landis.
Cerebral Spastic Paralysis. M. E. Blahd and Walter C. Stern.
Streptococcus Pneumonia and Empyema: An Infection Affecting Eight Members of One Family with Seven Deaths. Walter L. Bierring, C. B. Luginbuhl, and C. W. Burt.

The Lancet.

October 12, 1918.

1. The Treatment of Gunshot Wounds of the Joints. Part I. Captain J. Campbell.
2. Some Aspects of Infant Feeding. J. C. Drummond.
3. Prophylactic Vaccinations Against Catarrhal Infections of the Respiratory Tract. John W. H. Eyre and Captain C. E. Lowe.
4. The Diagnosis of Early Phthisis. Alfred Foster.
5. Trench Fever: A Critical Analysis of the Report of the American Commission. Sir William Osler, Bart.
6. Some Considerations of the Tuberculosis Problem: Report of the Tuberculosis Department, St. Thomas's Hospital. R. C. Wingfield.
7. An Operation for the Cure of Pterygium. Major G. F. Alexander.
8. A Case of Staphylococcus Phlebitis. C. Wyndham Gittens.

3. Prophylactic Vaccinations Against Catarrhal Infections of the Respiratory Tract.—John W. H. Eyre and Captain C. E. Lowe report the results of a series of prophylactic inoculations with mixed vaccines against purulent bronchitis and respiratory catarrhs in New Zealand troops in England. In January, 1918, 327 cases of measles and rubella, all of a mild type, occurred among members of a certain reinforcement of the New Zealand Expeditionary Force, which had arrived in England on the 7th and 9th of that month. During February a further 124 cases were admitted to hospital, and of these 24 died. An investigation revealed the fact that the exanthem was usually complicated by "purulent bronchitis," clinically identical with an outbreak which occurred in the Aldershot command early in 1917. The bacteriological findings were: *B. influenzæ* was present on one or more occasions in 12 out of 14 sputa examined, usually associated with *Streptococcus longus* and various types of *Micrococcus catarrhalis*. In fatal cases the heart blood and spleen showed the presence of *Streptococcus pyogenes longus* with marked hemolytic properties. Morbid histology of pulmonary tissues consisted chiefly of a purulent bronchitis and peribronchitis associated with areas of edema, areas of collapse, and patches of lobular bronchopneumonia, while at the bases of the lungs the process tended to involve larger areas, and, in rare instances, to progress to complete consolidation. The incidence of rubella and morbilli must be regarded, therefore, in many instances as a predisposing cause producing the initial lowering of resistance which facilitated the entry of the *B. influenzæ*; in other cases the eruptive fever appeared to be merely a coincidence. The few blood counts that were made showed a slight but distinct polymorphonuclear leucocytosis, not only relative, but also absolute. Bearing in mind the susceptibility of the average New Zealander to infections of the respiratory tract, it was decided to attempt to immunize reinforcements by prophylactic inoculation against catarrhal infection, and arrangements were at once made for the vaccination of the entire personnel of the two most recent reinforcements in England. A multiple vaccine was prepared from organisms contained in the secretions of purulent bronchitis and in the sputa of other catarrhal cases among the troops in England. The vaccine was prepared in two strengths, the dosage to be 5 c.c. on each occasion, the second dose, *i.e.* the stronger vaccine, to be administered ten days after the first. The initial dose was given to 2081 men; in 97.7 per cent. there was no reaction, in 2.0 per cent. the reaction was slight, and in 0.3 per cent. severe. The number of men who received the second inoculation was 1627; in 98.8 per cent. there was no reaction, in 0.7 per cent. slight reaction, in 0.4 per cent. severe reaction. A statistical record was made of the results of vaccination in the first 1000 cases inoculated and this has been compared with the average of all respiratory complaints occurring per 1000 among uninoculated New Zealand troops in the United Kingdom from March 15, 1918, to August 18, 1918. This shows that whereas only 12 cases of respiratory complaints among the inoculated men were admitted to hospital, the average among uninoculated troops was 73.1 per 1000. Anticipating a "negative phase" as a result of inoculation, the authors arranged that all cases, however trivial, should be admitted to hospital; 15 admissions were reported between the first and second dose of vaccine, and 82 during the ten days following the second inoculation. The authors therefore suggest that the initial dose might be larger, or the interval between the two doses a few days longer. The effect of the inoculation was demonstrated in June, when a widespread pandemic of influenza commenced, the prime factor being the *B. influenzæ*, associated in severe cases with other catarrhal organisms. The incidence of this epidemic was appreciably less among the inoculated men, being 2 per 1000 as against 28.4 per average thousand. Serological tests were made in the case of 20 New Zealand soldiers both before and after inoculation and 10 English soldiers who had not received any catarrhal vaccine or suffered more than ordinarily from catarrhal complaints. The number of cases was too small to permit of much weight being accredited to the results, but it would appear (1) that the average colonial, just arrived in England, has only about 50 per cent. of the natural immunity to the organisms of catarrh prevalent in England that the average English soldier enjoys; (2) that as a result of catarrhal vaccination his immunity can be considerably increased, and (3) that, at any rate for a time, his specific agglutinins to catarrhal organisms exceed in amount those of the average Englishman.

British Medical Journal.

October 12, 1918.

1. A Clinical Lecture on Renal Dropsy. Sir T. Clifford Allbutt.
2. Acute Ulcerative Gingivitis. Captain Claude G. Colyer.
3. On the Amino-acid Content of Nutrient Media. I. Walker Hall, with the assistance of A. Campbell and I. Hiles.
4. An Analysis of Causes of Breakdown in Flying. With Notes on the Nervous Mechanism of the Flying Man. Captain Norman S. Gilchrist.
5. Some Aspects of Maxillary Antrum Disease. W. Barrie Brownlie.
6. Intravenous Saline in Blackwater Fever. Captain Adam Patrick.
7. Two Cases of Artificial Pneumothorax. Cecil G. R. Goodwin and Frederick C. Coley.
8. Filariasis Amongst Australian Troops. Captain R. Rimmer.
9. The Administration of Anesthetics to Soldiers. Harvey Hilliard.
10. An Eight Months' Extrauterine Pregnancy. A. T. Nash.
11. A Case of Status Epilepticus. A. Lloyd Davies.

4. An Analysis of Causes of Breakdown in Flying. With Notes on the Nervous Mechanism of the Flying Man.—Captain Norman S. Gilchrist has chosen the term "breakdown" to describe patients rejected by the Royal Air Force Special Medical Board as permanently unfit, that is unable to fly for at least six months, more probably for years, and possibly never. He points out that the great difficulty is to distinguish between nervous subjects who will not make good flyers and the highly strung, sensitive type, who is healthy otherwise and whose nerves are under control—a type who has proved over and over again the finest flyer of all. An analysis of 100 consecutive cases showed the cause of failure to be psychological or subjective, i.e. loss of confidence or general breakdown, in 67 cases; objective nervous conditions in 14 cases; and physical complications in 18 cases. A careful review of the candidate's past nervous history will give valuable information as to his fitness for duty as a flying officer. Since an unstable nervous temperament is hereditary, the family history is important, 27 per cent. of failures giving a nervous family history; a nervous personal history (40 per cent. of failures) must also be considered, and nothing leads to failure more surely than a history of a serious nervous breakdown (30 per cent. of failures). The time at which such a breakdown took place makes little difference. In the case of observers who come up for training as pilots with a history of such breakdown, certain men of unusual strength of will and character may be accepted, if there are no active symptoms and if they have had a prolonged rest since the breakdown. In the qualified pilot much depends upon the cause of the breakdown and on the individual; if due to stress of service or malaria, recovery should take place; experience, however, has shown that few stand the strain of service long enough to justify their training. Dreams, nightmare, and somnambulism in infancy resulted in 21 per cent. of failures, and in adult life in 55 per cent. of failures. Such a history is a sign of an unstable nervous system, and the author points out that even a qualified flying officer should be free from nightmare for eight or ten weeks at least before commencing to fly again. Thirty-seven of the cases gave a history of concussion or shell shock. Candidates with a history of concussion with prolonged unconsciousness should be rejected except in very special cases; if followed by nervous breakdown, every case should be rejected. This applies also to shell shock. Qualified pilots with history of concussion may be employed again after two or three months' rest, if recovery has been speedy and has not been followed by nervous breakdown. However, they should be given light duties at first with dual control. Where there has been more than one attack of concussion, very prolonged rest is necessary. As a rule both in candidates and flying officers affections of the higher cerebral functions (which occurred in over 52 cases of the series) preclude future flying; they may make capable instructors after due rest, but as pilots they do not last even if they resume flying. Thirty-six of the cases gave a history of recent malaria, and Captain Gilchrist emphasizes strongly the fact that malaria is often the direct cause of a breakdown of the nervous system and especially of the higher cerebral processes. Under rest and appropriate treatment such cases do well. Exaggerated reflexes (82 cases) and tremor (73 cases) in themselves are not of importance. In deciding whether or not to reject a candidate who is highly strung, a great deal depends upon the individual; the university athlete who has been trained to self-control will probably justify training expenses, but it is better to reject the introspective clerk with little experience of outdoor exercise or sport. Much depends also on the way in which such subjects are handled in training. They are sensitive of criticism and overanxious to do well and should be encouraged rather than found fault with. Finally, medical officers who believe that the ailments of the neurasthenic are imaginary and can be voluntarily set aside should not be attached to flying schools, where the medical problems give scope for the finest scientific minds.

6. Intravenous Saline in Blackwater Fever.—Captain Adam Patrick points out the importance of increasing the flow of urine in cases of blackwater fever, as the great danger lies in obstruction of the kidneys through deposition of brown amorphous material in the tubules. What is wanted is a rapid copious passage of water through the renal channels, which can be best obtained by intravenous injection; and this should be done before the tubules become blocked. Captain Patrick cites a case in which the patient's life was probably saved by the timely injection of sodium chloride solution intravenously, and in which recovery was rapid and uninterrupted. He notes that the textbooks on tropical medicine usually suggest giving saline solution intracellularly or by the rectum.

Berliner klinische Wochenschrift.

September 2, 1918.

Fibrin as a Means of Defense and Cure.—S. Bergel, although not offering any really new facts, shows the bactericidal and reconstructive part played by fibrin. This junction belongs to it, just as the protealific junction belongs to the polynuclears and the lipolytic junction to the lymphocytes. The protective junction of wounds is without reason often attributed to the granulation tissue which is simply the result of the cleansing action of the fibrin on the wound. Venous thrombosis is also a phenomenon of defense, quite capable of preventing generalization of sepsis. The same applies to the false membrane of diphtheria, etc. The writer also calls attention to his experiments which demonstrate the unfavorable action of fibrin on the growth of staphylococci in the autoclave.

The Cinematograph as a Means of Teaching Surgery.—Von Rothe has improved upon the various procedures of cinematography and believes in the possibility of teaching by means of films. He only cinematographs the field of operation and the operator's hands. The carbon lamps are placed outside of the operating room and the cinematographist is replaced by an electrical mechanism, the film being manipulated by the operator by means of a foot-pedal. It is thus possible to stop it at the moment of certain more important steps in the operation.

Münchener medizinische Wochenschrift.

August 27, 1918.

Deep-Seated Bullets; the Use of the Electromagnet for Their Search.—Wieting sums up the experiments carried with this procedure. From his own researches he is of the opinion that the greatest improvement so far realized is the separation of the probe from the body of the magnet. By this means one can manipulate the probe so that it can be brought almost down to a missile lodged in the depths of the brain. It is then connected with the magnet and the foreign body removed. Wieting offers other suggestions derived from experience. For instance, all the pieces of missile removed should be spread in a line in order to compare them with the number of spots shown on the *x*-ray plate. One must not forget to keep at a distance pins, forceps, etc., which might be drawn into the wound. The writer even goes to the trouble of mentioning the fact that watches are spoiled for good if they pass into the field of the magnet. A metallic operating table is dangerous, inasmuch as it may be the means of drawing the probe too deeply into the central substance; therefore a wooden table should be used. The magnet may

also be resorted to as a diagnostic measure. If it is passed over a wound of the soft parts one can see the area containing the missile rise to meet it and so guides the surgeon in his search for bullets and other projectiles.

Vascular Wounds.—W. Zehn describes a phenomenon that he has twice observed out of a total of fifty cases of arterial wounds, namely, a wound of a collateral producing a hematoma compressing the main artery. The presence of the hematoma and the absence of the peripheral pulse tend to mask the correct diagnosis inasmuch as the main artery is supposed to be involved. At operation the cleaning out of the hematoma removes the compression and the peripheral pulse returns. The writer questions how the pressure of the clot can become sufficiently strong to compress a large artery such as the femoral. He explains it by the hemorrhage itself, which tends to diminish the blood pressure as the tension in the hematoma increases from the afflux of blood from the wounded vessel.

Deutsche medizinische Wochenschrift.

August 29, 1918.

A Comparison of the Forces of the Blood Current, Theoretical and Practical.—K. Hürthle comes to a negative conclusion on this question, namely, to ascertain if forces other than the cardiac impulse play a part in the progression of the blood (arterial contractility, etc.). He bases this conclusion on the calculation of the forces necessary for this propulsion, taking into account the identity of the necessary theoretical forces with the figures derived experimentally.

The Regeneration of Striated Muscle.—A. Bier, in concluding this article, offers some more observations in support of his thesis of the possibility of regeneration of muscular tissue. Far from being nil as has been maintained too often, this regeneration may result in a more perfect reconstitution of tissue than any other type of tissue regeneration (bone for example). This fact, the practical importance of which is less than that of nerve or bone regeneration, has a considerable scientific importance. It overturns the too general axiom which maintains that tissues and organs regenerate all the more incompletely and with difficulty the greater be their differentiation. Bier, for that matter, attributes the greater or lesser power of regeneration to the presence of favorable conditions, rather than to a special disposition or faculty of any given tissue of the organism.

Treatment of Malaria by Quinine Alkaloids and Their Chemical Substitutes.—J. Morgenroth first of all is opposed to the belief that the part played by quinine is merely parasiticidal. The study of the concentration of quinine in the blood during treatment, even when intensive, shows that this is absolutely insufficient to realize such an effect. (Exhibition of quinine hydrochlorate by mouth in the dose of 50 centigrams to 1 gram, blood concentration of 1/150,000 or even less. Five minutes after an intravenous injection of the same dose the concentration is 1/20,000 or less.) The writer next puts the question as to what mechanism may be substituted for the generally accepted explanation of the action of the drug and for this purpose he takes up the relations of the quinine alkaloids with the red blood corpuscles. The writer pretends that he has been able to see the erythrocytes take up quinine and that the drug accumulates in the corpuscles. This reaction is realized *in vitro* at the same concentrations as the quinine treatment can realize in the circulating blood.

Correspondenz-Blatt fuer Schweizer Aerzte.

June 29, 1918.

Problems of Nutrition.—Silberschmidt states that the lessons of the great war on diet and nutrition are not yet obvious because there has been no opportunity to digest them. Data obtained before the war show that 51 per cent. of the protein of the Swiss people comes from milk and milk products; 24 per cent. from meat; 13 per cent. from fruit and vegetables, and about 5 per cent. each from potatoes and grain. Of fats, 68 per cent. of the whole is supplied by milk and milk products and 26 per cent. from meat, while the per cent. from grain and potatoes is negligible and about 3 per cent. comes from fruit and vegetables. Of carbohydrates 35 per cent. comes from fruit and vegetables, 24 per cent. from potatoes, 20 per cent. from milk and milk products and 18 per cent. from grain. Of calories 41 per cent. comes from milk and its products, 20 per cent. from fruit and vegetables, about 15 per cent. from meat, 12 per cent. from potatoes, and 10 per cent. from grain. Milk is therefore the mainstay of the Swiss. Next in value come fruit and vegetables. If potatoes are included under vegetables the two classes furnish nearly 75 per cent. of the total calories. The small rôle played by cereals in the diet of the Swiss is impressive. The average per capita consumption of milk and its products in that country is over 320 kilos, nearly all of this class of food being of domestic production. The average per capita consumption of bread and other dough products is less than 200 kilos and nearly half must be imported. The average consumption of fruits is 91 kilos and this class is mostly domestic in source. Of potatoes over 200 kilos per head are used, nearly all domestic. All other classes of food are largely imported and the country produces very little sugar, fats (aside from butter fats), poultry, eggs and fish. Even vegetables are freely imported. Switzerland is eminently deficient in carbohydrates and normally imports 60 per cent. of this class. After the war had cut down the imports Switzerland began to cultivate the potato more intensively. The cereal crop was also increased, but so badly off in this respect has the country been that but little headway has been possible so far. It must therefore for the present make up all carbohydrate deficit from an increased production of fruits and vegetables. The per capita consumption of alcohol is over 180 kilos and there is not the slightest hint that the making of spirits should revert to the food classes, although the whole subject of food economics is reviewed.

Correspondenz-Blatt für Schweizer Aerzte.

July 13, 1918.

Herpes Zoster Nasofrontalis with Extensive Paralysis of Eye Muscles.—Loeffler describes a case of this rare association in an old woman whose health had always been excellent. On February 28 of the present year she was attacked very suddenly with pains in the side of the head and face, which persisted and were associated with pain and redness in the eye of the same side (right). The lid became puffy and a red area appeared on the forehead upon which vesicles formed. The first diagnosis was facial erysipelas, and malaise and fever supported this view; but on the following day she was afebrile. The severe pains in the head prevented sleep and these even increased just as the redness and swelling began to clear up (after 4 days). Patient was not seen until the eighth day of the disease. The appearances were those of ordinary frontal zoster with the extension of the area down the right side of the nose until within half a centimeter of the tip. The line of demarcation in the middle of the nose was sharply drawn. There was no eruption in the nasal mucosa, but the sense of taste was somewhat disordered. The conjunctiva of the right eye was injected and there was slight chemosis, while one vesicle of herpes was present at the limbus of the cornea. The eye was now closed tightly. There was a haziness of the cornea and the pupil was rigid to light and accommodation. The cornea was anesthetic. The zoster gradually improved and left no sequelæ with the exception of the ocular peralyses about to be described. The closure of the eyelid was not due to swelling but to ptosis and the patient was also unable to turn the eyeball upward. Eventually it became evident that the eye could not be turned downward nor outward. The diagnosis finally ran as follows: total internal ophthalmoplegia and partial external ophthalmoplegia. In order to explain this localization, one must suppose a primary lesion of the Gasserian ganglion plus a secondary neuritic process in the involved motor nerves.

Increase in Births in Women Over 35.—In Hesse a larger percentage of women over 35 years of age are bearing children than was the case before the war.—*Correspondenz-Blatt für Schweizer Aerzte.*

Book Reviews.

NAVAL HYGIENE. By JAMES CHAMBERS, A.M., M.D.; Medical Inspector, United States Navy; Master of Arts in Hygiene, Johns Hopkins University; Head of Department of Hygiene, United States Naval Medical School; Professor of Preventive Medicine, George Washington University. Published with approval of the Surgeon-General, United States Navy, and by permission of the Navy Department. With 153 Illustrations. Price, $3.00. Philadelphia: P. Blakiston's Son & Co., 1918.

NAVAL hygiene is of more importance than ever before. The construction of the modern ironclad lends itself, in some degree, to insanitation. Space is more limited by far than in the roomy old wooden three-deckers, and the materials used in the building of the up-to-date dreadnought renders it necessary that particular care be paid to introducing the best hygienic methods possible. In "Naval Hygiene" Dr. Pryor deals with the entire subject at length, not only so far as the navy is concerned but with the hygiene of merchantmen also. The work is peculiarly appropriate at the present time.

NURSING IN DISEASES OF CHILDREN. By CARL G. LEO-WOLF, M.D.; Chief of Clinic for Sick Babies and Children for the Health Department of the City of Buffalo, N. Y.; Instructor in Pediatrics, University of Buffalo, Medical Department; Author of "The Child in Health and Sickness." With 72 Illustrations. Price, $2.50. St. Louis: C. V. Mosby Company, 1918.

IT would be superfluous to elaborate on the vital importance of pediatrics at the present time. The fact must also be taken into consideration that in the successful rearing of a child good nursing—that is, scientific nursing—is the primary factor. But the good nurse is not like the poet, "born and not made." She has to be instructed and trained in the art of scientific nursing. Dr. Leo-Wolf has written this textbook with the view of so instructing the nurse and appears to have succeeded well in his object. The book is excellently illustrated.

HYGIENE FOR NURSES. By NOLIE MUMEY, M.D.; Lecturer in Hygiene, Chemistry, and Bacteriology, Logan H. Roots Memorial (City Hospital) Training School; Assistant Instructor in Surgical Technique, University of Arkansas; Resident Physician of City Hospital and a Member of the Visiting Staff, Little Rock, Arkansas. With 75 Illustrations. Price, $1.25. St. Louis: C. V. Mosby Company, 1918.

THIS is a small volume, containing superficial instruction on hygiene. For those who know nothing of the subject, the book may prove of some use. Many of the statements are inaccurate or misrepresent the truth, and the illustrations take up much valuable space. Among the curiosities of information presented for the instruction of nurses we find: "In the male (infant) a long adherent prepuce with adhesions may cause convulsions or enuresis. The glands should be retracted and anointed with vaseline until the adhesions disappear"; "Eugenics does not mean infanticide." The statements that "in tertian malaria the paroxysms occur every third day, and in quartan they occur every fourth day," are liable to be misunderstood. Misprints are numerous: "Koplick's spots," "Pfeifer bacillus," "Aeds colopus," "Glossina polpolis," "Opthalmia,' "cassion's disease," should be corrected.

A TEXT-BOOK OF ELEMENTARY MILITARY HYGIENE AND SANITATION. By FRANK R. KEEPER, A.M., M.D., Colonel, Medical Corps, United States.; Formerly Professor of Military Hygiene, United States Military Academy, West Point. Second Edition, Reset. Price, $1.75. Philadelphia and London: W. B. Saunders Company, 1918.

THIS is the second edition of the very useful text-book on military hygiene written by Colonel Keeper and published in 1914, just previous to commencement of the Great War. It has been thoroughly revised, a revision rendered necessary by trench warfare and by other innovations in modern methods of fighting. The book covers the entire subject, is written in concise, plain language and is admirably adapted for instruction of army officers and men as well as for others who are engaged in work behind the lines and in camps at home.

MEMORANDA ON ARMY GENERAL HOSPITAL ADMINISTRATION. By Various Authors. Edited by P. MITCHELL, M.D., Aberd. Lieut. Colonel R. A. M. C. (T.F.); Officer Commanding No. 43 General Hospital. Price, $2.25. New York: Paul B. Hoeber, 1918.

THIS volume contains but little more than a hundred pages and, save for a few diagrams, is quite free from illustrations. The subject should be rather trite by this time, and we fail to see the necessity for a new work of this character and size. The individual chapters deal with the officers, the coördination between the civil and military authorities, the nursing service, kitchens and cooks, medical division, surgical division, camp sanitation, clerical service, etc.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College, Philadelphia. Assisted by LEIGHTON F. APPLEMAN, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. September 1, 1918. Price, $6.00 per annum. Philadelphia and New York: Lea & Febiger.

THE first eighty pages of this volume contain a review of diseases of the thorax and its viscera, including the heart, lungs and bloodvessels, by W. Ewart. Gottheil's review of Dermatology and Syphilis is, as usual, complete and interesting. The section on Obstetrics, by E. P. Davis, is the longest in the volume, and contains a valuable summary of the recent work on the relation of the glands of internal secretion to obstetrics. The final paper is by W. G. Spiller, on Diseases of the Nervous System. The volume is smaller than usual, probably on account of the scarcity of paper.

PRACTICAL BACTERIOLOGY, BLOOD WORK, AND ANIMAL PARASITOLOGY. Including Bacteriological Keys. Zoological Tables and Explanatory Clinical Notes. By E. R. STITT, A.B., Ph.G., M.D., Medical Director, U. S. Navy; Commanding Officer and Head of Department of Preventive Medicine, U. S. Naval Medical School; Graduate, London School of Tropical Medicine; Professor of Tropical Medicine, Georgetown University; Professor of Tropical Medicine, George Washington University; Lecturer in Tropical Medicine, Jefferson Medical College; Member, National Board of Medical Examiners; Member, Advisory Board, Hygienic Laboratory; Formerly Associate Professor of Medical Zoology, University of the Philippines. Fifth edition. Revised and enlarged. With 1 plate and 144 other illustrations containing 598 figures. Price, $2.00. Philadelphia: P. Blakiston's Son & Co.

THIS little book is well known as a work of sterling merit. The author has succeeded in giving the busy student and practitioner the necessary information on the subjects handled in this volume, and has wisely omitted all padding and non-essentials. In this new edition the author has added paragraphs on the agglutination of meningococci and pneumococci; the Dreyer method for interpretation of agglutination reactions of typhoid and paratyphoid infections has also been given in the section on immunity; a new chapter on poisonous arthropods and fishes has been added; new material, including preparation of Dakin's solution, has been added to the section on disinfectants; delousing methods are included; a brief presentation of Mosenthal's nephritic test diet method of studying renal functioning will be found in the section on urine.

INTERPRETATION OF DENTAL AND MAXILLARY ROENTGENOGRAMS. By ROBERT H. IVY, M.D., D.D.S., Major, Medical Reserve Corps, United States Army, etc. Price, $2.50. St. Louis: C. V. Mosby Co., 1918.

THIS volume is an atlas of 259 illustrations, comprising in addition to roentgenograms numerous photographs and microphotographs. In addition to interpretation of radiograms, chapters are devoted to anatomy, pathology, clinical findings and the techniques of roentgenography, all of these sections leading up to the subject of interpretation, which constitutes the second part of the work.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Sixty-eighth Annual Session, Held at Philadelphia, September 23, 24, 25, and 26, 1918.

First Day—September 23.

DR. WALTER F. DONALDSON OF PITTSBURGH IN THE CHAIR.

President's Address: Medical Activities in Pennsylvania.—Dr. FREDERICK L. VAN SICKLE, the president-elect, delivered this address. Attention was called to the fact that for the first time in the history of the Medical Society of the State of Pennsylvania the society had sustained in the death of Dr. Samuel G. Dixon the loss of a president during his term of service. An earnest tribute was paid to the late president whose influence upon medical and civic affairs had been much beyond that possible to the average member of the profession; and the hope was expressed that the work established by Dr. Dixon might be fully continued. Emphasis was placed upon the outstanding duty of the medical profession to become organized in either the Medical Reserve Corps, or the Volunteer Medical Service Corps. The desirability of the creation of a commission in the society for correlation of work with the War Department was urged. Social insurance was shown to need the help of all thoughtful workers in this field; closely allied to such question was the matter of physical examinations that the industrial worker might be kept fit. Greater business acumen, it was also suggested, should obtain in the medical profession. The plan of the president of the American Medical Association relating to the supply of medical men was endorsed for adoption by colleges. President Van Sickle felt that the time had long since passed when there should be demanded of the Federal and State governments legislation eliminating the manufacture and sale of alcoholic beverages, not merely as a war measure, but for all other known reasons.

Interpretation of the Manifestations of Shock.—Dr. C. C. GUTHRIE of Pittsburgh recommended that the term shock be reserved for the condition exemplified by the acute clinical state; and that the term collapse be employed to designate the moribund state following shock or any other condition. Experimental evidence was presented supporting the probability that the primary derangement in shock is of nervous character. In collapse, indirect and general considerations, it was said, indicate profound nervous derangement; the conditions in shock and collapse differ fundamentally and treatment indications differ accordingly. In shock associated with severe hemorrhage restoration of blood volume was indicated. For this purpose transfusion seemed best, but beneficial action might be obtained by intravenous injections of artificial solutions. The addition of a colloidal substance to such solutions was said to cause their longer retention. For this purpose dilute acacia was preferable to other substances hitherto employed. Preventive measures and prompt treatment were regarded as strongly indicated. Preventive measures were omitted from the discussion from lack of adequate first hand observations. Discussion of theories was omitted for the reason that at the present time they are legion and no one has overwhelming support.

Surgical Shock in Face Mutilations and Coincident Injuries.—Dr. JOHN B. ROBERTS of Philadelphia said that "shock" was used to cover many symptoms following injury such as anemia, fat embolism, rapid absorption of septic fluids, rapid abstraction of heat from abdominal organs. Porter's conclusions relative to fat embolism, enforced inhalation of carbon-dioxide, in Dr. Roberts's opinion, were apparently largely founded upon examination of cases many hours after injury. Lowering of the alkali reserve in the blood after anesthesia and operative attacks, and the beneficial effect of intravenous use of alkaline solutions, it was said, seemed to indicate a possible relation between shock and acidosis. Avoidance of fall of blood pressure, prevention of pain, and control in severity of traumatism were enumerated as essential to prevention of shock. Treatment required that the blood pressure of the wounded be raised above the critical point. Elevation of the feet and intravenous injection of saline solution would raise diastolic blood pressure to 70 or 80 mm. Adrenalin might be used in addition if the pressure again fell. When gravity exerted by elevating the feet and trunk retained the blood pressure at 75 or 80 intravenous medication might be stopped. External heat was mentioned as of highest importance. Pressure should be made upon the wound and not by tourniquet above wound. Frequent blood pressure examinations were regarded as of great value as a guide. Geoffrey Marshall's objection to morphine was regarded by Dr. Roberts as probably an unwise opinion and founded upon anesthetic observations rather than upon the study of clinical surgery as an operating surgeon.

Dr. S. J. MELTZER of New York said he would first take up the theory of acapnia. It assumed that shock was due to a diminution of CO_2 in the blood of patients in shock. This assumption suggested at the same time the treatment which consisted in letting the patient breathe some carbon dioxide, or respire through a long tube or, as it was called for short, rebreathe. The theory of acapnia as the cause of shock was about ten years old; it was brought forward by Dr. Yandell Henderson. If the statement that CO_2 of the blood was decreased in shock were generally confirmed, the fact of the reduction of CO_2 could not prove the correctness of the acapnia theory. The reduction of CO_2 might be merely a *consequence* of shock and not the *cause* of it. A successful treatment of a disease by a method which was devised upon a certain assumption of the nature of the cause of the disease, never proved that the assumption was necessarily correct. Geoffrey Marshall, an expert anesthetist, was of the opinion that rebreathing was a rather dangerous procedure and surely ought not to be used in shock patients. Acapnia and rebreathing died hard but, so far as the science of physiology was concerned, they were surely dying. Then the speaker discussed another phase in the physiology of shock. Low blood pressure was a predominant symptom of shock. For at least six decades physiologists firmly believed that low blood pressure was accompanied by a relaxation of the peripheral small blood vessels which caused the accumulation of the greater part of the body's blood in the vessels of the abdominal viscera. In recent years the assumption gained the ascendancy that in shock the peripheral blood vessels were contracted. Surgeons had stated that they had never found the vessels of the abdominal viscera to be engorged in shock. In England and in France Dr. Cannon had occasion to study shock experimentally as well as clinically. He became converted to the theory that the most essential factor in the production of shock was acidosis and began to advocate the treatment of shock by the administration of bicarbonate of soda. Recently the theory of acidosis as the primary cause of shock had lost ground. Bayliss himself gave up the idea that acidosis was of primary importance and he, as well as others, lost faith in the value of the alkaline treatment of shock. Dr. Meltzer then spoke of the theory that shock was produced by pulmonary fat embolism, which had received a great deal of popular attention. The article of Professor Porter in the *Atlantic Monthly* read indeed like a novel. The sentences were crisp and the style and manner of presentation were most attractive. But in science and in practice of medicine we were more interested in the truth and the practical value of the facts than in the beauty of their presentation. There was much in Dr. Porter's statements which we might readily accept. No doubt there were cases in which fractures of the long bones or injuries to fat tissues led to pulmonary fat embolism, and to a dangerous and even to a rapidly fatal fall of blood pressure. But these facts were in no way new. Dr. Porter himself admitted that shock brought about by injuries to the abdomen might be due to "change in the hydrostatic conditions of the circulation" in the abdomen and not to fat embolism. Fat embolism, a grave condition, presented a number of definite clinical symptoms outside of the presence of low blood pressure. There were, in the first place, symptoms which pointed directly to the lungs as the seat of trouble. The patient was suffering from air hunger, dyspnea; pul-

monary edema and even hemoptysis were frequently present. On auscultation the presence of rales might be discovered. Then there were indications of the presence of fat in the circulation in abnormal quantities. The urine contained fat globules. Fat might be readily detected in a drop of blood. Moreover, even the sputum might reveal the presence of fat. There were then many clinical signs which suggested that the shock-like condition of the patient was due to pulmonary fat embolism. Dr. Porter did not mention in his articles that he had availed himself of these signs. He recommended the inhalation of carbon dioxide for the treatment of shock and claimed that he had helped many such cases by this treatment. He administered carbon dioxide not for the purpose of meeting the possible exigencies of acapnia, but for the purpose of producing deep inspirations, which would help "drive the blood from the engorged abdominal veins into the chest, where it shall fill the half empty heart and permit the faithful organ to fill the capillaries." Wiggers had said that if the circulation from the right ventricle was impeded by capillary emboli in the lungs, the introduction of larger quantities of blood in the right ventricle might lead to the dilatation of that ventricle and to death. According to Wiggers, shock was distinguishable from pulmonary fat embolism by the difference of the pressure in the right ventricle and the pulmonary artery; in pulmonary fat embolism the pressure was rather high, while in shock it was low. Therefore, while in shock it was advisable to drive, by any effective methods, the blood from the veins of the abdominal cavity into the right ventricle, this procedure had to be avoided in cases of pulmonary fat embolism.

War and the Child.—Dr. Samuel McC. Hamill of Philadelphia here regarded the child as a part of the problem of the great war. Every warring nation at the end of the first year of war had discovered that their neglect of the problem of the civil population meant an enormous increase in infant mortality. As a result of governmental health agencies then instituted infant mortality in 1916 attained the lowest point known in the history of England. Coincident with this similar efforts had been applied to the needs of the various countries, neglecting no period of life. Pennsylvania, the first State to include child welfare in its war program, had established a Division of Child Welfare in its Committee of Public Safety. To establish a country-wide provision for the welfare of the children of the nation the Women's Committee of the Council of National Defense had organized a Division of Child Welfare and entered into co-operation with the Children's Bureau, to act as the agent of the Bureau in the organization and direction of child warfare in the various States through the medium of the State divisions of the Woman's Committee. To meet the full measure of success the author believed that child welfare work must have the active support of the medical profession, the fight for the children against ignorance, poverty, crime, and intemperance being essentially that of the doctor.

Reeducation of the Injured Soldier.—Major R. Tait McKenzie of Philadelphia stated as conditions which must be treated in the wounded soldier: Injury to peripheral nerves, scar tissue, post-operative conditions; functional neuroses, conditions variously grouped under "shell shock," the "soldier's heart"—but a symptom of over strain; debilities. The majority of men in war hospitals and convalescent homes, it was said, must depend for most of their present treatment and for their future efficiency upon the masseuse, the practitioner of electro- and hydrotherapy, the physical instructor and the teacher of vocational training. The course usually followed was described as beginning with preparation by heat either wet or dry, or produced by electricity, followed by stimulation of nutrition by massage and passive movement, with simple exercise taken voluntarily and eventually skilled movements by gymnastics, games, and handicrafts, graduating into industrial training. A description of the treatment of the various disabilities with an enumeration of corrective appliances was given.

The Cardiovascular Problem in the Aviation Recruit.—Dr. James I. Johnston of Pittsburgh gave his impressions from examination of candidates for the aviation corps. The high quality of the recruit physically and his splendid spirit merited the greatest admiration. The greatest apprehension among candidates for all service of fear of refusal was particularly true of the aviators. Of between eight and nine hundred men about fifty per cent. had been passed as physically fit, though only 30 per cent. had been finally accepted. In the cardiovascular group of approximately one hundred the analysis was confined to the domain of physical diagnosis. With McKenzie it was believed that murmurs in themselves have little significance. The largest number of murmurs observed were due to thyroid toxemia and were in a state of either fine balance or in unbalance. No man with a constantly systolic pressure above 135 was accepted.

New Medical Conditions and Developments in Previously Recognized Complaints Due to War Emergency.—Dr. James M. Anders of Philadelphia emphasized the increasing importance of the new medical developments from the war. Vincent's angina was mentioned as having a greatly increased incidence. Vaccines were mentioned as useful in treatment; the immoderate use of tobacco was to be avoided. The mortality in empyema due to the streptococcus hemolyticus was quoted as not less than 75 per cent.; in that due to the pneumococcus, recovery was the rule. The most approved treatment was aspiration repeated as necessary and intrapleural disinfection with Dakin's solution. Prophylaxic vaccination against pneumonia with hemolytic streptococcus and pneumococci Types I and II was advised. In Dr. Anders' opinion the examiner of recruits should rely quite as much upon a history, presence or absence of fever, the pulse, detection of bacilli in the urine and of antibodies in the blood as upon the physical signs and *x*-ray findings. Tubercular lesions should be searched for in all other organs than the lungs. Tests to exclude from military service those with latent tuberculosis could not be too stringent. Epidemic cerebrospinal meningitis necessitated early diagnosis and prompt serum treatment. The treatment of trench nephritis did not differ from that of acute glomerular nephritis in civil life. While prognosis was good in trench fever, anemia and disordered action of the heart were apt to follow in the severer forms. War edema was said to occur among prisoners of all nationalities fed on German rations. Treatment consisted of rest in bed with a diet of sufficient protein and of at least 100 grams of fat daily.

Dr. Thomas McCrae of Philadelphia believed that cases of disturbed heart action formed a troublesome problem for medical men of the Army. In such cases he felt that infection played a very small part, the overwhelming factor being the nervous element. While tobacco might not be the original cause of disordered heart action it was largely responsible for its aggravation. The difficulties encountered with the tobacco problem in the army were obvious. In war nephritis the persistence of hematuria called for particular attention. That men had been sent back from the French front line with the mistaken diagnosis of tuberculosis he regarded as no reflection upon the diagnostic ability of French surgeons. The men had lost weight, acute bronchitis with bloody sputum was present and accurate diagnosis without time for observation was scarcely possible. The probability was suggested that for two years physicians would be encountering medical conditions the result of the war.

The Fixed Full-Time Staff in the Organization of the Small Hospital.—Dr. Harold L. Foss of Danville presented the advantages of the permanent salaried staff, particularly in its application to the rural hospital. Salary versus the fee plan was considered, as were also organization of departments, concentration of authority and responsibility. The relationship of such an organization to the general practitioner, fees and the handling of benevolences were considered and a description given of the working out of such a plan at the Geisinger Memorial.

Some Blood Changes in Rats on Cancer Inhibiting and Cancer Stimulating Diets.—Dr. Ellen P. Corson-White of Philadelphia gave the effect of these diets on the blood and on (1) growth and nutrition of rats; (2) takes, growth energy, and metastases of the experimental tumor; (3) length of life of animal after inoculation. All diets giving in normal animals an approximately normal growth curve, grew large tumors with

high percentage of takes; all diets depressing the growth curve, retarded or prevented tumor growth. A study of the blood of rats on these diets showed no change in numerical count of red and white cells, but a decrease in number of lymphocytes in all diets stimulating cancer growth, and an increase in all diets which retarded tumor growth. It would appear that cholesterol was a factor which, while of little or no nutritive value, favored tumor growth when conditions favorable to its initiation were present.

Second Day, Wednesday, September 25.

DR. B. FRANKLIN ROYER OF HARRISBURG IN THE CHAIR.

Follow-Up System of the Pennsylvania Department of Health for Former Tuberculous Patients.—Dr. KARL SCHAFFLE of Harrisburg read this paper, describing the follow-up system of the Pennsylvania Department of Health for the tracing and reporting of patients discharged from the State sanitoria and dispensaries. The system differed from most of the plans in operation for such purposes, in the method employed and in the number and character of the reports obtained. The method consisted in actual face-to-face inquiry and inspection of the former patient by the dispensary nurse who had been intimately acquainted with his physical condition and economic status during his enrolment as an active case. One hundred and thirty nurses carried on these special investigations throughout the State, in addition to their supervision of the home care of those in regular attendance. Such follow-up visits were made for a period of two years after the patient's discharge, at intervals of six months.

Dr. B. FRANKLIN ROYER of Harrisburg said that in dispensary and sanatorium treatment some such follow-up system must be relied upon to prove the end-results that one aimed to attain. The following up of these more than 100,000 patients by nurses trained for the work to gather in an unbiased way the essential facts of health and of earning capacity, and then the efforts of the department to tabulate these facts into one mass so that they might be intelligently scrutinized by the students of the department, was the whole aim and object. The campaign of tuberculosis was almost wholly an educational one; the department aimed to teach the individual how he should live in order that nature might effect the cure. After all it was a question of food and open air, rest when needed, exercise when needed. It was a careful direction of the habits of life which resulted in the cure of the individual once infected, and it was a question of teaching that individual such methods of living that he would not infect the children who surrounded him, and it would take twenty-five to fifty years of just such an intensive educational drive in order to reach a point where their final statistics would show.

Dr. CHARLES H. MINER of Wilkes-Barre said that one part of the work in the dispensary was of special interest today, and that was to look up the soldiers who registered and who had been rejected by the draft boards and army camps for tuberculosis. At this time, of course, that was of greater importance than almost any other feature of the tuberculosis work of the department, because many of those men had never suspected that they had any trouble of that kind, and they especially should be sought out and urged to secure some advice and treatment. Many of them were very skeptical about having any trouble and were patients who needed the advice of the nurses and the physicians at the dispensary.

Dr. SCHAFFLE said they had received through the cooperation of Major Murdock, who was in charge, the names of over 1,200 draftees rejected by selective service boards throughout the State, and they wrote a letter to each man so rejected telling him that they had received confidential information that he had been rejected on account of tuberculosis and advising him to seek treatment through his family physician, or through a private institution if he could afford to do so; or, if not, through the department by means of its dispensaries and sanatoria. They followed that letter up by sending a dispensary nurse from the dispensary nearest the man's home to call upon him personally and to explain the matter at great length and to urge that he seek treatment because practically all of these cases are the early cases, cases who are curable. They had the same difficulty, however, that they had with the average incipient case. A great many of them refused to believe they had the disease.

Some General Considerations of the Ductless Glands in Military Practice.—Dr. CHARLES E. DE M. SAJOUS of Philadelphia said that, in summarizing all the facts, it could hardly be gainsaid that, insofar as recruits were concerned, proper recognition of the diseases of the ductless glands and their treatment would enable a large proportion of men, now deemed unfit, to continue their service. As for the armies in the field, it was a question of life and death in the large proportion of cases of disease of the adrenals or of the thyroid, including many cases of so-called "soldier's heart," as regarded the latter organ. All this should be taken to heart by our military authorities, if their excellent work in other directions was to encompass all fields of suffering.

Dr. JOHN A. LICHTY of Pittsburgh said that in considering the disturbances of internal secretion there were always two points which came out necessarily, and one of these was the early recognition of disturbance of function in typical cases, the other was the recognition of the aberrant cases. The treatment depended entirely upon the stage at which the case was met. In the thyroid or other glands of internal secretion, if a case was met at a time when the vegetative nervous system only was affected, surgery, or course, was not to be considered. These were the cases in which rest was the great factor. If the condition got to a certain point where neither of these two factors—rest, forced feeding, the administration of an internal secretion—were helpful—when it had gone beyond our control, we might say—then, of course, some direct effect upon the gland itself would have to be brought about and under those circumstances surgery would no doubt be called into play.

Dr. E. BOSWORTH MCCREADY of Pittsburgh stated that the reports of the army medical examiners showed how prevalent were organic and functional defects of development among the adult male population. Surveys of large groups of children had shown the existence of malnutrition to an almost incredible degree. It was to a large extent those malnourished, asthenic children who later developed the glandular anomalies under discussion. Food quality and food quantity were factors in metabolism, but only factors. Metabolism depended upon a proper balance of all physiological functions, particularly upon those of the ductless glandular apparatus. Preventive treatment should begin before the child was born, through proper parental care, including when indicated the administration of ductless glandular preparations to the mother, as had been for some time advocated by Dr. Sajous.

Dr. SAJOUS said that the influence of fright and excitement on the adrenals he thought was fully shown in this war, and it was one of the basic factors which brought about the terrible conditions sometimes witnessed. He thought if the surgeons in the army in general would but open their minds to that question they would find that in all hospitals at present cases that do not respond to the ordinary treatment of heart cases would immediately respond if they were cognizant of a knowledge of the ductless glands in connection with military medicine.

The Present Status of the Treatment of Syphilis.—Dr. JAY F. SCHAMBERG of Philadelphia said there were three recognized drugs in the treatment of syphilis—arsphenamine, mercury, and the iodides. Arsphenamine was generally recognized to be the remedy of paramount value. Its magical effect upon symptoms was due to the fact that it had a powerful destructive effect upon the spirochaete and that it might be administered in large dosage. Arsphenamine was fifty times less toxic for experimental animals than was mercury. Arsphenamine likewise had a roborant or tonic effect, which mercury did not possess. The spirochete was vulnerable to arsphenamine and to mercury. The iodides did not appear to have any direct destructive influence upon the spirochaete. In an attempt to eradicate every spirochete as early in the disease as possible, why should we not shoot with two arrows? He realized that Wechselman had warned against the use of mercury precedent to the use of arsphenamine, on

the grounds that in his belief most of the arsphenamine fatalities were due in large part to renal insufficiency, and that in the majority of cases it was mercury that damaged the kidneys. His belief was that the use of three inunctions of mercury per week was a valuable measure to associate with the use of arsphenamine, particularly in the primary and secondary stages of syphilis. No one was in an authoritative position today to state how long the treatment of syphilis should continue. Too often the physician will cease treatment after a single series of arsphenamine injections, and perhaps a course of mercury, because the Wassermann reaction has become negative. Experience proved that such a course usually required the later resumption of treatment, with valuable time lost. While it was difficult to prescribe any routine formula, we might at least indicate an irreducible minimum of treatment. Before any patient with syphilis was discharged from observation a diagnostic spinal puncture should be made.

Dr. Francis X. Dercum of Philadelphia stated that arsphenamine had been used extensively at the Jefferson Hospital, and he had used it in cases coming under his care in the exudative and in the form represented by tabes and paresis. His experience with regard to paresis had been that he had not infrequently remissions. Dr. Dercum was glad to hear Dr. Schamberg say he used inunctions every other day. In the old days they were used every day. He used with salvarsan half a drachm of mercury every other day and felt his way. He thought the drug was used too frequently. There ought to be an interval of ten days or two weeks. Very frequently he allowed an interval of two weeks.

A Method of Tracheotomy Without Loss of Blood.—Dr. Donald Guthrie of Sayre said he believed that the low operation of tracheotomy, unless there should be enlargement of the thyroid, was the more suitable for all cases—even the struggling child. If the patient was a child it was wrapped in a blanket or sheet to control its struggling and placed upon the operating table or on a table in the home. A pad of some sort was put under the shoulders and the head hung over the end of the table, steadied by an assistant. The operator stood on the right-hand side of the table and, steadying the skin with the left hand, made an incision in the midline of the neck 1½ to 1¾ inches long. The skin and the superficial fascia were incised and the wound held open by a pair of catspaw retractors which should not be more than 1 inch in breadth. When the deep cervical fascia was cut the parallel branches of the anterior jugular veins presented in the wound. The retractors were reset to pull these veins aside and the sterno-hyoid and sterno-thyroid muscles were separated by blunt dissection. If care could be exercised during this step of operation, the muscles could usually be separated without injury to the thyroid ima beneath. The retractors were again reset, the left blade holding aside the skin, the fascia, the two muscles, and the right blade the skin fascia, the muscles, and the thyroid ima vein. This exposed the trachea to view. It was incised, the head was straightened and the tracheotomy tube inserted. This method had been employed fourteen times in all types of cases by Dr. Guthrie and associates, twice in the home.

Dr. George P. Müller of Philadelphia said he thought he might first of all remark that it was gratifying that a surgeon of Dr. Guthrie's ability should turn from gallbladders and hysterectomies to discuss such a procedure as this. He felt, however, that he must, from his own thought and experience, mostly disagree with Dr. Guthrie's position. Those who were what might be called professional surgeons knew the exact anatomy of these structures. They were used to dealing with hemorrhage and hadn't the slightest fear of it. It didn't matter to a surgeon whether he did a high or low tracheotomy, but it seemed to Dr. Müller that it was by no means as easy for the general practitioner who had to do this operation to do the low as the high. When it came to operation in emergency in a patient with diphtheria or membranes, or other choking condition in the upper air passages, it seemed to him the high operation was preferable. Personally, he did the high. A low tracheotomy was dangerous if suppuration resulted, as it was liable to travel into the mediastinum.

SECTION ON SURGERY.

First Day, Tuesday, September 24.

Dr. John L. Atlee of Lancaster in the Chair.

Chairman's Address.—Dr. John L. Atlee of Lancaster said that all of our surgical principles and practices are being put to such a trial during this war as they never had been before, and only the absolute scientific truth could stand the test. In the past our progress had been hampered by the barnacles of sects and dogmas founded upon the most absurd theories, but scientific facts alone, not theories, could endure today. The absence of the great number of physicians who left their patients to serve their country would leave the door more widely open than ever to the charlatan and the patent medicine, and unquestionably this crisis was a wonderful opportunity for the quack. Let each and every one of us remember that we have every weapon that any charlatan, quack or patent medicine possesses, but that most of these weapons we should not deign to use; and we had one other which they did not possess, the knowledge of the science of medicine, and this was the one weapon no sect or system could withstand. At this time, therefore, above all others, we should study our art with diligence and apply it with careful thought and untiring energy.

An Anatomical Incision for Inguinal and Femoral Hernia.—Dr. J. Norman White of Scranton said in this paper that an incision 3 inches long, ¾ inch external to the spine of the pubes, commencing at and at right angles to Poupart's and extending toward the umbilicus, gave access at once to the inguinal canal and round ligament, and extension downward and slightly inward exposed the femoral ring. If a femoral had been mistaken for an inguinal hernia, or vice versa, no new incision was required nor extensive prolongation of the one already made. Infection was made less frequent and the wound never filled with fluid, as often happened with other incisions. This incision has the following advantages: No blood vessel need be tied because none were cut; it was a bloodless incision; the incision was parallel rather than across the blood and lymph vessels. Any operation in the inguinal region could be performed through one incision, including appendectomy. A common cause of infection was the catgut knot; in the anatomical incision there were no knots.

Dr. Harry C. Deaver of Philadelphia said that you could see by the incision that it was more constructive than destructive. It led away from the superficial epigastric vessels which ran on the line from Poupart's ligament to the umbilicus. Dr. Deaver stated that he had never tried Dr. White's incision, but it was an anatomical incision and any anatomical incision could not help but be a good incision, and he thought tomorrow when he operated he would try it.

Dr. T. Turner Thomas of Philadelphia said he had tried this incision in about a dozen cases. You did not get the same free and easy exposure of the canal as you did with the ordinary oblique incision. The novice would have trouble in locating the external oblique ring, but the experienced would not. So that was not an objection. He found that very few if any blood vessels were divided, and he thought that because the blood vessels were not divided that the healing ought to be a little better than with the ordinary incision. So that the effect on him of his little experience had been rather to incline toward the incision. He thought that there was enough advantage in the small number of blood vessels divided to warrant us in using it in spite of the little restriction in the exposure of the field.

Thoracic Surgery.—Dr. George P. Müller of Philadelphia said that thoracic surgery, and particularly that of the lung, had been affected to a considerable extent by the experiences of the war. While nothing very striking or very original had as yet been forthcoming, the invaluable point had been established that the lung may be handled, with proper technique, as freely as was the kidney or the stomach. Pierre Duval had shown us that the exposure of the lung and the removal from it of a foreign body was as safe as most other major operations, and not only enabled us to remove the bullet but also to clean the pleural cavity of its contained blood clot. Shortly after the receipt of the injury, when reaction had occurred, ether was admin-

istered by the open method (an endotracheal apparatus was not necessary) and an incision 9 or 10 inches long made over the fourth or fifth rib. About 6 inches of the rib was then removed, and after cutting the intercostal membranes the pleura was carefully separated with the fingers above and below for some distance to mobilize it. The pleural membrane was then rapidly divided the full length of the opening and a rib spreader rapidly placed in position and sprung open. The lung was then taken by a pair of grasping forceps and pulled to the wound. If these maneuvers were done rapidly the mediastinum was steadied before the pneumothorax had time to work injury to the circulation. The lung could then be drawn out onto the chest, the bullet easily felt, the lung incised over the bullet, which was removed, and the incision in the lung closed by one or two fine catgut sutures. Blood clots were scooped out, the cavity gently mopped and disinfected, if thought necessary, by ether (Duval) or perhaps Dakin's solution. The lung was then replaced, but still steadied by the grasping forceps, and the pleura closed. This was not so easy to do and it was probably impossible at times to avoid some tearing. The muscles were next pulled together with catgut mattress sutures and the skin sutured with silkworm gut. No drainage should be introduced. Finally, the pneumothorax was emptied by aspiration. If it was determined not to search for the bullet the pleural cavity was aspirated on the slightest suspicion of the onset of infection, and if cover slip smears confirmed suspicion the chest was opened and drained. The splendid studies of the Empyema Commission, published in the *Journal of the American Medical Association,* were accessible to everyone and should be carefully read for the many valuable technical hints they offered.

Dr. NATHAN W. GREEN of New York said that the question of operative procedure upon the thoracic viscera must be determined by the pathological or traumatic conditions found at the time. Injuries to the heart must be sutured. Injuries to the lung must be closed if possible, but if too extensive required a local resection of the injured area. Large vessels required ligation to control hemorrhage, but injuries to large vessels proved so rapidly fatal that they infrequently came to the operating table. In wide injuries of the chest the patient was in profound shock; of course then it was best to do as little as possible, and to wait until it had passed off. While waiting, septic infection might be implanted.

Dr. SAMUEL J. MELTZER of New York said that about eight years ago he constructed a simple apparatus for intratracheal insufflation for Dr. Carrel. He had seen in many of his experimental dogs, in which the thorax was transversely opened widely, double pneumothorax. These dogs recovered without having had infection. In the course of the last year Meltzer demonstrated to several hundred military officers anesthetized and curarized dogs with the chest wide open. The entire heart was exposed to full view. The animals were kept alive and with normal blood pressure by the method of pharyngeal insufflation. The experiment never failed. He had often demonstrated a fact of practical importance, namely, that if artificial respiration was sufficient the heart could be handled freely with impunity; but even a slight touch of the heart often led to fatal fibrillary contractions if the artificial respiration was suspended or was insufficiently executed. Artificial respiration was very useful during anesthesia, and was indispensable in major operations upon the thoracic cavity.

Absence of Clinical Symptoms During the Preperforative Stage of Duodenal Ulcer.—Dr. LEVI J. HAMMOND of Philadelphia said that of fourteen patients operated upon during the past two years at the Methodist Episcopal Hospital for perforated duodenal ulcers, not even the frequent complaint of digestive disorder was noted in the histories as occurring during their latent period. In none of them were such symptoms as paroxysmal pain, localized tenderness, vomiting, hematemesis, or hyperacidity of the gastric juices complained of. The patients were, with two exceptions, male, ranging in ages from fifteen to seventy years, the greatest number of them being between twenty and thirty. The two females were aged 22 and 26 respectively. None of the patients were chlorotic or anemic, and there was no history of burns or scalds or other serious accidents that could have been a factor. In most instances the perforations occurred while the patients were at their usual occupations. In one, perforation occurred during the middle of the night while the man was asleep in his bed.

Dr. FRANK ALLEMAN of Lancaster, Pa., said this series of cases of duodenal ulcer without preperforative symptoms seemed unusual. It seemed to him there must be some symptoms at some time in some of the cases. Dr. Alleman did not believe that the more chronic cases in which you have an ulcer with indurated edges are likely to have a perforation without symptoms.

Dr. MOSES BEHREND of Philadelphia said that it was his experience that many cases of perforation gave no symptoms. These cases usually occurred in men. They were working and suddenly were seized with terrific pain that overcame them, and perforation had occurred. On close questioning of these cases a history usually of gastric disturbance, commonly called "indigestion," was received, and it seemed to him that if the history were gone into more fully a gastric or duodenal disturbance would be found in many of these cases.

Dr. JOHN J. GILBRIDE of Philadelphia thought as Dr. Hammond's experience had shown, that it was not uncommon for us to have cases of perforation without any preperforative symptoms. Vomiting and hemoptysis are rare in duodenal ulcer. About the only symptom one could tie to would be pain. Hyperacidity was not at all diagnostic. Examination of the stool, that was the finding of occult blood, might be of value.

Dr. DONALD GUTHRIE of Sayre said that some 10 or 11 years ago when he was working as Dr. Graham's assistant in Rochester he became interested to see if just before perforation occurred there was any change in the classical state of symptoms. He was sent after the family of these patients and the patients themselves. He was very much surprised to find that several of the cases gave no previous history of duodenal ulcer whatever. The results were so confusing that nothing more was done with that problem. Since Dr. Guthrie had been in Sayre he had endeavored to find out whether there was any change in the symptoms during which the perforation occurred and the symptoms that all the patients complained of. He had been amazed to find that even by going after these patients and asking the most direct leading questions it was impossible to elicit any early ulcer history.

The Treatment of Malignant Disease by Combined Methods.—Dr. GEORGE E. PFAHLER of Philadelphia said that at least four methods had been proven to be of distinct and positive value in the treatment of malignant disease. Each method could claim many successes to its credit, but the profession and the laity knew well that each had also many failures. It was with the hope of influencing the profession to combine one or more of these methods in the treatment of malignant disease that this paper was read, for he believed that whenever additional help could be obtained from another method, or more than one, that the patient was entitled to this advantage. By certain skillful combinations he was sure that many cases which now were ultimate failures might have been made successes, and in this way advances have been made in the treatment of this dreadful disease. The four methods which stood out most prominently in his mind were surgical excision, electrocoagulation, roentgenotherapy and radium therapy. In every case in which the malignant disease was excised surgically, such excision should be followed as soon as possible by thorough roentgenotherapy, and sometimes radium therapy added. As the name electrocoagulation implied, there was produced a coagulation of the tissues by means of heat, the heat being generated by the electricity. It differed, however, from the thermocautery for the removal of the disease in that the heat was generated in the tissues and was produced by the resistance to the flow of the electricity through the tissues. Generally speaking, the effect of radium therapy was identical to that obtained by the Roentgen rays, providing that the two agents were used in equal amounts and equally well. The advantages of the Roentgen rays consist in the fact that one can apply approximately a million times as much radioactive effect in the same period of time,

granting that the case is suitable, and that the rays can be applied externally. The advantages of the radium, however, consisted in the ability to apply the radiation within cavities or in locations in which much energy would be lost in overlying tissues before reaching the diseased area. It also had the advantage of being applied with less technical skill.

Dr. G. Betton Massey of Philadelphia thought that the method that he had so many times presented to this Society, as long ago as 1897, in which a lower tension current was used than the current used by Dr. Pfahler, was particularly advantageous in the enlarged glands that were still movable in the neck. The reason was that one could handle both electrodes. In the high frequency current one was using thousands of volts in order to get two amperes of current, and could not bring the electrodes together because of the sparking. Dr. Massey found the most successful removal of these glands to be not to incise the skin, but after the destruction of the primary growth in the mouth or lip to pick up the gland with its overlying skin and pass a loop of thread beneath it by which it was pulled away from the blood vessels. With several zinc points then passed beneath the gland and the opposite pole held on the skin over the gland, a current of half an ampere to an ampere was turned on and the gland cooked or destroyed entirely in ten or fifteen seconds.

Some of the Postoperative Sequelæ of Acute Appendicitis.—Dr. John B. Deaver of Philadelphia said that in 1700 operations for acute appendicitis collected from recent records at the Lankenau Hospital of Philadelphia, 66 deaths gave a mortality of 3.7 per cent. The series included all cases of acute appendicitis with and without preoperative complications directly due to the condition of the appendix or to the involvement of other viscera. Of the complications, fecal fistula occurred in 42 cases, secondary in 30 and intestinal obstruction in 27 cases. An analysis of the cases of obstruction showed that fully 70 per cent. required drainage at the original operation. There was no doubt that every case of acute appendicitis requiring drainage had been safely taken as an indication that operation was delayed beyond the most favorable moment. In the prevention of surgical complications there was nothing more important than to forestall the formation of pus within the peritoneal cavity. A large number of these cases would not have developed adhesions and consequent obstruction if the original appendicular disease had been treated early and no drainage had been required. In practically every case of death from appendicitis someone was to blame. The question was who was at fault. Was it the wise and experienced parent or guardian or friend who refuses to consent to, or advises against operation because he has had his appendicitis frozen out, or was it the ill-advised administration of an aperient or purge, or was it the doctor? It was too often the latter he was sorry to say. Summing up the facts undoubtedly showed that purgation was the primary cause of the complications he had been discussing and late operation the main contributing factor.

Dr. H. J. Donaldson of Williamsport said that Dr. Deaver had mentioned as post-operative sequelæ fecal fistula, secondary abscess and obstruction, and to these he desired to add acute renal insufficiency, acute gastric dilatation and hemorrhage from erosion by drainage tubes. Of the fecal fistula group his experience led him to believe that the causes were gangrene of the base of the appendix involving some area of the cecum, failure to remove the appendix, erosion of the intestines by the drain, and ulcer of cecum due to thrombosis of the blood supply, or extension of gangrenous process. To overcome this embarrassing occurrence, it had been his habit of recent years to always remove the appendix, to sufficiently free the adhesions, to admit of invagination of cecal wall if gangrenous, and to effect an early change in the position of his drainage to prevent pressure upon the bowel or large blood vessels and other important structures. One of the greatest lessons he ever had in drainage tube accidents was a sudden death of a man rapidly recovering from a general peritonitis, who on the seventh day developed a hemorrhage from his iliac artery and died in a few minutes.

Radiographic Diagnosis of Ileocecal Valve Incompetency.—Dr. Mulford K. Fisher of Philadelphia said that it was only within comparatively recent times that ileocecal valve incompetency had been recognized as a distinctly pathological entity. Without x-ray study it was impossible to diagnose the condition clinically. As a result of over-stretching, relaxation and weakening of the walls of the bowel, the valvular function disappeared, even with destruction and final disappearance of the valves themselves; there was widening of the lumen with easy passage without hindrance to the passage of the intestinal contents, and finally with atony and stasis established, return in the reverse direction from the large into the small intestine was easy of accomplishment. From a radiographic viewpoint, the diagnosis of incompetency does not present much difficulty. Ileocecal valve incompetency was such a frequently overlooked condition, was so readily roentgenologically diagnosable and cure so readily effected by a simple surgical procedure, that persistent reiterations of its importance should be made so as to focus and retain the interest of the profession on what was a distinctly pathological problem.

Dr. Thompson Schell of Philadelphia said that for over three years now he had been plicating the dilated cecums and ascending colons after removing the appendix and correcting any kinks caused by adhesions, and with very much more satisfactory terminal results. About two years ago his attention was drawn by Dr. Fisher to the work Kellog was doing with the ileocecal valve incompetency, and he was favorably impressed at once, as the failure of this valve to properly close would account for many of the failures noted in the past, and would also explain the much more satisfactory results following plication of the cecum, for in plicating the cecum the ileocecal valve to a certain extent had been improved, although Dr. Schell had not realized this at the time.

Second Day—Wednesday, September 25.

A Modification of the Technique in the Watkins Interposition Operation, Designed to Permit Future Childbearing Without Complications.—Dr. John Cooke Hirst of Philadelphia stated that his experience with this operation extended over a period of 4½ years and comprised a total of, up to the present, 141 cases. Not all these cases were of childbearing age, though the majority were, but the same technique was used in all of them. He had seen no primary failures, and none of the cases had required a second operation, as far as he knew. Certainly none had returned to him. The results as to subsequent delivery, excluding cases done within the last year, which were too recent for definite statements, were as follows: Of 89 cases, the history of 49 was known. The others he had lost track of. Of the 49 known, 7 had become pregnant. Of the 7, 2 miscarried, due probably to over-exertion, of which there was a definite history in each case. Five went through labor at term, one of them twice. Four of the 5, including the one with two deliveries, showed a very normal looking anterior vaginal wall, the surgical result was good, and they were symptomatically well. The fifth case had a measure of recurrence. The anterior wall sagged considerably, but nothing like the extent of the previous cystocele, but the patient was symptomatically well and insisted she required no treatment. Whether the cystocele would increase in size it was as yet too early to determine. It seemed to be stationary up to the present.

Dr. M. Behrend of Philadelphia said that there was no question as to the value of Dr. Hirst's operation. The immediate result was perfect, and it was encouraging that for these prolapses in early married life or in single girls it was an ideal operation.

Aseptic Technique in Obstetrics.—Dr. Charles G. Strickland of Erie said that in his home city there were in 1917 2590 births with 7 deaths from sepsis reported, or about 0.3 per cent. Dr. Strickland said he had been disturbed at the frequency of puerperal sepsis in our city hospitals. The condition was admittedly a wound infection, and implied, except in rare instances, the direct introduction into wounds of infecting microorganisms foreign to the victim. Together with our lack of perfect asepsis we have two other great faults which contribute to puerperal morbidity, that is, over-frequent vaginal examinations and

undue operative interference. Unindicated operative interference, whether it be the application of forceps or undue haste in manually removing the placenta adds a distinct risk. He felt that a certain amount of discretion should be used with the immediate repair. If the patient had been fatigued from a protracted or complicated labor, it was wiser to wait than to repair at once. Fatigue, toxemia, or hemorrhage must lessen individual resistance to infection, and the chances were that the long or complicated delivery had impaired the doctor's asepsis as well.

Dr. ALFRED HEINEBERG of Philadelphia said that the essayist had presented a very timely subject for consideration. In these days when it has become a custom for women to seek hospital treatment for confinement, it should be the aim of those hospitals which admit cases of that kind to eliminate as much as possible the chances of infection. The development of an aseptic technique in obstetrics in hospitals should not be any more difficult than the development of an aseptic technique for other operative procedures. The difficulty resides not so much in the establishment of the technique but in commanding adherence to its regulations. Hospitals should provide a delivery room separate from the operating rooms, and it should have as the essayist contends as careful supervision by the nursing staff as the operating rooms. The ideal measure which had been adopted by many hospitals was to have the obstetric department in a building separated from the main building, so that neither the nurses nor the patients were likely to come in contact with sources of infection from the other departments of the hospital.

Third Day—Thursday, September 26.

The Foot of the American Soldier and Its Care.—Lt. Col. J. T. RUGH of Philadelphia said that it was early recognized that the conditions met with in the army were at total variance with those in civil life, and while a foot with potential weakness might prove equal to civic demands, it would fail utterly under military use. Drill and work kept a soldier on his feet for from 8 to 12 hours a day, and usually he carried a pack or gun, or both, during this work. His play was intensive and every move of the training process was designed to eliminate the weak spots and parts. Whether this obtained through the strengthening of the part to a point equal to the demands or by breaking it down, depended upon the fiber of the man himself. The province for us, as physicians, was to anticipate this result and spread the propaganda for better and more sanitary foot-wear. We should teach our patients and our community the essentials of foot health; counteract the malevolent idea that prevailed of the high heel and pointed toe shoe which cramped the feet, altered weight-bearing proportions, and compelled function in an abnormal position and manner; it was taking the costume of the drawing-room, reception and ballroom out onto the street. That type of shoe was never designed for work, and the warped mental attitude which compelled so many people to use it wrongly must be changed by a healthy sentiment based upon everyday knowledge of physiology and anatomy, and now verified beyond question by our vast war experience.

Bone and Joint Casualties and the Transport Splints.—Lieut. Colonel ROBERT B. OSGOOD of Boston said that in any serious engagement we might expect nearly one-half of the severe injuries to involve the bones and joints, and among these the phenomenon of shock was very common. They become, therefore, of great importance, and the problem of their transport from the battlefield to the Evacuation Hospital where they receive their first thorough surgical overhauling demanded energy and wisdom in its solution. Shock was of first concern, and infection was a close second. Perhaps the most common cause of shock was trauma. Infection fed first on traumatized tissue. Transport must always add trauma to trauma already existing. It became the first duty of the surgeon to lessen this trauma by every possible means. Proper splinting materially lessened it; therefore, proper splinting became of first concern. The first essential in good splinting for transport was the comfort of the wounded man. If the splint gave him ease from his wound pain and did not add another discomfort, the first requisite was met. The splints must also fulfil the mechanical purpose for which they were applied. The design of the splints must be simple and their weight light, in order that they might be manufactured in large quantities and be easily transported far up the line to the battalion aid posts. For fractures of the long bones and certain joint injuries it was extremely desirable that they should embody the two principles of fixation and traction: fixation, to protect the injured structures and to retain proper alignment after the alignment had been secured; traction, to bring about muscular relaxation with the object of diminishing pain by inhibiting voluntary contraction, which also resulted in malposition.

The Care of the Amputated in War.—Lt. Col. DAVID SILVER of Pittsburgh said that loss of limb was one of the most disastrous of the ravages of war. The care of the amputated had always been a serious problem during a campaign, and in a war of any magnitude an economic factor of importance afterward. Surpassing as it did in every aspect all other wars, this world war was expected to present unusual demands for the care of the amputated. To the injuries caused by shot and shell had been added the destructive results of gas gangrene and trench foot, so that in the early years of the war amputation was unusually frequent. More recently the prevention of trench foot and the better understanding of gas gangrene had resulted in a very great saving in the number of amputations from these causes. Yet this had probably not produced a corresponding decrease in the total, since with the improved methods now practised in the care of the wounded it was reasonable to expect a considerable saving of life in the more severe cases requiring amputation. It seemed likely, therefore, from present indications, that this type of injury would constitute a very large proportion of our permanently disabled.

Books Received.

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THE EVOLUTION OF NATIONAL SYSTEMS OF VOCATIONAL REEDUCATION FOR DISABLED SOLDIERS AND SAILORS. By DOUGLAS C. MCMURTRIE. 319 pages. Illustrated. Published by Government Printing Office, Washington. Bulletin No. 15. May, 1918.

PROGRESSIVE MEDICINE. Edited by HOBART AMORY HARE, M.D. Assisted by LEIGHTON F. APPLEMAN, M.D. September 1, 1918, issue. 287 pages. Illustrated. Price, $6.00 per annum. Published by Lea & Febiger, Philadelphia and New York.

GYMNASTIC TREATMENT FOR JOINT AND MUSCLE DISABILITIES. By Brevet Col. H. E. DEANE, R. A. M. C. 146 pages. Illustrated. Price, $2.50. Published by Oxford University Press, American Branch, New York.

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THE PSYCHONEUROSES OF THE WAR.

AN ANALYTICAL AND CRITICAL SURVEY COMPRISING INTERPRETATIONS OF EXHIBITED PHENOMENA UPON BASES, BIOLOGICAL, PHYSIOLOGICAL AND PATHOLOGICAL, WITH DIAGNOSTIC HINTS AND THERAPEUTIC SUGGESTIONS.

By HOMER WAKEFIELD, M.D.,

NEW YORK.

In our two previous articles we have discussed the pathogenic reactions of volumetric anemia caused by serious deflections of the blood, which produce superficial and extremity capillary evacuations, and as the effects of same, of deep venous engorgements and stases. We have pointed out the exaggerated reaction of hyperesthesia and the excessive recoil-producing factors of war as productive of blood deflection, anemias, and asphyxias of the periphery and extremities primarily, and of anesthesia secondarily, as obvious sequence resultants.

We have directly connected up the fundamental biological factors of density of living substance, with the typical reaction characters on the one hand and with the so-called neurotic characteristics, hyperesthesia, and anesthesia, on the other. We have thus lifted from the domain of vagary and superstition the several typical features of hysteria and other psychoneuroses and set them firmly within the field of biophysiological progress.

We now have remaining for analysis and elucidation some conditions especially related to the war psychoneuroses, to which we will devote the text of the present paper. Other applications of these etiologic factors must go over to subsequent considerations.

Abulias, Amnesias, and Other Diseases of the Will, and of Motor Acts.—A characteristic feature of the mentality of hysteria in which anesthesia, abeyance of memory, and retraction of the field or scope of consciousness are no less typical features, is a corresponding failure to mature, to give definition orientation, and specific form to a motor sequence of the sensory preamble. The mechanism may be stalled by a primary break in continuity, a failure of development, of organization and forms of specific acts. A will to do fails in its very inception, exemplifying the well recognized abulias. Other cases are characterized by feeble efforts soon abandoned. Others still exhibit endeavors which are defeated by tetanic shambles, quivers, flutters and tremors (stammering and stuttering come in this category). Yet others exhibit somatic frustrations of voluntary movements of a type which we have already discussed as *Flustrations*, what the French term *commotional confusion* and other war authors call *concussional confusion* 37, I.

The Charcot School recognized abulias as manifestations of failure of the will, and amnesia as a failure of power to do, rather than to will. The difference is slight, but it appears that they are both diseases of the will, though desire is aroused in amnesia and little if any in an abulia. In amnesia the memory is partially or completely in abeyance. Sidis[25] describes an American case of complete loss of memory with considerable detail. It was a case of traumatic amnesia.

Hysteria is primarily a disorder of the volition, even when the major events are not in evidence, the lesser one of abulia exhibits a failure of development to maturity of that synthetic product which is most intimately related with the individualistic character of the ego, namely, the will. Janet[18] observes: "All hysterical stigmata depend on a psychological insufficiency, which manifests itself by disturbances of attention and will, by absent-mindedness, continuous amnesia, etc." This conclusion ignores the fact that the attention is a tensional state of necessary physical senses, and that the absent-mindedness and the exhibitions of will disturbances are functions of the body, the abeyance of a function of which he himself furnishes evidence.

Sensory reception and tissue response as a mind reaction constitute the preamble of every mental and motor act. Every elaborated mental function and its motor and other expressions or volition, hark back, not merely to the phase of elaboration, but to the primary physical response phenomena which we term sensation. When its prime importance is ignored the after hypothesis is apt to be false. It cannot be scientifically arrived at.

Incoordination and discoordination alike exhibit incongruities and incompatabilities between two heterogeneous factors. The attained heterogeneity may be of reaction time, velocity, etc. Examination discloses the presence of both of these factors. There are also heterogeneities of esthesia, of contraction and relaxation. Confusion and chaos reign where disequilibrium and unbalance are thus enforced by unequal deviations from the normal. Mental balance involves coincidence in their cooperation.

Let us for a moment permit our imagination to follow an ordinary reaction of contractile tissue (all tissues differing in degree of contractibility only. Even tendons exhibit reflexes or recoils). During periods of hyperesthesia, a sensory precocity occurs and the intensity and velocity of primary reactions are greatly accelerated, while the memory element, essential to the elaboration of the same sense insti-

gated reactions, is delayed in inverse ratio to the acceleration of the preamble. Thus the sensorial reaction occurs unelaborated by the individual's past experience.

Let us observe that the subconsciousness finds outer expression during somnambulism, general hypnosis, ecstacy, hysterical paraplegia and hemiplegia automatic writing through an anesthetic arm, etc. All of these states are anesthetic. If but one arm is anesthetic, that arm only is capable of automatic writing. Now, it is *volition* which is paralyzed by anesthetics. It is the senses connected with volition that are anesthetized. The patient is left free to somnambulistic wanderings, to automatic writing, etc., in which the subconsciousness finds expression. It is when the *voluntary* muscular system is in abeyance during hypnosis that the expression of the subconscious group is artificially given expression. During dream states the voluntary muscle group is in abeyance, and with its disappearance a disease affecting volition such as amnesia, is exhibited. It appears that normal consciousness and volition are indivisibly associated. They constitute an ego by themselves: The *I* and the *I do*.

Suggestibility and Distractibility.—A combination of weakness or lack of tenacity of thought continuity, together with a hyperesthesia of sense perception and of mental imagery predisposes to both suggestibility and distractibility. It is the overt facility of departure from continuity of subject which is incited by hypnotic suggestions and by current distractions that render normal thought continuously impossible, and at the same time practically facilitates desultoriness and fugitiveness of thought.

In the hysterical state the hyperacuity of sensation, combined with a blunted or anesthetic memory element, insures a state of disequilibrium of mental elements that predestines a complete reaction to the sense impression which is little if any modified by the memory element. Such a state of mental function characterizes the typical state of suggestibility of hysteria. The slightest additional suggestional impetus further activates the already hyperesthetic impressionability as directed by the uttered suggestion and simultaneously completely silences all memory interrelations, leaving the suggestion as a complete substitute for the memory element then in abeyance. All foreign and modifying factors of thought are excluded by the spasmodic cleavage of the sensorial element.

In cases where a serious circulatory disequilibrium obtains, when hypnotism is exclusively employed remedially, it must attain a readjustment of the disequilibrium. Where this fails other more efficacious means must be utilized to accomplish that end. Specific suggestions of warmth of body surfaces and of the ext remities greatly facilitate its accomplishment. They are much more successful than merely belittling or denying the existence of the disorder (Eddyism fashion). Slow passing of the hands over and toward the extremities, from points above any anesthetic area, accompanied by appropriate suggestion, is more apt to extend the area of sensibility and other vital attributes than without it. The addition of strenuous, even painful, manipulation is, however, yet more efficacious. The fact is that but a fraction of American soldiers are amenable to hypnotism, a much smaller number than of the French, yet in selected cases the recoveries are frequent and rapid.

Suggestibility demands a certain degree of hyperesthesia, a spasmodic effect must be produced to attain a definite recoil or shock like reaction. It is the effect of this same spasmodic reaction which restricts the ensemble of consciousness and makes way for that of the subconsciousness to attain dominance and expression. Suggestions may be defined as dissemblers of the conscious concert, as desystematizers and as disrupters of conscious unity. With that attained we have two personalities or egos, one of which is reached by *subconscious* and the other by *conscious* avenues.

Fixed ideas are defined as persistent subconscious suggestions which are generally associated with hyperesthesias, which would suggest their tetanic character. These persistent *unconscious* memories carry the details of many accidents and experiences of traumatic shock, of which the *full consciousness* is oblivious. To cure them, that cause must be eradicated.

Religious psychologists point out the remarkable effect and of subconscious suggestion of the oft repeated spoken words in religious songs, especially those of rhythmic sway and of marked dynamic force and velocity, as unconsciously impressing undeliberated religious dogma upon the unwary. This has analogy in many instances wherein the subconscious mind receives impressions which do not attain the fully conscious attention.

Crowd or mass hypnotism is greatly facilitated by a series of shocks, such as reproof, rebukes, reproach by sharp reprimands, and brutal invectives. Religious psychologists tell us that it is made use of by a certain type of evangelists. Some have added the shock effect of punctuating sentences by raising the heels and bringing them down with considerable force. Each concussive impact is attended with a shock effect, a recoil, a revulsion, which act collectively as a progressive series of distinct perturbations. Bernheim says: *all belief is suggestion.* Jastrow" says that the original source of *conviction* is emotion. Both indicate the shock or spasm genesis of the fixed idea. Especially during the impressionable and suggestible stage of war shocks it is important that the "atmosphere" and all indirect and passive suggestion should be cheerful and optimistic, and beyond that they should be step by step for specific ends, rather than general.

The Seat of the Mental Mechanism.—It is inconceivable to us that the organ of mind is limited to the brain. If one traces the simpler mental processes, beginning with sensation and ending with muscular acts of will, the brain is found involved simply as an organ of intercommunication and relay battery which we believe it to be. Yet its functions are no less important or vital.

If, for example, the sense of touch, a burned finger, be the source of extraneous perturbation, the original reaction is the recoil of the living substance or protoplasm *at the point of injury.* This reaction is communicated over the sense nerves to the brain, whence it is interacted with such kindred and associated memories as are reverberated by its harmonious impress. A direct reaction takes place be-

fore these intercommunicating reactions can be accomplished, which we term *reflex action*, which jerks the finger from the source of heat, before—as we say—we have time to think, but the finished mental picture, the essence of the interaction constitutes the engendered thought, that which we term the experience, and upon which depends our deliberated acts in regard to it.

Within the brain the complexity of the mental act is accomplished by the interaction of the elementary units of the composite whole which we term consciousness. There they communicate and intercourse in every conceivable relation and are influenced by avidities and repulsions of hetero- and homogenity. The brain is truly the seat of intercommunication of the nervous fibers from and to the whole body, but to say that it is the exclusive seat of thought is exceeding the facts in the case.

To those unacquainted with physiological psychology and its physical and material bases, the gulf between the highest expressions of human intellect and the lowest of animal and vegetable forms of life, appears so wide and unbridgeable that it is hardly conceivable how they can be analagous. When, however, we consider that the highest faculty of human mentality is the power of differentiation and discrimination, we can appreciate the close relationship with the lowest organisms, all of which possess this faculty in some degree. It may be said that the mind of man differs in *degree* only, and not in *kind*, from that of the lower animals. The lesser mental elements of man are observed among those exhibited by animals of all degrees in the zoologic scale. All orientation and specificy of definition involves discrimination.

Primitive human concepts of mentality—as of some obscure outside force—acting as an entity, on and through the human body, from a particular point of action, and of the soul of man as the real individual spirit seated in the heart, the pineal or pituitary gland, or the brain at large, and from these acting in the material body, exerts no small influence in those insidious psychological notions, still prevalent, which are termed *intuitions*. Some empirical psychical theorists entertain such views.

It is a singular fact that large numbers of more or less scientific individuals, whose matured consciousness is wholly and scientifically based on materialistic and solid foundations, have stowed away in their *subconsciousness* a "still small voice" which has a spiritual, a metaphysical or entirely mystical interpretation of the same phenomena. The old saying, *a Jew is a Jew, a Catholic is a Catholic, at heart*, has reference to the same subconscious elements, which though anesthetic to the mature consciousness, nevertheless expresses an insidious influence upon *conscious* thoughts and acts, which may, by education and training, entertain contrary views when they are fully conscious. Such is the case with many individuals who entertain all manner of strange views in their subconsciousness which are not permitted a place in conscious thought, but find expression in dreams, reveries, deliriums, and in moribund states.

Natural Selection in Psychology.—We have considerable evidence to substantiate the theory that the law of natural selection is exhibited in mental, as well as purely physical phenomena. It appears that our facility of assimilating and retaining sense impressions depends upon their utilization, and conversely, that we exhibit a sort of disuse atrophy of impressions of anti-utilitarian value. Among such may be named those sensibilities which originally keen and alert in primitive man have fallen into disuse in present states of civilization. The olfactory sense, in particular, is an example.

There are many instances of lost perception avidity on the part of modern man for continually occurring sense impressions, of which he has not present need and that fail to attain the cognition of the conscious mind. They therefore find haven only in subconscious ensembles. In this capacity, however, they do ultimately exert certain unperceived influences upon the conscious mind or waking state, and under certain conditions, on occasions of great emergency attended by shock recoils, as of fright, of strong emotion, or of hysterical states of somnambulism, delirium, fixed ideas, automatism, etc., the higher consciousness is disrupted by exclusion of its usual memory element, and its place is taken by the *subconscious* substitute, thus forming a new ego (for it is the memory that constitutes the ego), unknown to the other ego of the memory group of full consciousness. Thus we observe double personality as a resultant of shell shock. The problem of why it is that when hysterical disruption of psychic unity occurs, the memory factor of the normal full consciousness is effaced and the remaining subconscious group continues and entire into outward physical expression, is one of great biologic as well as psychologic interest.

If we tentatively accept the hypothesis that all memory consists of repetitions of original reactions, and that each repetition involves the same tissue group that reacted to the original subjects of memory (not excluding any involved sense organ, the cutaneous surfaces and motor organs, as well as the intercommunicating nervous system), we are in position to understand that different tissue areas are involved in the daily life groups of *full consciousness*, than are involved in the usual unelaborated and unusual ones of *subconsciousness*. Many of what are known as instincts, many of which are hereditary, but seldom find utilization in our present artificial life, seem to be relegated to the subconscious group, and when that group holds sway the individual appears more independent of reason than when in possession of full consciousness. The more rudimentary tissues of lower density are typically those predisposed, first to hyperesthesia, and then to anesthesia. Does the hysterical effacement or abeyance of the memory elements of full consciousness amount to a reversion to an atavistic condition? Is it not a subconscious group that is operative during infancy while we are acquiring our conscious group by daily experience, one that is later to gain the ascendancy and dominate the conscious reason and will?

Subconscious reactions and expressions emanate from more or less benumbed and anesthetic tissues, the *conscious* proceed from the sensitive. The subconscious state is manifested by three most significant features: the abeyance of the memory factor, which is dependent upon certain anesthesias as a second factor, and upon a retracted field of consciousness, as a third factor. In other words, some

one or more constituents of the mental ensemble or field of consciousness are functionally in abeyance. The circumstantial evidence points to *anesthesia* as the present and exhibited cause. The missing element from an otherwise full concert of the elements of consciousness is that of *memory*, and of those *voluntary* acts that are dependent upon it.

The essence of volition is the ego. Voluntary action proceeds from the self. The memory provides this feature of self identity. The self is the life history of the individual. When the memory is obliterated, as in amnesia, all specific relationships and self identity are gone. The composite, the complex individual experience is the personal unit of identity which we term the ego. When animal activities lose the conscious state of attention in the light of the identity relation of its past experience, we characterize them as unvolitional or involuntary. The conscious element of that attention is the resultant of elaboration of the *sensory* preamble by and with the *memory* element, and its motor proceeding is that of conscious volition. The clinical association of loss of memory and loss of volition is thus elucidated. It is significant that when hypnosis is induced it is also the memories of *conscious* experiences that are suppressed and those of *subconsciousness* that are thereby facilitated to their replacement, *i.e.* in substitution of the displaced memories. These instinctive and automatic activities are preserved intact, and *voluntary* performances are those contingent upon suggestion.

In hysteria the dominant proclivity is the enacting current thought as born of the senses and unmodified by the memory factor. The distractable mind of hysteria is one adrift in a sea of myriads of sense impressions, minus the rudder of memories of past experiences. Amnesia, in which the memory element is more or less effaced, is producable by hypnotic suggestion, artificially, as well as by pathogenic factors.

It is extremely significant that hysterical loss of memory, coincident with a hemianesthesia, is observed to be restored to normal with the restoration of the normal body sensibility, thus implying that the anesthetic regions of the body are the seats of the impaired memory. We, however, recognize that this would not be a legitimate deduction in the case of an *organic* hemiplegia due to a cerebral lesion. In the present class of cases their hysterical substratum, the amnesia, resulting from the anesthesia, and the incidental loss of memory concerning the related volition, and the fact of their coincident recovery, are at least significant.

We must rid ourselves of the old notion that *sensory impressions* so called, are in reality *impressions*, in the sense that impressions are made on a photographic plate. Every sense reception from the external world is a *reaction* phenomena, in which first the tissues of the sense organs, and reflexly, those *contractile* tissues which secondarily react to it, participate—as an associated ensemble. The typical features of specific subjective and objective perceptions are not *per se* typically *impressed* in the strict sense of the term, but are typical tissue reactions, and each is more or less currently modified by inter-reaction with past impression or reaction reproductions, which also in turn have been modified by their past, etc., *ad infinitum*.

The reproduction of individual experiences as memory, habit, automatism, etc., is a repetition, of the original reaction under the law of repetition, by virtue of which the definition, facility, and permanence of its reproductive possibilities are improved, in direct relation to its consecutive number of repetitions. We observe, however, that each individual instance is dependent upon the current state of the subject's sensibilities, and that participation in each embryo perception by anesthetic tissues is thus precluded. We have for our consideration numerous instances of narrowing of the fields of perception, of memory and of consciousness, by both direct and indirect localized anesthesias.

Loss or abeyance of the muscular sense involves only the *voluntary* muscles, since the *involuntary* are not dependent upon muscular sense and act when volition is thus inhibited. This fact alone would account for the action of *voluntary* muscles exclusively, when this muscular sense anesthesia is absent, and otherwise for the exclusiveness of action of the *involuntary* muscles. The involuntary muscles act exclusively of the conscious attention, so far as *feeling* is concerned.

The enfeeblement and abeyance of memory in hysteria and other neurotic states are such that outer sense perceptions fail to attract the languid consciousness, and they fail of elaboration into a *conscious* perception. The sequence is the occurrence of the so called hysterical or functional blindness, deafness and of anesthesia, which may range from absolute anesthesia of the sense organs, to impression—only in the subconsciousness, and find external expression only when the consciousness is in abeyance. Apparently the observed obliviousness of both attention and of memory are affections of diverse varieties of anesthesia.

There is exhibited a blunting of the sensibilities of the every day life vicissitudes of humanity outside of their own sphere of feeling and incidental volition. There is exhibited a limitation of feeling and action to a restricted field, from which they are loath to depart. The focus of the vital energy on the self constitutes self centering. This is common to cases wherein external sensation is diminished.

Selfishness, Egoism, and Egotism.—The perfectly balanced and vigorous mind can hardly be selfish, because it cannot be oblivious to any important social situation, either in transient intercourse or in more permanent relations. It must tend to be sympathetic, fair, and just, because it possesses that breadth and unity of view of which these qualities are the natural expression. To lack them is not altogether social or human, and may be regarded as the beginning or exhibition of degeneracy. Egotism is then not something additional to ordinary human nature, as the common manner of allusion suggests, but rather a lack, a void. The egotist is not more of a man, but lacks real manhood; and as regards personal power he is as a rule the weaker for his egotism.

The so called retraction of the field of consciousness of hysterical states is primarily characterized by a hyperesthesia, and, secondarily, by a spasmodic paralysis excluding the voluntary element of consciousness, and leaving the non-egotistic or involuntary ensemble as constituting the altered consciousness (the subconsciousness). Ethics which

is concerned in the attitude toward others is subordinated to selfishness. The inethical-unsocial feature is an incomplete consciousness, minus the fuller elaboration of those elements which go to make up that higher consciousness which combines other than the egoist features. The hysterical is thus exhibited as an unstable intermediate between the conscious and the subconscious phases, in which relatively slight causative factors bring about the subconscious by the suppression of the conscious. This so called retraction of the field of consciousness of hysterical states is characterized by an apparent hyperesthesia of the ego unit of volition which is productive of a corresponding anesthesia of the antithetical social and ethical elements. The physiological status of the stigmata are fractionally exhibited in their fullest waking state. They are thus much nearer the typical stigmata than the normal individual and are in a continuous state of predisposition to spasmodic completion of the stigmatic state.

We have pointed out the typical coincidence of *hyperesthesia* and a resulting *anesthesia* of stigmata. The world has ever taken account of the typical association of the hyperesthetic self centered egoist and egotist, on the one hand, with the unfeeling obliviousness of others, on the other. It is recognized by criminologists as the typical trait of the inherent criminal. We have observed it in the Bolsheviki, in the I. W. W., Anarchists, etc. We believe this hyperesthesia of the ego, accompanied by the usual anesthesia toward the outer world, finds adequate explanation in the above given hypothesis.

That trait of the typical German soldier, apart from his automatism and slavery to discipline, which makes him generally admitted the best soldier and the most tolerant of shell fire and explosion, is, we believe, his blunted sensibilities. The same may be said of the Turk and some of the Balkanians. The same is the explanation of their atrocious and barbaric cruelties and long list of unfeeling crimes. We have reason to believe them pathologic. We have seen their wonderful performances in exultant optimistic offensives, but we have yet to see them in pessimism and defeat. We should be slow to stigmatize the more sensitive natures among our own troops who are disqualified for the greater shocks of modern warfare as neurotics or degenerates, especially as partly based indeed upon an incapacity for alcoholic beverages. What diagnosis! Let us differentiate genuine neurotic stigmata from the features which go to make the best conscientious and public spirited citizenship in time of peace.

We learn from the observations of Freud and his school of psychoanalysts that the primal impulses are much more highly represented in the *subconscious* than in the *conscious* mind. Observers of the pathogeny of the war neuroses allude to the exhibition of subconscious expressions of the ascendency of the dominant primal impulse or instinct of self preservation which may override all other influences, as a sequence of the vicissitudes of war. We have observed that the exaggeration of the ego of the neurotic and sense of aversion to or abhorrence of anything like laborious work of the irritably weak, is characterized by an unconscious shrinking and evasion which dominates the disposition, overbalancing all other desire and ambition. This is typical of the malingerer.

Egoism Versus Volition; Willfulness and Deficient Control of Will.—Probably there is nothing within the realms of psychology which presents a greater paradox than the use of the terms ego—will—volition, etc. The subject of free will has formerly been such a bone of contention in theology that it has been unceremoniously dropped for the good of theology. Science cannot do such things. As a subject in psychology it must be faced squarely, its problems met and conquered.

We are still facing the dual theism of the pilgrim and the devil (the tempter). The individual self, the ego, is the pilgrim, the master of a free will, an eternal soul temporarily located in a mortal body which serves as its instrument and obeys its will, when not possessed by the devil, or after it has been cast out by a divine incantation. The soul is represented as a free discriminating agent steering an elective course for good or ill dependent upon one's luck in choosing between the competitive solicitations of good and evil spirits.

Let us start out in an adventure of psychological analysis from the above given standpoint and see where we land. Our first subject for analysis is one who is struggling to do right. He is religious in the extreme, he is doing everything in his power to conform to religious dogma and formula in order absolutely to insure the eternal safety of his soul on which he places the highest value. He is egoistic, willful, and self assertive to the last degree and without tolerance of those who reject his formula of salvation. He is truly anxious to conduct himself ethically, yet he lies, steals, indulges in sexual vices, etc. Psychiatric experts say he is weak-willed. He lacks control. He is weak in restraint of powerful impulsions and compulsions. He wills to crime and lacks in restraint of execution. If he encounters resistance he exhibits any degree of violence necessary to get through. In other words, he displays strong will and energetic execution in wrongdoing, but for a will to abstain from it he is said to be weak. Perhaps this is an exhibition of "malicious animal magnetism" on the part of the devil. Are the commissions of crime exhibitions of free will or lack of will? Are they sequences of volition or lack of restraints of *primary* by *secondary* elements of mind? We hold the latter view.

The will of the subconscious concert is unconsciously pitted against that of the conscious. The will of the subconscious impulses encounters the will of the full conscious, the *attentional*, which is a higher elaboration of the same sensorial preamble, the first being the subconscious non-voluntary, and the second the conscious, the voluntary or egoistic ensemble. The simplex (the subconscious impulses) encounter little or no retardation of an interrelation with past experience, and whether a spontaneous expression of primal impulses, a transient reverberation of a past reaction, a memory, or an impetus from a passing sensorial impression exciting a motor reaction, it finds expression unmodified. Conversely, the matured reaction, elaborated and modified by a past experience, expresses a volition which is thus normally egoistic, and the composite of the ensemble from which it emanates. The motor expression implies muscular sense on which it de-

pends. Here we apparently observe an hyperesthesia unmodified by anesthetic retardation.

The Sthenic Hyperesthetic.—As distinguished from the *asthenic* type of hyperesthetic manifestations such as is observed in neurasthenia, the *sthenic* type is perhaps best portrayed by the personal traits, character and mental characteristics of the German Kaiser as they are depicted to us in current literature. Prior to the consideration of these, however, we may take note of the undeveloped and deformed left arm as a possible *physical* sign of degeneracy, by disregarding the several conflicting stories that are current, which imply that it is simply a case of muscular atrophy from a late post-partum injury, but which appears to be contradicted by its deficient length and other developmental abnormalities. As descriptive of *hyperesthesia* in general, he is said to be irascible, tensional, high strung, petulant, restless, loquacious, impetuous, impatient, unenduring, intolerant, and unconstrained. *Instability* is implied in capriciousness, inconstance, disloyalty, unscrupulousness, hypocrisy, perfidy, treachery, and emotional instability of sthenic type. Recent reports imply unrestraint of the depressive emotions. *Sthenic* attributes are represented in his exaltation, imperiousness, ostentation, vanity, conceit, pomposity, arrogance, self-glorification, braggartism, presumptuousness, hypercriticism, dictatorialness, domineering proclivities, tyranny, high-handed despotism, and abuse of power.

The above are, however, counterbalanced by features which are usually classified as *asthenic*, indicating inherent weakness, deeper than nutritional sthenia, namely, the constitutional weakness or inferiority of heredity. These are evasiveness, sly cunning, deceptiveness, his intrigues, subterfuges, secret agent knavery, and insidious propaganda. Perhaps yet more indicative of *antisocial traits* are his self-centering, self-consciousness, selfishness, self-love, venality, avariciousness, his underhanded and cowardly tactics of warfare, his sentimentality, and pronounced religiosity. Typical criminal attributes. His *criminality*, by his royal and imperial prerogative, includes wholesale and wanton murder, rape, rapine, superatrocities, vandalism, arson, general devastation, and international brigandage. *Anesthetic* traits are observed in his exhibited callousness, moral hebetude, stolidity, ruthlessness, and unpitying barbaric cruelty and inhumanity as dictator and unfeeling spectator of wholesale human (and as personal perpetrator of animal) slaughter. Among *spasmodic* characters exhibited may be mentioned impulsiveness, rashness under excitement, obsessions, fixed ideas, opinionatedness, willfulness, and zealotry.

Probably few men in history could provide more signs of degeneracy, mental, moral, and physical, thus unified in a single individual, than William the Second of Germany. Many persons of unimpeachable veracity, who have been in position to know, affirm that the Kaiser *personally* is responsible for the unscrupulous and frightfully barbarous acts of the German State, army, and navy.

Within a very few years our newspapers have chronicled the visits of the Kaiser and his retinue to his hunting lodges on the Prussian crown lands, at which he gave vent to his mastering passion for cold-blooded butchery. The annual game roundup into the great drive pens converging to a narrow passage through which the panic stricken deer are driven, finds the Kaiser standing safe in his contiguous royal box, and together with his guests pouring torrents of lead into the bodies of the defenseless and flight precluded animals.

The unsportsmanlike character of the "pot hunter" has ever excited the contempt of all manly men, but the infinitely more cowardly and cruel massacre of these close grouped, helpless herds, of an inevitable death in which they were deprived of modern slaughterhouse humane butchery, is only equaled by that same Kaiser who journeyed to the North Cape to escape the responsibility of declaring war, by him who authorized the frightfulness campaign of murder, rape, and rapine of defenseless women, children, and the aged of Belgium, France, Italy, Servia, and Roumania; who seized upon the sneaking submarine to send to watery graves inoffensive passengers of noncombatant unarmed Atlantic liners with their precious cargoes of women and children, who lowered diplomacy to the level of confidence trickery and chicanery; and civilized warfare to the level of barbarism and most brutal savagery, in which soldiers are taught such tricks as malicious attacks after surrender, and upon their rescuers when wounded, and he who resorts to decoy, deceit, and humbuggery in peace treaties to subjugate the unwary; who seeks by bribery, misrepresentation, and fraud to seduce those he cannot defeat; he who is seeking a conquest of the world by debauching it, and destroying what he cannot steal or subjugate. Such a beast all the world is fighting and he must be punished notwithstanding our recognition of his degeneracy. He must be made an example of for the good of the world's future.

Diagnostic Hints.—The exhibition of astasia-abasia, in which the patient experiences inabilty to walk or stand, or to command coordnation and muscular control over the legs, when in the erect posture, should cause the physician to look for splanchic venous stasis with circulatory discompensation and for compensating tachycardia, with either a transient rise of blood pressure or circulatory failure. The abrupt and pronounced shock cases exhibit more marked circulatory disturbance and are correspondingly easier to diagnose than the fatigue exhaustion cases.

Cases exhibiting syncope, vertigo, anorexia, blanched and cold peripheries, cold extremities and labial and digital cyanosis should be regarded as exhibiting some degree of splanchic venous stasis even before pronounced circulatory failure is observed. In greatly prostrated victims of shock of the largest shells, it is well to percuss for dilations of the heart and stomach as soon as emergency factors permit. These should be outlined and retraced on architects' tracing cloth and preserved for record and comparison.

All fatigue cases exhibiting albuminaria should be recognized as vulnerable to shell shock, and shell shock cases, as probably already exhibiting an acidosis, which should be tested for. (See 37, I.)

Hyperglycemia being a common product of violent recoils, to chill and mental and moral shocks, should be carefully sought by a series of urinalyses for sugar in all hysterias, anxiety neuroses and shell

shock cases coming to the field as well as base hospitals. Our reports are negligent on the result of such tests.

Marked somnolence should suggest the presence of the diabetic syndrome, and be tested for accordingly (sugar, acetone, and acidosis).

Exophthalmus, and thyroid and other vascular swellings should be carefully observed and thoughtfully reported in case records. Even if at the time without diagnostic significance, they will always be valuable for statistical purposes and for the later interpretation. When hypo-thyroidism is observed, thyroid feeding may prevent the onset of subcatalysis with corresponding lowering of tissue density incident to impairment or arrest of the oxidation synthetic processes.

The development of anxiety symptoms should not to be too precipitately judged to be wholly neurotic in nature. Attention should be attracted at once to the circulation, and prompt measures provided against decompensation before the other and more alarming symptoms of circulatory failure supervene. The socalled *cardiac* anxiety symptoms, it should be remembered, are really *circulatory* indices, with cardiac failure as a single possible factor thereof.

Treatment of the Physical Disability.—The ideal prophylactic and therapeutic measure for fostering physical conditions which are incompatible with a spasmodic periphery, is the production and maintenance of the best possible conditions of *active,* as distinguished from *passive* hyperemia, thus promoting an *active* circulation, as distinguished from a stasis of the blood flow. The so-called passive hyperemia which merely constitutes a dilation of the superficial vascular system, such as is produced by heat, the Beer's treatment, and allied measures, are productive of stagnation of the superficial circulation, and as such are causative of low density and spasmodically predestined tissues.

The *immediate* effect of hot baths and passive hyperemia treatments in general is favorable, to be sure, but the *ultimate* effect is the very contrary of it, namely, one fostering stagnation of the peripheral circulation and low density spasmodicity of the superficial and extremity tissues. Unless repetition of emotional, hysterical and shock spasm events are interdicted, the remedial measure is defeated. The production of active hyperemia is dependent upon active peripheral stimulation, and the best ultimate effect results from the tissue condensing effect of cold, rather than heat, but chill *per se* is immediately productive of contractile exsanguination of the periphery and therefore the temperature must not be excessive or beyond the attainment of an immediate counter reaction attended with *active hyperemia.* Such a reaction is attained by a combination of active stimulation of the surfaces of the body by the rubifacient effect of ingredients added to the bath water, warm towel drying by enveloping the body in warm sheets, brisk frictional rubbings and spattings.

The more stimulant the carbonic dioxide, the alkaline earth, the saline, pine needle, or mustard ingredients of the bath water, the greater is the tolerance to cold with a safe hyperemic reaction assured. The personal equation of each case, however, must determine the temperature permissible and the reaction measures necessary. The application of this part of the treatment conforms to that adapted to cases of cardiac discompensation as we have heretofore more elaborately considered it." The technique of this treatment acquired by us at Bad Nauheim in 1900, together with the theory of the same since enunciated as above cited, have been endorsed as correct by Prof. Theodor Schott. We may also add here that the theories of the physical bases of the psychoneuroses herein set forth are founded upon clinical studies and observations made at the Salpêtrière under Charcot and his contemporaries in 1892.

Remedial relaxation of painful cramps, tetanically caused anesthesias, etc., may suffice for a cure, if the exciting cause is past and the predisposing hyperesthesia is also abolished; otherwise recurrence of symptoms, after artificial anesthesia, is prone to occur in aggravated form.

We must not disdain to cultivate cheerfulness and optimism in these patients because they have relatively recently been dubbed *New-thought;* it is as old a practice as medicine itself and has been almost universally practised and recognized by medical authors as a valuable agency in all indicated cases. The only thing to be shunned is that shift to the other extreme that counts all afflictions of mankind as imaginary ailments which may be dispelled by a sufficiently complacent denial of the malady, and thus neglects often much needed *physical* treatment.

Certain emotions and impulsive acts appear to be characteristic of a border line phase between the psychic and the motor, partaking of both, more or less, and .oscillating more or less from one to the other. They retrogress into the spasmodic events, or progress toward recovery according to the manner of handling the case, as we have outlined.

Oppenheim's[2] inhumanly painful treatment of shell shock cases is based upon the theory that the affliction is *psychic* in nature. The consequence is that the real physical status is neglected and the fundamental basis, the hyperesthesia, is increased and the ultimate effect is sacrificed for the current one by a process of applying a treatment worse than the disease. Such treatment is not desirable even from the economic standpoint. Its ultimate results are most unfortunate. German desperation to free the hospitals and get the men back in the ranks regardless of ultimate economic capacity of the victim would not be a wise course for our country to pursue.

Danger lies in taking the hysterical excitement and the confused states of the war neuroses, which may clear up in a few days, for indices of recovery, instead of the exhibited conditions of irritability, fearfulness and emotional instability which may last for weeks. *As long as hyperesthesia persists there is danger in returning men to the fighting line.* The next knockout, which they would be predisposed to, might prove their permanent undoing. Hyperesthesia is the safest index for prognosis.

Therapeutic measures of diverting the patient's attention for the relief of the tetanic stress inhibiting articulate speech, attain their ends, when

they succeed, by virtue of the release of the superstress of the spasmodic contractions which abort these efforts. The successful outcome is attained when the tongue and labial muscles become even momentarily tension free, and permanence is born of the experienced facilitation of function and the attending restoration of self confidence.

Recapitulation and Commentary.—1. Tissue density is an index of existent tissue integrity, and both are more vitally dependent upon incessant oxygenation and oxidation than upon food or water for their consecutive maintenance.

2. Corresponding *decrease* in exhibited physical strength, and *increase* in irritability and reaction velocity, attend falls in tissue density from all causes.

3. Hyperesthetic reaction is the direct sequence of excessive irritability of the tissues and is characterized by corresponding precosity and dynamic redundancy of reaction. Its physical expression is therefore contractile phenomena occurring as reaction to superacuity of sensation.

4. The exhibited contravention of physiological rest and recuperation by the continuous tetany and excessive reactions, tonic and clonic contractions, due to the superirritability, the premature discharge of potential and kinetic energy, and the production of fatigue products in excess of oxidative combustion (which is seriously diminished) and elimination, are responsible for precocious and excessive fatigue and of exhibited premature exhaustion.

5. The experienced sense of weakness, the physical incapacity, that fluttering, quivering, tremulous, shaking, jerky, shambling, writhing and convulsive phenomena are without exception contractile in nature and are examples of incomplete contractions, or of broken integrity contraction disorders. Stuttering, stammering and other disorders of oral expression come within this group. Spasmodic starts, fits, "jumpiness," etc., are examples of hyperesthetic recoils to factors insufficient in dynamic value to thus excite normal responsiveness, on the one hand, and to excessive causative factors, on the other.

Tetanic constrictive contractions of tissue areas, peripheral or extremity, which may be transient and fleeting or stationary, are responsible for exsanguination asphyxia and consequently of anesthesia of the affected areas of tissue. Thus is hyperesthesia a predisposing cause of anesthesia.

7. The great typical feature of hysterical paralysis and amnesia, and of paralyzed arms and legs, is anesthesia, which involves loss of tactile and muscular sense. The sense of weight and deadness of paralyzed limb is due to the loss of muscular sense, which is a sufficient factor to defeat the exercise of volition, unless the sensorial break is compensated for by another sense such as vision. Constructive motor images of new volition syntheses, exhibited as repetition phenomena of past performances, are made impossible by the abolition or the abeyance of the muscular sense impulses from the involved tissues.

8. All known examples of extremity asphyxic gangrene, both wet and dry, are attended with anesthesia corresponding in time relation with the asphyxia; some of these anesthesias are preceded by hyperesthesia and painful contractile phenomena, which here obtains above the margin of anesthesia.

9. All such instances of anesthesia are *immediately* relieved or benefited by relaxing, by sedative, narcotic or anesthetic measures, and not by their antitheses, showing an underlying hyperesthesia which would be increased by exciting and painful measures.

10. Relaxation, however attained, is transient in time duration, unless the underlying hyperesthesia is primarily abolished, and in the presence of the hyperesthesia, continuous warm baths and drug narcoses cause yet lower tissue density, predisposing to recurrence, and in the case of the latter to drug addiction. The reaction is typically hyperesthetic, following all narcotic and other artificial anesthetic actions.

11. The provisional recondensation of tissue produced by the hypodermic administration of asepticised ergotin, the rectification of the disequilibrium of the blood by adaptation of cold or cool baths, with the cold provided against by stimulating and rubescent ingredients as carbonic dioxide, pine needles or mustard, etc., and by warm towel sheet envelopment of the body and brisk frictional rubbing until a distinct surface glow is attained, followed by an hour's rest, and after a few hours' interval by massage, and first resistant and later graduated active exercises, constitutes the general treatment which we commend.

12. The anorexia of the hysterical condition, which we now believe to be caused by splanchnic venus states,[2] even Sollier at one time believed to be entirely mental. He then wrote: "To my mind there is but one kind of nervous anorexia, namely, mental anorexia." Charcot[7, 111] showed that the psychical factor plays a prominent part in its causation, to which we agree. It is, however, indirect. The occurrence of splanchic venous stasis, from all causes, is prone to cause correspondingly severe cases of nausea and vomiting. As biliary and other associated organs are similarly affected the anorexia becomes correspondingly greater. The same cause produces psychic symptoms.

13. Throughout hysterical manifestations there is exhibited a consistent series of motor disturbances which are, significantly, difficulties of various degrees of coordination, of systematization and unification of motor responses. The motor portion of reactions, starting with the sensatory preamble, are broken or disqualified in the intermediate phase preceding elaboration (1), whereas the memory factor intercedes, or (2) in tetanic defeat of an oriented finished product.

14. Catalepsy and contractures disappear with return of muscular sensibility, and momentarily when the attention is aroused. As a sequence of hyperesthesia, the hysteric is in a continual state of predisposition, to a readiness for contractile tetanices such as contractures and catalepsies.

15. The special senses of sight and hearing, in particular, are in some cases or stages rendered hyperesthetic and give vent to hallucinations and wild deliriums. In others they are rendered anesthetic and are attended by the so-called hysterical blindness and deafness. The fact that the greater number of causes of paralysis and hysterical con-

tractures were accidents other than caused by great physical traumatisms, only emphasizes the fact that a greater hyperesthesia, a no less physical manifestation, compensated for the lesser traumatic injury or recoil. Our evidence that the reaction violence is an excessive *tissue* reaction is not controverted by any evidence that it is due to an electrical discharge from the brain or nervous ganglion, as per the torpedo fish. One might go farther than the statement that *there is no mental apart from physical functions*, and we add that *all psychological images have a motor side.* Even visual hallucinations are commonly attended by movements of the limbs in accord with the subject on the mind. Dreams cause motor exhaustion occasionally.

16. All intellectual workers appreciate the importance of a circulatory equilibrium in sustaining mental capacity. Not only by recumbent or a semi-recumbent position, but by warm lower extremities and a cool head. Circulatory compensation is second to no other factor as a determinant of consciousness and of mental capacity. It is a much neglected factor in cases of mental and emotional disability in general.

17. Janet[15] admits that disorders of sensibility and particularly anesthesias follow spasm. He also recognizes that hyperesthesias engender spasm. Thus both phases of the process are separately admitted by an official exponent of the Charcot school, the stronghold of the psychicalists.

18. Janet is obviously wrong in referring to the related incomplete anesthesias as due to fixed ideas and to *false* anesthesias, because not complete. It seems obvious that the anesthesias here proceed as the predisposing causes, and the fixed ideas represent the tetany resultant. Some cases, however, may exhibit a vicious cycle of mutual interrelation.

19. The status of a case wherein *anesthesia* is exhibited, other than when conscious attention is attracted, and then the exhibition of *hyperesthesia* follows, suggests the relationship of the *subconscious* with the *involuntary*, and the *conscious* with the *voluntary* muscular systems, the subconscious ensemble carrying the fixed ideas. This is vital and worthy of further investigation.

20. The emotional stage of hysteria is not that of developed stigmata but of the preceding stage of predisposition to the stigmata. The hyperesthetic stage is the emotional one of spasmodic proclivity, but not that of anesthesia, of catalepsy, of contracture or rigid or flaccid paralysis. The fixed ideas which an original hyperesthetic stage formulated, the outgrowth of its timorous sensibilities, its fears, anxieties, worries, distressing solicitude and apprehensions as selfish interests, self love and pity, and in general self absorption, with the balance of humanity excluded, become fixed with spasmodic events, and tide over as fixed ideas to succeeding hyperesthesias and tetanies where they find favorable soil and vegetate—influencing the thought and life of the victims. The fixed idea becomes a *menace* to the patient when it is expressed as an anxiety, a morbid solicitude, anxious apprehension, an irritation, a source of discomfiture, of discomposure, of fearfulness, of disconcertedness or as a source of fret or worry, vexation, of dismay, dread, alarm, of surprise or distressing anguish. A subconscious anxiety, a fixed idea, as a tetany and a resultant anesthesia of the muscular sense (amnesia), acts as in hypnosis as a suppressor of memory of the conscious state and a segregated dominator of the voluntary muscular system, acting as a stress factor.

21. The depressive and pathetic emotions are most emissive in type; and those of fright, anger and rage, in the strong, and the conversion or motor type, are least so. *Motor* expression involves *hysterical characters.*

22. The disappearance of emotionalism, hysteria, automatic writing, suggestability and other characteristic phenomena in old age, evidences the fact that loss of water content in the tissues of the aged ends the low density reaction manifestations of earlier life.

23. General artificial anesthesia releases the events of shock, the affected parts or areas of which are probably already anesthetic, demonstrating that the cause is contracting rather than relaxing.

24. In general, violence and time duration of motor reactions occur in inverse ratio, one to another. The greater the violence exhibited, the less sustained it is. In other words, the accrued energy is expended correspondingly earlier—relative to its intensiveness and velocity. The converse is equally true within normal limits, whereas beyond the normal boundary line torpor, motor slackness and asthenia more commonly coexist.

25. In general, whatever motor act finds expression with a minimum of resistance, we term a voluntary act, whether it proves to be well advised or not. One may commit a crime, at the moment voluntarily, yet regret it almost immediately afterward. Impulsive and intuitional acts, however freely committed at the time, are not infrequently later characterized by the commissioner as involuntary. We are thus brought face to face with the problem of determining a line of demarcation in individual cases where the *involuntary* ends and the *voluntary* begins.

26. The question often arises in cases of mental conflicts, which is the will of the ego; the spontaneous impulse, or the restraining or repressive element. One may be dominant on one occasion and the other on another occasion. Either may happen to prove the pragmatic one. Restraint may be in error. The exclusion of the memory factor of the subconscious state involves the loss of the I, the individual character which in turn involves the corresponding diminution of the will or volition which is dependent upon the ego for its very *voluntary* attribute.

27. To the scientific physician, the mind is the function of the body, and there is no physical which is devoid of its mental aspects, and no mental apart from the physical. Both are expressions of the collective physical body. Sir Charles Bell, in man, and later Charles Darwin, the latter with greater completeness, elucidated the anatomical expression of the emotions in man and animals, all emotions, painful and pleasurable coming within the physical range of contraction and relaxation.

28. The mental relations of the emotions have to do with the time, place and interrelations, and of the sense perceptions of the emotions expe-

rienced, as well as the modifying influences of the individual's past experience. One may view the emotions from the anatomical viewpoint, or from the physiological point of view, as related to hyperesthesia, deflections of great volumes of blood, peripheral anemias, and asphyxias, anesthesias, contractions and relaxations. One may view them exclusively from the standpoint of the mental relationships, but both are equally unscientific. True science knows no fear or favor. The truth and nothing but the truth, the dictum of the judiciary, must prevail in scientific medicine and not less so in any psychology that is to endure. We may recognize all *mental* aspects but still remember when abnormality occurs the *physical* substratum is at fault and must be properly reckoned with and corrected.

29. Charles Féré[2] has observed that a violent emotion is as capable of provoking a drunken delirium in a chronic alcoholic as is a traumatic shock or an acute illness. Conversely, alcoholism predisposes to emotionalism. National prohibition during the war will not only save thousands of our soldiers from war neuroses, from both hysteria and shell shock, but it will otherwise save millions after the war, if it continues as a permanent institution, with the people free from vulnerability to other emotionalizing influences, and we will become a more stable people—socially and morally. Whatever causes or augments emotionalism is a menace to any people, but particularly those with republican forms of government. Emotional instability is a vice that threatens the state which depends upon the mental poise of its enfranchised citizens. Russia's revolution is an ever living exemplification of that. With the accession to power of the Bolsheviki, vodka and social license were simultaneously given a free hand. The reign of terror followed. The Russians, naturally a phlegmatic people, became, thanks to vodka, the most unstable.

30. The terms phobias and fears symbolize symptoms arising as pathologic states in the absence of actualities warranting fear as a normal apprehension or cause for solicitude. Morbid fears and phobias represent more definition and fixation of ideas than mere anxieties, which may be diffuse (cardiac anxieties for example). Both are fundamentally expressive of irritable weakness, the sense of weakness characterizing the absence of confidence and defensive stamina. The return of strength, sense of capacity and therefore of self-confidence, marks the disappearance of morbid fears and anxieties. The initial appearance of anxieties marks the onset of irritable weakness, *asthenic*, as distinguished from *sthenic hyperesthesia*. When they become identified with fixed ideas developing into definite subjective or objective fears they indicate the transition from a tetany to a spasmodic character of reaction, and exaggeration of acuity and intensity of recoil; and emotionalism and other spasmodic events are exhibited.

31. Physically, anxiety is a tetany, fear is a rigor or tremble (relative to contractile integrity), fright is a spasm, and terror is a paroxysm. Except for the physical character of these contractile phenomena they would not prove so exhausting.

32. Whatever be one's estimate of the functional advantage of the undulatory phenomena produced by chill and termed shivering, we cannot ignore its close analogy to the tremors which obtain as sequences of traumatic factors that drive the blood from the superficial circulation, of cardiac incompetence and the resulting circulatory discompensations, and of hemetic anemia, all of which in the last analysis produce peripheral and extremity anemia and are productive of those vibratory flutterings and shaking and quaking types of broken integrity of contractile phenomena which is exhibited in movements and sustained efforts. The tremble of weakness and fatigue exhibits the same type of disturbance, and the quivers of the lips, which organs so early exhibit cyanosis in circulatory failures, are concerned in oral disturbances in the less debilitated cases.

33. The Shakers and Quakers, in their religious emotions and ecstasies, exhibited tremors and coarser shakings as stages in progressive syndromes which often extended to tonic and clonic contractions, and even to trances, hallucinations, etc. The economic value of all tremors and shivers as reactional manifestations depends upon the degree of *active hyperemia* they may be able to activate in compensation for, or in overcoming the peripheral *anemias* that produced them. The Shakers attained a pleasant glow from their shakings which constituted a sort of spree. In the case of chill, moderately low temperatures produce perceptibly warm reactions as shown by thermometers, but not by feeling. The sense of chill that activates it predominates. Shivering reactions are not developed by very low temperatures or tremors in the most extreme prostrations. Tremor requires a certain degree of vitality which is yet insufficient to sustain contractability of unbroken integrity. It is an intermediate (immaturely developed) contractile phenomena. It has its analogy in the vibrating flame of the lamp as the oil burns low and the supply falls below the demand of the burner.

34. After pointing out the dependence of the hypsterical and other neurotic manifestations upon a low tissue density, and that such degraded tissue integrities are in turn resultant from imperfect synthesis; we have been able to produce evidence of the exhibition of war shock conditions producing such effects. We have chronicled observations of deoxygenation of the air with explosive disengagement of a great excess of nitrogen, of asphyxiation by burial, of deoxidation of the blood with a surcharge of nitrogen destroying the ON equilibrium, CO poisoning, of a lowered alkaline reserve (acidosis), of peripheral and extremity volumetric anemia, and of splanchnic venous stasis; and of symptoms characteristic of low tissue density; both independently and as due to suboxygenation, suboxidation and subalkalinity factors.

Since the gross organic lesions are inconstant, the symptoms in their absence are of necessity incident to other causes, but since we now have proof that even hysteria fundamentally arises from physical causes, we must arrive at the conclusion that the universal factor is neither a gross lesion, nor is it psychic, but some other which is present, at bottom, in all cases. This factor must be due to the collective causes which are shown to be op-

erative in all cases exhibiting these manifestations and be shown to produce the final symptoms which are exhibited in these cases. What other than the tissue density factor meets all those requirements?

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628 WEST 114TH STREET.

TONIC SPASM AS A CAUSE OF DISABILITY, AND THE REMEDY.

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So dominant and obdurate is the factor of tonic muscle spasm, acting as it does as the chief cause of disability in a variety of abnormal states, that we offer this brief preliminary note in the hope of directing attention to the possibilities of relief which a mastery of the condition opens up. We have cooperated in a number of cases where spasm proved to be the crux of the trouble, which had in most instances resisted all previous forms of treatment, constitutional or local.

The main or outstanding cause of tonic spasm may be ascribed to any agency capable of compelling a muscle, or muscle group, to assume compensatory function whereby relief is afforded to pain arising in another part. This familiar phenomenon may take the form of a local strain; most often a pain is produced which later sinks below the threshold of consciousness, no longer being interpreted as recognizable suffering, but which none the less dominates or impedes action, hence causes an involuntary overtension and shifting or alteration of attitude, also often causes a deformation, or an apparent displacement. Its economic purpose

is to protect instinctively an oversensitive or overstimulated structure.

The primary cause may be a focal sepsis, an inflammation, an injury or some traumatic disturbance of the bony relationships, especially of the delicate and sensitive structures about a joint; *e. g.* the sacroiliac, the shoulder, the wrist, the hip, the knee, or the neck. It may remain and disable for weeks, months, or even years.

Tonic muscle spasm is nearly always designed to furnish a protection. This it does more or less well for the time. The chronic pains and limitations of movements in joints are often the conditions which bone setters so brilliantly cure by "replacing" them. They do this by a forcible overstretching of the part, throwing the hypertense muscle out of commission, and also by stretching the tendon or ligaments affected. The sufferings caused by tonic spasm are of the nature of, or parts of, transferred pains.

In order to relax a state of tonic spasm the muscle affected should be induced to make a normal movement and against resistance; in short, to carry a load to the limit of its ability to contract, which may it be little or much, all the resistance it is capable of opposing may be exerted. The object is to persuade the muscle to make a movement which is normal and to divert it from a movement which is abnormal; also to place the impaired muscle or muscle groups in a position to functionate advantageously.

Next employ the antagonistic muscle against full resistance (contrary to the load), inducing it to act as far as it will go *without pain.* Should pain be caused in any instance it is by reason of having exerted too much or too long sustained effort, which causes groups of new muscles to come to the rescue, to grow overtense, to become fatigued in turn, hence to get into tonic spasm. These, then, try to take on function, to protect the impaired parts, in short, to compensate or adapt. Hence the "load" applied, or effort made, should not be too great to permit moderately free movements. Repeat these movements and the excursus will be found to increase. For example, in directing the action of a partly paralyzed arm in flexion, when it can pull no further and compensatory muscles begin to act, then suddenly cause them to reverse the motion, to extend. Then throw the muscles which attempt compensation out of action; through this device it is possible to make a new attempt to flex and thus secure fresh gains. Several repetitions will achieve the desired motor equipoise.

A muscle when in static contraction and employed in one direction will, when employed in a reversed direction, induce a "jerk" as the muscle in spasm lets go and its antagonist acts. Sharp contrasts in movement seem to induce overaction, *i. e.* to cause jerks, rapid alternations composed of sudden pushes or pulls; hence follows a motor bewilderment. This is probably due to muscles which attempt to compensate and aid in a movement, and which are thus thrown out of action when the movement is reversed.

For example: a man who can move his neck to the right but cannot move it to the left, except a short distance, is told suddenly to shift to the right against resistance, then suddenly to the left and he can thereupon go a half inch further. If he is urged to go further to the left, he fails to do so, but he makes other "false movements," *e. g.* he lifts his shoulders or throws his head back in an attempt to execute an equivalent, but not the desired, movement.

It is possible to go further to the left at that stage, in opposing resistance to the action toward the right. He thereby loses his head and shoulder movements to the left, which are false efforts. When next commanded to move to the left he will then be able to do so; to make an increased left normal excursion.

This alternating action is better than to urge him to move yet further to the left, which causes false head and shoulder movements. Also, a man paralyzed (partly) in his legs when attempting to walk forward tends to throw his body forward, hence to use the weight of his body to get him forward (to advance as he hopes to). Then command him to suddenly step backward. This calls attention to the fact that he is merely using his weight and not his leg muscles in the forward movement. This naturally leads to a better, more consciously controlled, attempt to co-ordinate his legs and thus increases his confidence in his powers to exert control, poise.

The desirable effect is to achieve conscious control, an intelligent direction of voluntary acts. In doing so the attention must be guided in a manner capable of producing understanding, obedience, and hence co-operation. The cases here referred to gained great confidence and co-ordinative power by holding a long stick directly over the head and pressed against the ceiling.

Movements can be made against resistance to a degree and power impossible without the stimulus of explicit guidance in direction and force. This dictum applies to free movements and not to those in opposition to a "load resistance." To push a mass (to raise a load) use flexion 50 per cent. and extension 10 per cent. Afterward add a full load and this acts as a guide and releases the 10 per cent. used to balance the muscle.

What we wish to achieve for the ataxic is biokinetic poise. Ataxia is of varied parentage; not always the clinical entity, tabes.

Under a full or heavy load, as Bucholz says, there is no undue intra-articular pressure.

In many instances where spasmodic conditions exist they are made much worse by manipulation, also by passive movements (done upon the patient), because the muscle spasm gets into yet greater spasm by the stimulus of effort or by submission to handling. Movements can be made against resistance to a degree and power impossible without this stimulus.

The way to relax the spasm is to give proper employment to the spasmodic muscle in its normal or functional directions and in holding or fixing the directly correlated groups.

ILLUSTRATION.—Dr. A. B.: Right sacroiliac and sacrolumbar disease. Subjected for nearly a year to many and diverse forms of scientific treatment, but as yet unrelieved. Confirmed by *x*-ray; joint wide open, admitting large finger.

Diagnosis: Spasm of muscles anterior to spinal column, *e.g.*, psoas, iliaci, quadratus lumborum, also spasm of other muscles. Lower dorsal and upper

lumbar vertebræ project prominently and posteriorly. His first protective action was to induce spasm in the left lumbar muscles; when these reached the limit of their endurance, the present spasms arose. The protective spasms become so intense they caused an aching in the protective group of muscles, and later in others; hence transferred pains occurred in various localities and groups of muscle fibers. Result, deformity and lameness of a different kind or quality. Our object was to relax these overtense muscles, especially at their insertion, where one over-fatigued muscle protected painful areas.

Procedures: The patient was placed in a comfortable posture; the overtense muscles were made to increase action in the direction of their attachments against resistance; they were guided by resistance to efforts to carry the load; to maintain compensatory poise. When no further action on his part was possible, the direction of the load was reversed. Thereupon a relaxation occurred at the time of change. The tonic spasm was unlocked, relieved, emptied.

While lying on his back (in dorsal decubitus) the leg was by the operator (passively) raised, flexed on body. Pain was not then caused in the overtense muscles, *e.g.*, iliaci and quadratus lumborum, but when he directed and impelled his leg in extension (in order to lay it down on a level with his body) it caused sharp pain in the sacroiliac region till down and fully relaxed. When resistance was offered to the downward movement, the leg being in the air, *e.g.*, the force of gravity checked, then the opposite group was employed and pain was relieved. The group affected was employed in extreme extension against a load permitting the flexor group to remain passive, otherwise both groups were employed to make a steady co-ordinated movement. Thus intra-articular pressure was increased making painful the diseased joint.

The sacroiliac synchondrosis could not be accounted for upon any other basis than septic focus from tonsils. These were removed long ago, but the sacroiliac condition and pain and deformity grew no less. The sensory and deforming states were rather increasing. So soon as the treatment was begun by us he began to improve and in about 6 or 8 weeks he not only recovered from the disabilities described, but in accord with his personal statement he had never been so erect in his life. He did appear distinctly taller. Also he became much more mobile, elastic, nimble.

Now it is our opinion, in which he agrees, that if he had recovered from his pain, deformity, and opening of his joint without other treatment than removal of tonsils and whatever medication had been employed, the recovery would have been by no means so early, so rapid, or so complete. We believe, and our experience justifies this view, that there would have remained some form or degree or measure of disability capable of serving as a limitation to his motor efficiency or normality and may have acted as the starting point of yet further disabilities. Certainly the recovery would not have been to the extent of his becoming straighter, more alert, of greater motor capabilities than before.

Systematic mobilization was employed throughout; also making more elastic his paravertebral and waist line structures; systematic education in points of view of his own state, of his interrelationships mechanical and psychic, by psychomotor and muscular education, passive, active, and aggressive, also by confident encouragements, suggestions, explanations, all of which were calculated to appeal to his good sense, his observation and training as a physician. The totality constitutes a pretty complete restitution.

The residue of the treatment consisted of judicious training of the muscles, mainly while lying down and by simple, carefully directed movements and resistances. Also the flexibility of the backbone, which was much impaired, was released and made pliant by "thrusts" (a la chiropractor), also by lateral movements after the muscles were relaxed, inducing a mobility most necessary in order to attain and also to maintain normal conservative, economic postures. We find this forceful (passive) mobilization of the vertebral column of constant value.

The muscular mechanism is for fixation and the nerves for control. A spasmodic area must necessarily have developed a special nervous and muscular mechanism which has also produced a group of structural peculiarities all its own. The reactions have changed in their degrees and also directions. From center to periphery there have come about inequalities of energizing and response.

If a part or a group of structures has been long under the influence of these irregularities, including strange, bizarre impulses and responses, when, after complete recovery, any unusual movement is attempted or some special and unfamiliar strain occurs, the result is an apparent return of the old disorder. The disturbed part has been for so long protected from strain or from natural movements by the spasm that a degree of hypersensitiveness follows effort. Hence any new movement elicits the protective reaction, a spasm or hypertension. Function is still bewildered.

This condition can be remedied by functional education only, by particularized movements under graduated strains, especially those less than customary and these should be gradually increased.

For example, if the part affected is one commonly employed in weight bearing, then give it functional treatment, *i. e.*, direct its use without weight bearing. Thus the load is steadily increased, the power is put on as the part can sustain it, till a new degree and kind of development or power transmission is attained and this reacquired or retrained power maintains the protection.

For example, in a chronic lumbago treatment or training should be graduated till the muscles fully relax, the overtense fibers cease to strain, and then they can be taught to do their normal work in the normal way. The final cure is by muscle training (bio-kineseatrics).

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GINGIVAL SEPTICOPYEMIA.

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Diseases of the gums are an ougtrowth of civilization. Animals and members of the human family who lived in remote antiquity were free from diseases of the gums and suffered little from diseases of the teeth. The exhumed skeletons of mastodons, dinosaurs, and other animals which inhabited the earth in prehistoric ages show on examination perfect teeth imbedded in healthy alveoli. From these findings it is to be inferred that the animals' gums were healthy. Many tribes of people of the present, undefiled by the conventions of civilization, are free from diseases of the gingivæ. It can be said with a certain degree of accuracy that diseases of the gingivæ are a concommitant sign of civilization. Boasting of a progressive civilization, the physician and dentist are obligated to study, treat, and cure these diseases.

At this point I shall call attention to a disease that has been under my observation for some years. The condition is one I shall, for the want of a better name, call gingival septicopyemia.

Gingival septicopyemia is a local condition of the gums which rapidly becomes constitutional and is characterized by chills, fever, great prostration, hypertrophic spongy, suppurating, and

hemorrhagic gums, rapid hemolysis, acute nephritis, hemophilia, coma, and death.

The predominant etiological factors are pyorrhea alveolaris, traumatism, gingivitis, and alveolar abscess. The disease may occur following infection from a pick, brush, or other foreign body causing an abrasion, laceration, or permeable lesion. It is an infectious disease in which staphylococci, pneumococci, Klebs-Loeffler bacilli, Vincent's organisms, strèptococci (hemolysans, pyogenes, or viridans) actinomycoses, and other bacteria may be present.

There is a rapid hemolysis due to the virulency of the infection. There may be a leucocytosis at first, but it rapidly subsides. There may be extravasation of the blood in various parts of the body. If there has been pyorrhea alveolaris, or apical abscesses of long standing, degeneration of the liver and kidneys will be found.

Attending the etiological factors the following symptoms will be found: painful, tender, foul-smelling gums which rapidly become greatly swollen and spongy; chills, fever, and great prostration; oozing of pus and blood from the gums; ofttimes hemorrhage from the stomach, bowels, and kidneys. Cerebral hemorrhage followed by paralysis is not uncommon. The skin is pale, pasty, and frequently of a cadaverous character. The patient may become delirious and carphologia is noted. Pain varying from mild to excruciating in various parts of the body, is a common symptom. The urine is usually highly colored, albuminous, showing hyalin and waxy casts, and often much blood. Coma, as a rule, intervenes some time before death.

The prognosis is grave. Acute cases end fatally in three to five days. The subacute cases succumb within two to eight weeks. The diagnosis of this condition is not difficult as the source of the infection can easily be recognized. The only condition that may be confused with this disease is scorbutus. Scorbutus has many parallel symptoms, but is insidious and due to dietetic factors. At an early stage gingival septicopyemia is plainly in evidence. The occurrence of rigors, fever, sweating, and a foul, sweetish breath is very significant. The multiple, superficial abscesses will be observed in some cases. In others the signs and symptoms of metastatic abscesses will be present and evident by the cough, dyspnea, and localized condition of the lungs. There may be effusions in the pleurae and pericardium, peritonitis, splenitis, albuminuria, hepatitis with jaundice, suppuration of the joints, and various other conditions may develop.

In order to illustrate this condition I shall give the case records of one acute and one subacute case. These are selected as the most typical of twenty-eight cases that have come under my service.

C. F. N., an American master-printer of fifty-three, referred to me by Dr. Ira E. McCarty, came under my service in February, 1918. The family history is exceptionally good. The past history negative. The habits good except that he smokes a great deal.

The present illness began some time ago with pyorrhea. One week ago he was out automobile riding and "caught cold in his face." Two days ago his gums began to feel sore. He consulted a dentist who removed one of his teeth, believing that it would relieve the condition. There was profuse hemorrhage after the extraction, which was controlled with much difficulty. He has felt weak and feverish the last twelve hours and is very much exhausted. Physical examination shows a well nourished man, 5 feet 10 inches high, weighing 200 pounds. The scleræ are congested. The gums are greatly swollen, spongy, and oozing with puss and blood. The soft palate shows large spots of extravasated blood. The throat is pale. The apex impulse of the heart is normal. The sounds are distinct and of good quality. The pulses are normal. The lungs are negative. The abdomen is protuberant but its examination gives negative results. The skin has taken on a pale, pasty appearance. The genitals and pupils are normal. The reflexes are normal. Temperature 102° F., pulse 90, systolic blood pressure 120, urine: sp. gr. 1020; albumin in considerable amount, hyaline casts and blood. Blood: Hb., 85 per cent, leucocytes 21,080, polynuclears 68 per cent, coagulation time, 12 minutes.

The patient was treated symptomatically and all supportive measures were used, but he began to have profuse hemorrhages from the stomach, bowels, kidneys, and gums, and failed gradually. February 23 he died.

G. W. R., an American contractor of fifty-eight, referred to me by Dr. Ira E. McCarty, came under my service December 15, 1917. The family history was unimportant. The previous history was negative. He is an inveterate smoker; denies venereal diseases.

For three months he has had neuritis and able to walk only with the assistance of a cane. He has been treated for Bright's disease, rheumatism, and stomach trouble, with no improvement. One week ago he consulted a dentist, who advised him that his gums were not in a condition to be treated, and he was referred to an internist.

Examination shows a well nourished men, 5 feet 8 inches high. The scleræ have a bluish blanched appearance. The tongue is heavily coated, pale and flabby. The gums are painful, tender, and foul smelling, are swollen and spongy, and blood and pus ooze from them. Heart and lungs negative. Liver is somewhat enlarged and has a smooth insensitive edge. There is moderate edema of legs and ankles. Genitals and pupils normal. Reflexes negative. Temperature 100° F., pulse 80, systolic blood pressure 160. Urine: sp. gr. 1015, slight albuminuria; hyaline and waxy casts. Blood: Hb. 80; leucocytes 15,000; coagulation time 10 minutes.

In consultation it was decided to remove the patient's teeth as a measure to relieve the neuritic condition. December 16, Dr. Furrow removed under ether anesthesia 14 teeth, nine of which were abscessed. There was profuse hemorrhage immediately after the operation and for some days there was a great deal of oozing. The patient showed good improvement after this, was free from the neuritis and reacted well with supportive treatment and diuresis. The patient fared well for two weeks, then a uremic condition developed. Paraplegia, coma, and death ensued.

The treatment, whenever practical, includes the removal or thorough drainage from the focus of infection. The general strength should be maintained by fresh air, nourishing food, and strong stimulating tonics. In streptococcal infection an appropriate serum should be used. An autovaccine made from the focus of infection should be used. All sera in this condition should be used intravenously.

The prophylactic treatment of oral conditions cannot be too forcibly emphasized. An hour of prophylactic treatment is worth more than a month of curative measures. Prophylaxis should begin in early childhood if the more important diseases of the mouth would be prevented. The parent should be educated to recognize the fact that a great many diseases of childhood are due to oral conditions. The simple methods of cleaning may prevent the various diseases of child

and adult life. The great educational problem devolves upon the physician, dentist, and nurse. They are the teachers whose instructions should be made a matter of obligation and duty.

It is not the purpose of the writer to discuss at length the important subject of prophylaxis, but to touch only upon the salient points relative to the prevention of such a virulent condition as gingival septicopyemia.

Diet influences the growth and development of the teeth. In childhood the diet should be such that contains calcium salts sufficient for the healthy growth of teeth. The diet in the adult must not be poor in the elements conductive to proper nutrition.

Faulty nutrition in the child as well as in the adult, predisposes to early decay of the teeth and to a diseased condition of the peridental membranes.

Scrupulous cleanliness of the mouth is imperative. This is best observed by the proper use of plenty of water and a suitable tooth brush, rubber bands, floss silk, or a rubber bulb syringe.

A competent dentist is as indispensable as a competent physician and should be consulted at regular intervals (two months) relative to the condition of the mouth.

If there are deposits of either salival or serumal calculus, they should be removed. Decayed teeth, open contacts, imperfect previous operations (badly filled crowns, poor fillings) should be corrected. All pus conditions should be treated to remove the etiological factor. Teeth not amenable to treatment should be extracted. Diseased apices should be resected. All gingival inflammation should receive attention.

The teeth are, in a measure, the barometers of the health of the human organism. They are the crucibles which prepare the food for the laboratories of the intestinal tract. Any faults in the crucibles result in bad chemical mixtures in the system. The teeth may mean good or bad health according to their condition. They are to the esthetic aspect of the face what the mosaics are to the architectural structure of a building.

The physician, the dentist, and the nurse are the keepers of their patients, and it is a paramount duty that they at all times exercise their prerogatives relative to the care and treatment of the teeth.

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SOME OBSERVATIONS ON THE NATURE OF CANCER, WITH SPECIAL REFERENCE TO UTERINE DISEASE.

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All known forms of life are distinguished by two great periods, the period of development and the period of decay. While organic life is less durable than inorganic, change or motion is characteristic of both. Man, in spite of his absurd egotism and his incessant labors in the field of self-laudation, is of no more importance in the general plan of Nature than a blade of grass or a fallen leaf. Moses, the most eminent man of letters who ever lived, painted such flattering pictures of man's supreme importance that all writers of inferior note have fallen quite unconsciously into the style of that unrivaled leader. This philosophy will explain why man has been so tardy in making a devoted and determined effort to study the real facts of Nature as revealed by her own works.

Cancer is a disease of the period of human decline, of decay, of atrophy. That some lover of controversy may not bring forth exceptions, I admit them in advance, without reserve, but the cancer patient is on the down grade of life. Cancer originates in glandular tissue, and during the period of its limitation to such tissue its progress is usually slow. The more compact its structure, the slower the growth of the tumor. It is undoubted that a small number of cancers remain inactive for years.

The child-bearing period of woman is between the years of twenty and forty, during which time the uterus and the breasts, these being the most frequent seats of cancer, are notable for extreme functional activity. But during this period of high activity cancer in these parts is of great rarity. This fact ought to teach us that "unexplained uterine bleeding," an expression that sounds far more formidable than is justified by the condition itself, cannot be accepted as even presumptive evidence of the presence of cancer. When the uterus becomes the seat of a veritable whirlpool of blood (during the later months of gestation) cancer does not attack it. Unexplained bleeding, arising from any source, may justly cause more or less anxiety, depending upon many modifying factors, but as cancer, even when notable for a vast wastage of tissues through sloughing, seldom gives rise to serious bleeding, it is absurd to suppose that active bleeding would signalize the presence of a recent cancer not yet more definitely characterized by other clinical symptoms. Dangerous and even fatal bleeding does, of course, spring from cancerous growths at times, but such cases are of extreme rarity, and when they do arise the fatal character of the condition is apparent to all eyes, unskilled as well as skilled. I have known of numerous cases of uterine bleeding in which cancer had no part and for which no precise cause could ever be assigned. Without meaning to quibble, perhaps I ought to say for which no cause *was* ever assigned, for I must say that many of my so-called investigations have been of so crude a character that they are entitled to a very low degree of respect. Highly equipped laboratories with skillful attendants are not too plentiful, and when the question of cancer has been decided in the negative the investigation has generally been dropped. On the other hand, some women bleed from the womb about as they bleed from the nose, and the microscope must be supposed to be as useless in some cases of metrorrhagia as it is generally in cases of epistaxis. Some women, without being so-called "bleeders," certainly bleed a great deal more than appears to be required by the necessities of the natural menstrual flood, and no one, so far as I know, has ever been able to draw a precise dividing line between menstruation and hemorrhage. "Flooding," as it is sometimes called, is as common with some vigorous women as the appearance of a new moon, but that such women are more liable to invasion from cancer than women with scanty menstruation is an utterly groundless supposition.

Uterine pain, if not due to "a thousand causes," is due at least to a respectable number; and if due to an early cancer, as might be possible, would lead to nothing positive in diagnosis unless corroborated by evidence of a more dependable character. Pain of more or less severity is always an accompaniment of cancer in its later stages, and it may even become unbearable, but pain of such intensity indicates all too plainly that the day for curative operative interference has long since passed. Prolonged pain within defined limits is always a symptom of serious import, but pain of this type is not characteristic of early cancer. It is claimed by some that the uterus may be the seat of intractable neuralgia, without distinguishing pathological alterations of tissue. Granted that this were so, any such case should be examined with the mind fixed upon some hidden constitutional taint or perhaps some latent miasm. Not that I think that an unwarranted hysterectomy is any more culpable than any other unwarranted operative procedure of equal magnitude, but for the reason that no operation of any character whatever ought to be undertaken without the most complete surgical justification. Operations performed for diagnostic purposes are fully warranted in many instances; they ought, indeed, to be performed much more frequently than they are; but such procedures, carried out in the full light of day, and with the whole-hearted approval of all concerned, are eminently within the domain of legitimate surgery and must not be confounded with adventurous exploits that are undertaken upon whimsical impulses and not upon sound surgical grounds. A deeply reddened uterine cervix cannot be justified upon sound physiological principles, but it is no more indicative of underlying cancer than a chronic limp always indicates rheumatism. Localized inflammation may occasionally be of such violent character that the mucous membrane of the cervix is partially destroyed, resembling in fact true ulceration at times, but such conditions generally yield to proper medical treatment, whereas no medicine whatever has the slightest curative effect upon the course of cancer. And it ought to be observed in this connection that no known form of imposture surpasses in depravity that which pretends to alleviate or cure cancer by the internal administration of medicines. It must be acknowledged that many honest men have been misled by this sort of folly, but as a general rule it has sprung from the minds of rapacious upstarts and shameless swindlers.

Wedges of scar tissue imbedded in the walls of the uterus, so familiar to the eye and the exploring finger, cannot be regarded as free from certain powers of mischief, but it must be borne in mind that cancer springs from glandular and not from fibrous tissue. An imperfectly healed laceration of the cervix is far more likely to cause subsequent trouble than any mere area of cicatricial tissue. In a former paper (MEDICAL RECORD, April 13, 1918) I took the ground that if a section of scar tissue gave such trouble as to demand its removal the whole scar must be removed, even if the procedure required of necessity the taking away of the uterus itself. This leads me to say again that many more operations ought to be undertaken for purposes of diagnosis and carried to completion according to the conditions revealed by the pathology present.

Irritating discharges, sometimes of a pronounced fetid character, must be attributed to some of the more familiar forms of infection, and cannot of themselves be accepted as forerunners of malignancy. The proper line of treatment must, of course, be determined in any case by the facts presented in evidence, but something far more convincing than suspicion is demanded before the undertaking of any serious surgical procedure. Nor must it be understood that serious and possibly irreparable mischief may not be inflicted without the employment of cutting instruments. I have known some deplorable results to follow the senseless and reckless manipulations of mammary growths by the disciples of a Western mechanical cult whose dangerous performances in the realm of infectious diseases have most happily brought their pretensions almost to the point of extinction.

The subject of uterine cancer is one of such immense importance that it should be studied with untiring thought and energy. Every fact connected with its progress, every rational theory honestly set forth concerning its various phenomena, ought to be analyzed with the most scrupulous care and subjected to the most searching methods of investigation. One thing ought to be borne in mind as fundamental: that which is merely insoluble cannot be of miraculous origin under any conditions, and the only progress possible within this field of study will be found to lie clearly within the limits of pure scientific research. An analysis of the renowned labors of Pasteur, Koch, and Lister ought to serve as a warning to those who dissipate their energies in the pursuit of whimsical fancies.

Certain facts connected with uterine cancer are so well established that some fair and practical inferences may, I believe, be drawn from them. Uterine cancer begins in the cervix. Comparatively speaking, it is of slow growth. The cervical canal is lined with flat epithelium, which extends outward to the rim of the organ and blends gradually with the mucous lining of the vaginal outlet. Cancers of the cervix probably begin in the mucous coat and extend thence to the lymphatics of the neck, eventually involving the deeper pelvic lymphatics, where secondary manifestations are so often found, unless the progress of the growth has been happily arrested by rational surgical interference. If the same condition should appear on the cheek or the nose it would be known as a "skin cancer," a growth of such sluggish development as to give rise to serious doubts involving its real malignant nature. The uterine neck, composed largely of atrophied tissues and covered with cells whose histological character supplies the necessary elements for growth, affords a most inviting field for the invasion of malignant developments.

Pseudo-ulceration is not infreqent in this region, and its presence may, on hasty examination, be mistaken for true ulceration or cancer. While it is important not to confound the simpler with the graver condition, it is more important still to treat every such case, in some respects, precisely as if cancer were known to be present. Under no circumstances must the cervix be punctured with a tenaculum, or approached with any sharp instrument whatever during the period of doubt. Most fortunately pseudo-ulceration yields generally with decisive

promptness to mild local applications. Peruvian balsam, a mixture of iodine with glycerin, some of the milder silver salts in solution, and a dry dressing composed of equal parts of boric and salicylic acids, are perhaps as efficacious as any remedies that we have at our command. The vaginal canal may be washed out several times a day with solutions of common salt or of potassium permanganate. All chemical irritation must be avoided. Cancer yields to none of these medicines. Pseudo-ulceration does. The diagnosis is thus made clear, generally within a few days. In any case of doubt the condition may be accepted as cancerous and no further delay can be justified in operating.

From the present state of our knowledge concerning cancer I believe the following conclusions to be warranted:

That cancer is of *spontaneous origin*.

That it arises in obedience to certain forces of decay, the real nature of which we know nothing.

That heredity, prolonged localized irritation, and constitutional taint must in some degree be acknowledged as occasional contributing factors.

That it is marked by two stages, one of development or growth, and one of decline or disintegration.

That it begins always in a localized area and during its period of development gives rise to no conclusive symptoms that indicate its malignant character.

That the gross dimensions of a cancerous growth bear no definite relation to its degree of malignancy nor of themselves alone indicate in any manner the nearness or remoteness of its disintegration.

That the disease always progresses toward a fatal ending unless arrested by some device of the surgical art.

That if wholly eradicated during its period of growth, before its period of decay has begun, its powers for mischief are ended.

CHRONIC OBSCURE FEVER IN CHILDREN.

By J. EPSTEIN, M.D.,

NEW YORK.

A RISE in the thermometer index is usually the first evidence of some serious abnormality in the processes of the human organism. By means of inspection, palpation, percussion, auscultation, and reasoning, the cause of the fever is ascertained and deviations from the normal workings of the body are interpreted, classified, and diagnosed. As an aid to a correct diagnosis the history of the patient and the laboratory findings are of great importance. In infants and young children, a rise in the temperature is frequently the only evidence of some pathological process. The fever may be prolonged, insidious, remittent, or intermittent, and for days or weeks the symptoms and signs may be ill defined, atypical, and uncertain. The young child cannot express intelligently his feelings of pain and discomfort, and the laboratory may not be available or helpful. Having only the rise in the temperature as the sole evidence of some diseased process, a diagnosis is frequently difficult to make. A knowledge of the various possibilities which may be the cause of the chronic fever will lead to further observation and study and finally to the proper diagnosis. The following are some of the diseases which cause a protracted fever in children without sufficient physical signs.

Sepsis.—Septic infection is not an uncommon cause of obscure fever in infants and children. It is the most important cause of fever in the newborn. A continuous, irregular fever, occurring at this period of life is, in the majority of instances, due to sepsis. The principal primary focus of infection is usually the umbilicus, though any other part of the body may be the portal of entry for various pathogenic organisms. A diagnosis of septicemia in infants and children is occasionally difficult to make, and is frequently not thought of at all. A septic child looks ill, prostrated, and sallow, loses weight, sweats a great deal, and has a protracted, irregular fever, with no physical signs to account for it. A blood examination will show a high leucocytosis, and a blood culture will demonstrate both the infection and the infecting organism. A petechial rash, with ecchymotic spots scattered all over the body, is not infrequent in septic infection. Later in the course of the disease there may be a general arthritis, meningitis, endocarditis, or peritonitis. In all cases of sepsis an effort should be made to trace the infection to its source. Any cavity or sinus of the body may be a nidus for infection.

Influenza.—Subacute or chronic influenza in childhood may run a protracted course with few symptoms and no signs. There is an irregular, widely fluctuating temperature, with variable clinical manifestations and no definite physical signs. The child looks ill at the height of the fever, but is bright and happy with each fall of the temperature. Since the persistent temperature is the only or chief symptom of chronic influenza, a diagnosis is frequently difficult to make. The striking features of this disease are the chronicity, the widely oscillating temperature, with varying symptoms, and no signs in a child who appears neither very sick nor entirely well. A blood examination will show a slight leucocytosis, and, when possible, the *Bacillus influenzæ*, or Pfeiffer's bacillus, may be isolated from the bronchial secretions.

Malaria.—Malarial fever in infants and young children differs markedly from that in older children and adults. The typical clinical manifestations of a regular intermittent fever with an orderly succession of a cold, hot, and wet stage are not present in the very young. There may be a prolonged, remittent or irregular fever, with a variety of symptoms which point to no particular disease. The striking malarial shaking chill is frequently replaced in the young child by chilly sensations, cold extremities, cyanosis, prostration, and occasionally convulsions. There may be vomiting, headache, general aches and pains, and sometimes pulmonary congestion leading to a mistaken diagnosis of pneumonia. The fever is usually high, continues for several hours, then subsides, to be repeated again. The wet or sweating stage is either very slight or entirely absent. The spleen, though usually large, is in itself not diagnostic of malaria, because a palpable or an enlarged spleen is not infrequent in children, especially in anemia, rickets, congenital syphilis, and chronic intestinal intoxications. Since the typical group of symptoms which are diagnostic of

malaria in later life are not present in the young, a diagnosis should be based mainly on the periodic occurrence of fever, together with chilly sensations. A palpable spleen, headache, gastric disturbances, and other indefinite symptoms and signs may be present. An examination of the blood for malarial organisms should be made in every case of periodic fever, and even if this is negative, quinine should be given for its diagnostic and therapeutic tests. A careful history will always aid in the diagnosis, as in the following case.

A girl three years old, who was never out of the city, was brought to me because of frequent attacks of fever. For weeks before the child came under my care, she was treated for this fever and a variety of diagnoses were made, including chronic tonsillar infection, for which the removal of a pair of innocent looking tonsils was advised. On questioning the mother I elicited the fact that on certain days, at almost the same time, the child complained of feeling ill and chilly, which lasted for a few hours and then subsided, leaving her as well as ever until the next attack. This periodic illness with fever and chilliness at once suggested the diagnosis of malaria and a blood examination proved its correctness.

Pyelitis.—This disease is characterized by a subacute or chronic malaria-like fever, and unless the urine is repeatedly examined a diagnosis is difficult to make. The urine, the blood, and the ears constitute a triad which should always be examined in obscure fevers in early life. Pyelitis in infancy and childhood may be acute, with a high fluctuating fever, chills, prostration, and gastrointestinal disturbance. In the majority of cases the disease runs a protracted course, with a moderate intermittent fever, slight chilly sensations, poor appetite, and loss in weight, with no physical signs. Older children may complain of pain in the abdomen or along the kidney region. In some children there is nothing but a slight, obscure, chronic fever, with no other evidence of disease. In all cases of alternate febrile and afebrile periods or a prolonged subacute fever the urine should be examined for evidence of pyelitis.

Endocarditis.—In its early stage, rheumatic endocarditis is a disease of symptoms and no signs. Anatomical valvular changes which lead to incompetency or stenosis probably occur after a prolonged, indefinite cardiorheumatic illness, during which time the valves maintain their functional integrity and there are no physical signs of endocardial disease. When a diagnosis of endocarditis is made on a dilated heart with a murmuring sound which tells of valvular destruction, it is usually too late for permanent repair. The time to diagnose and treat rheumatic endocarditis is in the prevalvular stage. A diagnosis at this early period of endocardial disease is, of course, difficult to make, but certain symptoms may lead to further observation, careful examination, and a correct diagnosis. A persistent, obscure afternoon rise in temperature in a child over five years of age who complains of an occasional sore throat, a stiff joint, a dull ache, or slight muscle pain, points to the diagnosis of endocarditis. Repeated examinations of the heart will show a diminished valvular tone, a muffled first sound, and a rapid irregular pulse. Though at this early stage of cardiac disease there are no murmurs or other typical signs of endocarditis, still the obscure afternoon rise in temperature, the joint and muscle aches, and the increased pulse rate, indicate incipient endocarditis. The child should be put to bed on a cardiorheumatic treatment to save the heart from ultimate ruin.

Tuberculosis.—Tuberculosis in infants and young children is primarily a disease of fever and failing nutrition. The onset is insidious and indefinite. For weeks the child may have a slight fever, which is often not noticed at all, or there may be a higher fever with no symptoms or signs to account for it. Later there is a gradual loss of weight and strength, the child becomes anemic, asthenic, and wasted, for which there is no apparent reason. It is during this stage of the disease, when there is nothing else but an obscure, protracted fever and failing nutrition to indicate a chronic diseased process, that a correct diagnosis becomes of the utmost importance.

Little or nothing can be done for the child when the tuberculous process becomes localized in the lungs, brain, or any other vital organ of the body. Continuous loss of weight in a child with a chronic fever means tuberculosis in the majority of cases. The Von Pirquet test will aid in the diagnosis, and should be applied in all cases of obscure fever with loss in weight and strength.

Blood Diseases.—In pernicious anemia, splenic anemia, pseudoleucemic anemia, leucemia, and Hodgkins' disease, an irregular chronic fever may be the first evidence of disease. Long before there are definite signs and symptoms of the pathogenesis of the blood or the hematopoietic system there is a protracted rise of temperature. In all children with a blanched skin, asthenia, shortness of breath, and a hemic murmur, together with an obscure fever, an examination of the blood should be made for a correct hematological diagnosis. Later in the course of the disease there may be purpuric spots, hemorrhages from different parts of the body, enlargement of the superficial and deep lymphatic glands and the spleen.

Nasopharyngo-Tonsillar Infections.—The nasopharynx, pharynx, and tonsils form the boundaries of the main entrance to the internal organs of the body. There are many recesses and crevices along its course, and, being supplied with air, food, heat, and moisture, it forms an ideal breeding place for pathogenic organisms. Subacute and chronic infection in the nasopharyngo-tonsillar area is not infrequent, and in cases of obscure chronic fever this hidden space should be carefully explored. Oral sepsis due to carious teeth of the deciduous or permanent set is a frequent source of local or general infections and an important cause of chronic obscure fever in children.

222 East Broadway.

Ozena as a Result of Gassing.—The mysterious nature of ozena is by no means cleared up by the observation that typical cases have followed exposure to poison gas. Matier calls this type of affection traumatic ozena. The patient whose case is described was in a bad general condition and also presented severe pulmonary complications as a result of gassing. Matier does not attribute the nasal condition to the local insult but to the bad general condition; according to his own experience all ozena patients are in poor physical condition.—*Revue de Laryngologie.*

OCCUPATION FOR TUBERCULOUS PATIENTS.

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WHEN the patient first comes under the care of the physician, absolute rest in bed for a week or two is best. If there are signs of active disease, such as much cough, elevated temperature, pain, and signs of activity, as shown by physical examination of the chest, such as moist râles, the patient is kept at rest, lying in the open air.

When these signs of active disease are gone then slowly increased walking exercises should be started. A good method is to prescribe fifteen minutes' easy walking in the morning and fifteen minutes' walking in the afternoon. In cold weather the walks should be taken at such hours in the day as the sun is strong. In hot weather the walks are taken at other times when the sun is least strong. During this time the pulse and symptoms are noted daily. If the patient stands this walk well for two weeks, as shown by no untoward symptoms or physical signs, the walk is then increased to 30 minutes each morning and afternoon.

At the end of two more weeks, if the subjective symptoms and physical signs show the disease is tending toward arrest, instead of increasing the time of walk, we substitute some useful work. Useful work prevents morbid introspection, passes the time quickly for the patient, increases his appetite and strength, and develops his muscles or brain.

Patients idle for long periods get depressed, irritable, weak, and are afraid to work when healed. We must gradually increase the amount of work every two weeks so that by the end of the period of treatment the patient will have reached a full day's work and he will then be ready to return to his old occupation.

The method of complete rest for six months or longer, and then stepping right into a full day's work is very bad. The patient is soft and flabby, and often easily relapses.

The question always arises when the disease is arrested, "Doctor, what work can I do, now that I am well?" The best authorities in tuberculosis all agree now that as a general rule a return to the old occupation is the best. The only exceptions to this rule are where the old occupations are very unhealthy or very laborious.

The old occupation is best because the patient has trained himself for years in it. It would be a great hardship to learn a new occupation. He knows the old trade best, makes good wages at it, and could easiest fall back at it. It took him many years to become proficient at it. Outdoor occupations are best, but are not always available. Indoor occupations will do.

Patients with arrested or apparently cured tuberculosis must be very careful for the rest of their lives to avoid a relapse. They should get an abundance of rest and sleep, keep windows open day and night. They should avoid all alcohol. They should avoid smoking, or, at least, smoke only very little.

Tuberculosis patients should, if possible, take a vacation in the summer. Rest on a quiet farm is best.

When a person with arrested or apparently cured tuberculosis develops a cold or does not feel well, he should stay home and go to bed and rest up till he is perfectly well. By so doing he may avoid a relapse.

Above all, these persons should always go slowly, never over work, never hurry. They should ever remember never to try to complete or imitate the strenuous methods of well persons in business or pleasure. By so doing many of my old patients have remained well and in business for many years.

702-A HALSEY STREET.

Medicolegal Notes.

Use of X-Rays Curatively.—The Virginia Court of Appeals holds that the failure of a physician to warn a patient of the danger of possible bad consequences of using a remedy is not negligence per se. But where a physician not only fails to warn of dangers of a certain treatment, but gives positive assurance of a cure thereby, he is liable for harmful consequences of the treatment where, if such warning had been given, the patient would not have taken the treatment. One of the counts in an action for malpractice by the negligent diagnosis and treatment of eczema of the plaintiff's legs and ankles alleged that the plaintiff consulted the defendant as a physician regarding eczema and as to the proper treatment thereof, that the defendant well knew, or by the exercise of ordinary skill and forethought should have known, of the danger of such treatment, that notwithstanding the defendant misled the plaintiff by not only not giving him warning as to the possible bad consequences, but by affirmatively assuring him that if the defendant applied the *x*-ray treatment to the plaintiff's legs and ankles his eczema would be cured and his legs would be well in eight weeks, and that, had the defendant given the plaintiff warning aforesaid, the latter would not have submitted to the treatment, was in tort and not in contract.

In addition to expert testimony in behalf of both the plaintiff and the defendant on the question of what was the standard of professional skill and care by which the competency and conduct of the defendant physician in giving *x*-ray treatment should be measured, the result of the treatment was properly to be considered by the jury. Since the standards of professional care and skill of the defendant physician involved the highly specialized art of treatment of the plaintiff by *x*-rays, expert testimony fixing such standards was essential to support a verdict for the plaintiff. As to the general professional standard of skill and care, the plaintiff introduced one expert witness only. The evidence, without conflict, showed that this witness was a general practitioner of exceptionally high standing in the profession; that he had used the *x*-ray to take photographs; that he had never used the *x*-ray curatively, but had had personal experience and knowledge of ulcers caused by *x*-rays, and from his professional training and reading of scientific books treating of *x*-rays and the results of their curative use, had a certain degree of knowledge on the subject of the proper use of *x*-rays, which he disclosed to the jury. He expressly declined to testify as an expert upon the subject of the mechanical standard. The court held that his testimony was admissable on the former subject, and that its credibility and weight were for the jury.

The jury by their verdict having found upon conflicting evidence that the plaintiff's injury was caused by *x*-rays, the finding was held conclusive.—Hunter v. Burroughs, Virginia Supreme Court of Appeals, 96 S.E. 360.

Military Medicine.

Night Blindness in War.—Nyctalopia has been ascribed to various causes, but acute night blindness has been generally associated with defective nutrition such as scurvy, malaria, nephritis, jaundice, and anemia due to poor diet. Donald Gunn, quoted by Johnston Smith in Allbutt's "System of Medicine," does not accept this view, but holds that the defect depends primarily on exhaustion of the retina from prolonged exposure to bright light, although he admits that any cause which lowers the general vitality will tend to favor the incapacity of the retina to respond to less than the strongest stimuli. F. Best (*Muench. med. Woch.*, August 17, 1915) examined 36 cases of night blindness discovered among the troops at the front. The 36 cases were divided as follows: (1) Those due to disturbances of the liver following injury by shrapnel; (2) congenital cases; (3) nyctalopia due to errors of refraction. Two-thirds of all the cases were of this type; (4) hysterical forms; (5) cases following sun blinding; (6) those following night service in the trenches; (7) nyctalopia due to hunger and emaciation, either with or without areas of xerosis. In the *American Journal of Ophthalmology* for July, 1918, Dr. Marcel Davis of Brussels, gives an exhaustive account of cases of night blindness which have come under notice during a period of 29 months. Of 2,700 patients who presented themselves during that time 203 complained of not seeing at night. Most of these men were from the ranks, only two being officers. The 203 cases were divided as follows as regards refraction: Emmetropes 66, two having corneal scars; hyperopes less than 1 D., 14; hyperopes 1 D. and more, 50, of whom one had corneal scars; astigmic hyperopes, 20, one with lenticular opacities; myopes, 31, two cases of retinitis pigmentosa; astigmic myopes, 16; having mixed astigmia, 4. Of course, the cases had to be closely investigated to preclude the possibility of malingering. Among 27 cases regarding which responses were obtained from the commandants of the companies, the diagnosis was confirmed in 18 cases, 9 being clearly chargeable to simulation. Thirteen other simulators were detected and it is probable that some were passed undetected.

Among 86 men questioned as to when the affection first manifested itself, 23 claimed to have been attacked before the war, while 63 had done satisfactory night service during a part of the campaign, and had been attacked subsequently. Davis believes the nyctalopes examined by him can be classed in the following manner: (1) Nyctalopia with retinal lesions; (2) nyctalopia of congenital origin; (3) optical nyctalopia, by errors of refraction uncorrected, by clouding of the media; (4) nyctalopia, without lesions. Irue suggests as an explanation of congenital night blindness a deficiency in the rods or in the visual purple, and thinks that congenital night blindness may have passed unperceived in soldiers who were affected. It required actual night duty to reveal their defect. The man with myopic vision as well as the man with uncorrected astigmatism, having an inferior visual acuity by day obviously cannot see so well as the man with normal vision by night. Davis points out that Landolt recognizes several causes of nyctalopia in corrected myopes. (1) With equal pupils in the corrected myope the retinal image is less brilliant than in the emmetrope; (2) wearing of correcting glasses renders the image more clear but less luminous; the correcting glass reflects a part of the light and the point of reflection interferes with the sight; (3) the light at night furnishes a predominance of blue rays, the most refrangible, which give a focus more in front of the retina than do the other radiations; (4) a last cause, indicated by Magitot also, is the effect of elongation of the myopic eye on the ocular membranes, and particularly on the vessels and pigment epithelium. In the nyctalope without lesions, but with an error of refraction corrected, Landolt has never met with hyperopia. Davis and colleagues, on the contrary, have encountered a large number of hyperopes. As to the general causes of this condition Davis and coworkers do not regard its production, so far as the Belgian soldiers are concerned, as due to dietetic defects. They are well fed, and though their meals are lacking in fresh vegetables during most of the campaign they have potatoes daily at one meal. The coffee, which is their customary beverage, is not strong enough to be toxic. Alcohol is prohibited on the Belgian front. They are enormous smokers, but tobacco ambylopia never produces night blindness. Moreover, with respect to malnutrition as a probable cause of the affection among the Belgian soldiers, Davis states that he has never found spots of xerosis on the conjunctiva which frequently accompany nyctalopia originating from malnutrition or cachexia. Davis concludes, as the result of his and his colleagues' investigations, that war conditions in themselves are responsible for most of the night blindness in soldiers. Physical strain, violent emotional disturbances, and severe fatigue are reflected in the function of the heart muscle. Temporary disturbances of circulation caused by cardiac fatigue cannot fail to be represented in the functioning of the choriocapillaris, affecting the delicate pigment epithelium of the retina and the secretion of the visual purple. The point is emphasized that night blindness belongs almost exclusively to the foot soldier. He is subjected to intense fatigue as well as to the most violent emotions and lack of sleep, whereby the cardiac fatigue is increased. That these are potent causes appears to be substantiated by the fact that in the worst sectors, where the causes of fatigue and emotion are most in evidence, the number of cases of true nyctalopia are most numerous. Therefore Davis agrees with Weekers (*Archives d'Ophthalmologie*, v. 35, 1916) that overwork and nervous exhaustion are the real factors in night blindness, but the first named is led to believe that the immediate exciting cause is circulatory disturbance of the choriocapillaris. For treatment, the exact correction of errors of refraction, attention to the underlying condition, and treatment of conjunctivitis and keratitis, which often accompany nyctalopia are indicated. In addition, cod liver oil or calcium lactate should be given. Arsenic, iron, and strychnine also sometimes give encouraging results, and

in some cases simple rest for several days may have the desired effect.

Treatment of Fracture in Warfare.—Sir Arbuthnot Lane, writing in *The Practitioner* for October, 1918, formulates the following conclusions regarding the operative treatment of these injuries:

1. Only in very exceptional circumstances is it advisable to fix fragments of broken bones together by means of plates and screws while the wound is foul.

2. If, for certain reasons, such a procedure is deemed necessary, screws should not be inserted near the broken extremities, but as far from the seat of fracture as possible.

3. It is advisable to postpone operative interference till the wounds have healed for some considerable time and until the tissues are, in all probability, free of organisms. This can usually be determined with reasonable certainty.

4. If any apparently septic focus is observed during an operation, a culture and a vaccine should be obtained from it, and employed at once should symptoms of infection of the wound develop.

5. Should there be any definite suspicion of the presence of latent sepsis, irrigation by Carrel's or similar method must be adopted at once. If not, the wound should be closed completely at the time of operation.

6. Every attempt should be made to avoid any shortening of the limb, or to reduce it to a minimum.

7. The apposition of the whole areas of the broken ends is not necessary, since the interval will fill up subsequently by bone if suitable means are adopted. Fragments of bone or callus should be saved and employed to fill any interval between the pieces of the shaft.

8. Much heavier steel plates are required in this class of case than are usually employed in the less comminuted fractures of civil life. It is most important that the muscles and joints, which are in relation with the fractured bone, shall be moved voluntarily by the patient as soon as possible after the operation, in order to avoid that stiffness and limitation of movement that so often complicate these fractures. This is especially the case in the joints of the knee, ankle, and foot. In order to obviate this trouble, without risking the security of the junction, the plates which are employed to retain the fragments in position must be as long and as strong as circumstances will permit. They should be secured by as many screws as possible. The plates that are often employed are quite inadequate for the purpose. It is obvious that such early treatment cannot be adopted when the fragments are very fragile and the grip of the plate and screws insecure.

9. Providing no strain shall be exerted on the junction likely to develop non-union, the sooner the patient who has been operated on for fracture of one or more long bones of the leg is got up and about, the more bone will be deposited and the more rapid will be the repair at the seat of fracture. For this purpose a good ambulatory splint is a necessity in certain cases.

10. Should the interval between the fragments be so considerable that union is not likely to take place, even after prolonged congestion, brought about by the use of an ambulatory splint, the fragments should be secured in perfect alignment by a plate fixed vertically behind the center of the shaft. When this has been done a portion of one of the fragments, which is usually equal in thickness to a third of the total circumference of the shaft, can be sawed and chiseled off and secured over the interval between the fragments, any piece of bone removed to accommodate the graft in the other fragment being fitted to occupy such existing interval as may be left between the bones. If enough material cannot be obtained from the fractured bone to make a graft, it must be got from some other bone.

11. Most of the failures of bone grafting for extensive loss of substance are due to the surgeon depending on the unsatisfactory grip which the graft alone can be made to exert upon the fragments of the shaft. The essence of success depends on the absolute immobilization of the fragments of the shaft on one another, and of the graft upon those fragments. It is obviously ridiculous to attempt to retain the fragments of bone in a useful position by bone grafts alone in these compound fractures produced by projectiles, as it is in any fracture in which the material securing the fragments in position has to bear considerable strain. In grafting bone into gaps in the lower jaw, fixation is supplemented by interdental splints which lock the jaws.

12. Much has been written about wire screws and plates acting as foreign bodies if used in simple fractures, and producing a rarefying ostitis around them. Should such rarefying ostitis exist, it is undeniable evidence that the technique of the operator is faulty and not the procedure. The remedy is in the hands of the surgeon, who must improve his methods. Frequent failures in unskilled hands have led many to attribute their want of success to the employment of steel plates and screws, and to attempt to avoid sepsis by using other and much less effective means.

13. While the operative treatment of compound fractures produced by projectiles is the most important of all surgical procedures in warfare, it is, perhaps, well to remember that it may demand a degree of asepsis, mechanical skill, resource and judgment in excess of that required for other operations for war conditions.

14. Besides that of sepsis, usually introduced from without, though occasionally developed from a latent infection, hemorrhage is the chief risk which is associated with these operations. This can be best avoided by the use of very powerful hemostatic forceps, which are left in position in the wound for as long as possible during the course of the operation. A ligature is rarely required. It is most important that the wound should be left as dry as possible. When much oozing is expected to follow the operation, a long drainage tube may be left in the wound for twenty-four hours, and so arranged that the extravasated blood may be carried free of the dressings. The removal of the tube does not necessitate any change of dressings, for they are not moistened by the blood.

As to the relative advantage of a stiff and a flail joint, Lane says that in the case of the knee joint when much bone has been carried away the surgeon is apt to argue that if he cannot obtain bony ankylosis between the femurs and tibia he should amputate the limb, in the belief that an artificial limb will afford the patient the best mode of progression. A rigid limb gives the possessor security at the cost of convenience. If the patient is left with a flail joint he can, by wearing an external support, transmit his weight from the pelvis and thigh to the boot. The presence of a ring catch-joint enables him to fix the leg in the situation of the knee joint with great facility and rapidity, while the moment the erect posture is assumed the joint locks and the limb becomes for all practical purposes a rigid one. In such a limb security is sacrificed to convenience. The man cannot do the same amount of heavy work that one with a rigid leg can do, but he is more fitted to lead a conventional town life with comfort to himself and convenience to his fellows.

In dealing with these injuries the surgeon should therefore be influenced by the circumstances of the patient in deciding as to the relative advantage of security and convenience in each individual case. Again, while assuming that a rigid limb is much more useful to the laborer than is any form of artificial limb for an amputation through the thigh, the relative merits of a flail limb and of an artificial leg call for our careful consideration.

Apart from the sentimental value which appertains to the possession of one's own leg, inquiry made among a large number of those who had sustained an amputation through the thigh showed that while a good many continued to wear their artificial limbs with comfort and satisfaction, quite a considerable proportion discarded them altogether, or wore them only for intervals of time, or on occasions. Many of them realized that an amputation entailed numerous discomforts and disadvantages that surgeons generally were not familiar with, but which were very real to the possessor of the stump.

There is a great deal to be said for the advantages which the flail joint in the leg affords. While it is the undisputed intention of the surgeon to obtain a rigid limb if the knee joint has to be lost and that failing it an amputation through the thigh should be performed, it would appear that in a large proportion of the community the individual is better off with a flail joint suitably supported by an apparatus than with a rigid limb or with an artificial limb. This is merely an example of the rule: "that which is universally accepted as true is always false."

The same applies in a lesser degree to the shoulder joint. A humerus ankylosed to the scapula at a suitable angle affords security at the cost of convenience. A humerus moving freely on the scapula affords convenience at the cost of security. For this reason, the patient's habits and circumstances should be considered carefully, before any operation necessitated by destruction of the parts about the shoulder joint by projectiles. On comparing the relative advantages of a stiff shoulder with those of a flail joint one may say that the disadvantage of the flail joint is that the process of education of the muscles and the development of a new false joint is very much more tedious than the convalescence of a humerus ankylosed to the scapula, but the general opinion of patients whose life was not a laborious one preponderated largely in favor of the flail joint. They found it more convenient, and every month added to its security and usefulness.

Enteric Fever in the British Army.—The British Army Medical Service has made a remarkable record in the reduction of enteric fever among British troops. Among the millions of British troops engaged only 4,000 cases of enteric fever were reported in four years. This is in striking contrast to the 50,000 cases of that affection among 200,000 men in the two and one-half years of the South African War.

Influenza Plague in the Army Wears Itself Out.—The Surgeon General's weekly report shows that the influenza epidemic in the army is rapidly coming to an end. For the week ended November 8 there were 6,887 cases as compared with 18,175 for the previous week. A marked improvement was also shown in the pneumonia situation.

Elks' War Hospital Dedicated.—The Elks' reconstruction hospital in Boston for the treatment of wounded and disfigured soldiers was dedicated on November 16, and turned over to the Government with impressive ceremonies.

Gifts to the Red Cross.—The Atlantic Division of the American Red Cross will receive $100,000 from the estate of James A. Scrymser. This is the largest single bequest the organization has thus far received. Another gift recently received is an ambulance fully equipped for overseas service from the Brooklyn Navy Yard.

Italy and France Honor Red Cross Men.—Lieut.-Col. Robert R. Perkins and Lieut.-Col. Grayson M. P. Murphy have received the decoration of Commander of the Crown of Italy from the Italian Government. Twelve additional officers of the American Red Cross have also been decorated by the Italian Government. On November 14, the Municipal Council of Paris gave a reception in honor of the American Red Cross at which the French Government was represented.

Nurses Still Needed.—The American Red Cross has sent out a call for 1500 nurses' aids for service in the hospitals of France, women between the ages of 35 and 45 of liberal education and preferably with a college education are desired. An appeal is also made for twenty-five Czecho-Slovak nurses' aids for immediate service overseas. The Red Cross Commission to Greece has arrived in Paris. The Commission includes sixty physicians, nurses, pharmacists, agricultural instructors, and social workers, who will aid the Greek Government in fighting the typhus plague in Mitylene and Janina.

Deaths in the Service.—Lieut. U. F. Bass, M. C., U. S. Army, a colored physician of Fredericksburg, Va., was killed in the latter part of October while dressing wounds of soldiers on the firing line in France. He was a graduate of the Leonard Medical School, North Carolina, in 1906.

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New York, November 23, 1918.

PANDEMIC INFLUENZA AND THE WAR.

TROCELLO begins an account of this subject with a quotation from the MEDICAL RECORD, from which it appears that the first intimation appeared in attacks in Sing Sing Prison and Ford's factories in Detroit (*Annali di medicina navale e coloniale*, 1918, July-August). This incidence goes back to March of the present year, and hence antedates any recognized outbreak of influenza in Europe. Moreover, the American episodes were pronounced genuine influenza of the 1889 type. About one month later we find the earliest notices of an influenza-like outbreak in Europe. The first mass incidence occurred in Spain in the latter part of May. The total number attacked in Spain has been computed as 8,000,000. The character of the pandemic was mysterious in the extreme, for hardly two authorities agreed as to its intimate nature. The Spanish bacteriologists and clinicians showed no uniformity, and by the end of June the epidemic was worn out, and with it further opportunities of study, which might have solved the problem. In the meantime, grip-like cases in England seemed for various reasons to be of different nature from the Spanish pandemic, especially in the epidemiology itself. In Germany the first reports were few and scanty, but apparently from the early spring the troops were suffering more or less from grip-like maladies. Statistics, or other exact data, are especially lacking. The earliest cases in France go back to the first days of May, and on the 17th of this month, or before the Spanish outbreak, the disease was pronounced at the Société médicale des hôpitaux to be the influenza of 1889. In France, as in England, there was no pandemic, and the disease seemed, on the whole, benign. The French, like the Spanish bacteriologists, could not throw much light on the malady, but evidence began to accumulate that Pfeiffer's bacillus could not be held entirely responsible. The British troops in France now began to suffer to almost pandemic extent, in mild degree, and without advance of our knowledge. It was now Italy's turn to suffer, beginning in the second half of May. The well-known confusion with three-day fever followed. The sea forces appeared to bear the brunt of the infection, and as the result of great activity among the bacteriologists Pfeiffer's bacillus was installed as the essential cause. The epidemic persisted in the naval forces during June and July. During the summer months England appeared to be severely hit, judging from the great number of articles published in the special journals. A commission was established to investigate the cause and nature of the malady (this had been done already in Germany). Switzerland had a severe siege in June-July, and the complete reports from this compact little country were perhaps the first to show the gravity and peril of the disease.

In Germany the disease received two names, viz., "Flanders grippe" and the "Spanish disease." The whole country, sooner or later, was claimed by the disease. It will be recalled that while grip cases were seen in Germany early in the spring the recrudescence or cumulation of later months was fastened on other countries. Here one may note, in passing, a striking parallelism with the early history of syphilis, the early sparse incidence in one's own country being ignored while the mass incidence was blamed upon a neighbor country. The German bacteriologists showed no greater harmony among themselves than those of other lands. There were here, as elsewhere, Pfeifferites and antis, the latter regarding *B. influenzæ* as no more than a cause of second infection. In practically all of the infected countries new germs have been isolated and described, while in many, if not all, the disease has been thought to be due to a filtrable virus without known morphology or other positive attributes. There is also a difference of opinion as to whether we have to do with a new or old malady, a simple affection with virulence increased by war conditions, or a new and deadly disease which may be masked under different guises. The sifting and weighing of evidence shows plainly that the pandemic is influenza or epidemic grippe. It is assumed, and in part shown, that the disease must have prevailed in Spain long before the general outbreak in that land. Present in Spain in April, it extended to the neighboring countries, and the various pandemic explosions occurred without special sequence, that in Spain being, naturally, the earliest. Whence did Spain derive the disease? This cannot be answered, but the author feels convinced that the occurrence of early though limited outbreaks in the United States as far back as March, signals out this country as the starting point of the pandemic.

THE EFFECT OF THE VERDICT ON RAILWAY SPINE.

THE time has not yet passed when lawyers regard with suspicion every suit for damages against a corporation. Especially has this been true when the injuries alleged were partly mental and partly insults to the autonomic system. Particularly when it was found that many cases improved remarkably or recovered entirely after receiving a verdict for a fat sum did the sneers become more pronounced and equally divided between the greed of the claimant and the gullibility

or dishonesty of the doctor. Thus it has become almost a universal custom for the corporation's lawyer to ask some such question as "Is it not true, doctor, that a verdict in his favor would probably cure the plaintiff?" Now the question of traumatic neurasthenia, especially that form of it often called "railway spine," has been but little understood in the past, in spite of the excellent descriptions of it given by Oppenheim and Pearce Bailey. That there are fakers who seek to victimize railroads it would be useless to deny and indeed real "railway spine" can be so closely simulated by a clever malingerer that unless the physician is very careful he will be deceived.

We should say, in the first place, that no general practitioner should undertake to pass upon such a case unless he feels that he is very well versed in neurology. Otherwise he will run the risk of making a mistake which will expose him, at the best, to ridicule, and at the worst, to suspicion. For traumatic neurasthenia, besides the subjective symptoms (which are ruled out in court as being hearsay evidence), presents a well-defined picture of objective symptoms which a trained neurologist can elicit without a great deal of trouble. With a little care, the malingerer, no matter how artful, can be eliminated.* There then remains a class of honest sufferers whose psychology we should investigate a little before we sneer at "miraculous recoveries."

We have in mind a woman patient injured in a railroad wreck and unable to walk who was examined by a dozen neurologists and general practitioners. The former found traumatic neurasthenia; the latter nothing. She received a verdict of $50,000. Whereupon she of course got well? Nothing of the kind. She continued to be disabled for two years during which she made the round of specialists. Finally a psuedo-operation was done and she recovered. Why? Because, according to the prevailing theory, her unconscious would not permit her to recover simply because she received so much money, but forced her to undergo an operation for self-justification.

Perhaps in this case the woman received too much money. But on the other hand there are those who think themselves entitled to ten or twenty thousand dollars and who receive a verdict for one thousand. Such treatment is to them an insult and intensifies their hate of the corporation, which represents to them autocracy, greed, and oppression—a hate which is, by the way, probably back of a great many of these cases of railway spine. Can we expect such a person to recover? No, and he doesn't, or at least not until a long time afterward.

So that a verdict is not the main thing after all, and a "miraculous recovery" immediately after the damages have been paid should give rise to the suspicion that it was not a true case of traumatic neurasthenia.

*See "Malingering," by A. B. Jones and L. J. Llewellyn. Philadelphia: P. Blakiston's Son & Company, 1917.

ANECDOTAL MEDICINE AND ITS NEGLECT.

THE phenomena of a "popular" malady can at times be indicated by anecdotes which visualize it far better than the staid textbook accounts of the disease; and while anecdotal medicine is not suited for curriculum study and quizzing and examination, it is or should be of value as a *hors d'œuvre*, so to speak, in the medical student menu. This Socratic or man-to-man method could be shown up favorably in the case of a charlatan who was forced to take the dreaded State Board Examination, and was preparing for the ordeal in a rural medical college. He heard the surgeon emphasize the difficulties of diagnosis between recent fracture and sprain and insist that in such a dilemma it was playing safe to diagnosticate fracture. He reacted with the query, "in such a case, Professor, would you *charge* for a fracture or for a sprain?" It was only too evident that the future legally qualified practitioner had studied the fee table in advance of the works specified in the curriculum, and had learned that while the fee for sprain was limited to a beggarly five dollars the reward for treating fracture varied from twenty-five dollars up to the utmost the traffic would stand. The class saw the humor of the situation, but it is to be feared that the teacher was handicapped in this regard, and was thrown off his mental equipoise entirely by the crudity of his listener.

But let us select under the caption "anecdotal medicine" something definite like the psyche in typhoid fever. We know of course that these patients must, etymologically, be "stupid," and we know, perhaps from experience, that at times they are violently delirious and try to jump out of the window. We realize to a much less degree that there are subtle nuances of mental behavior that deceive the majority, if not the elect. In passing we may remark that we have seen a victim of manic-depressive insanity in the manic phase antagonize repeatedly an entire medical society who beheld in his peculiar behavior only pure "cussedness" or eccentricity or desire to attract attention, or any other motive, except the true one that he was insane in the utmost degree. A similar sort of behavior is seen frequently in ordinary typhoid, as anecdotal medicine can readily show.

In the first example a student in a small town contracted typhoid in the ambulant form and his taking his bed was not known for several days. His friends, when they first heard of his misfortune, descended upon him in a body, all prepared to do everything possible for him. Unfortunately, perhaps with the idea of preventing contagion, all of them entered the room smoking. The sick youth, who seemed preternaturally sane, resented the smoking bitterly as a badge of disrespect and turned his face incontinently to the wall. His friends, seeing in him otherwise only evidences of good balance, resented bitterly this snub and it required much explanation on both

sides to adjudicate the matter to the satisfaction of all parties. Naturally the amende was deferred until recovery.

Such a case is by no means exceptional. In a similar example there was an unusual comedy element. The sick man, also a student, happened to be living under an alias—that is he had changed his name (or perhaps his father before him had done this) because of some real or fancied racial or other handicap. It chanced that one visitor to the bedside was the only partaker in the secret. He was for some unknown reason received in a cavalier fashion, the sick man turning to the wall on the entrance of the usually welcome friend. As the victim was said to have been entirely rational, having seen other callers during the day, the late comer was so enraged that he let escape him the secret of the man's birth. No harm resulted, because the sick man was popular and his friends treated the disclosure slightingly.

In a third case a young student who afterward became illustrious was overtaken with typhoid in a small community. He was naturally of a kindly and humane disposition, but under the influence of the illness developed an exaggerated ego, not unlike that sometimes attributed to the tuberculous subject. The nurse, to whom he had been personally attached on a health basis, was made to do double duty and was not in the least considered as a human being, much less as a friend. The interne, who had been a friend to both patient and nurse, could not be made to understand that the sick man's behavior was an integral part of the disease and never forgave him for his supposed brutality and callousness. The most striking feature of these cases is the complete ignorance of the untaught physician concerning the pathology of the ego. It is evident that the typhoid subject, while apparently in complete possession of his faculties—which may even appear accentuated by the disease—is still disturbed in both the emotional and intellectual spheres. His ego is augmented, as shown by his sensitiveness and quickness to take offence, and his judgment is dimmed, but perhaps only as a consequence of the preceding.

MICROBIAL FLORA OF THE GRIPPE.

THE polymorphous nature of the germ causes of the present influenza pandemic has already been recognized. At its outset notably benign, the disease has become malevolent in part with its world wide generalization. In some new localities visited it is notably benign, as in certain cities in South America; while in South Africa it is notably severe. In *La Presse Médicale* for October 3, Orticoni, Barbie, and Leclerc, army pathologists, have divided the bacteriology into two types—that of mild grippe and that of severe and complicated grippe. In mild grippe seen early, blood cultures were uniformly sterile. Examination of mucosities and animal experimentation gave results practically negative throughout. The coccobacillus of Pfeiffer was most assuredly absent. Only a few pneumococci of doubtful pathogenicity were found. On the other hand, in the severe type with bronchopneumonia, a germ was in evidence which at least strongly resembled Pfeiffer's. It was cultivated from the blood only after considerable pains, using special media. Its presence was by no means constant. In pleural exudates it seemed to show slight mutation and was always associated with pneumococci and streptococci. Passed into the peritoneal cavity of the guinea pig it was highly pathogenic and showed further pleomorphism. Wherever found in the blood it was almost always in association with pneumococci or germs which closely resembled the latter. In the sputum, on the other hand, Pfeiffer's bacillus was not seen. Here in both pneumonic and non-pneumonic cases the dominant germ was the pneumococcus and a highly pathogenic pneumobacillus was sometimes seen. A striking discovery was the relatively late appearance of the influenza bacillus in cases exhibiting the more familiar pneumococci and streptococci. The question of secondary infection with the former is raised.

In the same journal, for October 17, Vitoux gives an interesting account of a research into the microbiology of the influenza pandemic under animal experiment control. The work was done by Nicolle and Lebailly and the paper was read before the Academy by Roux of the Pasteur Institute. The original experiments had consisted in the inoculation of unfiltered, bronchial secretions into a monkey. The same secretions, filtered, were injected into two human volunteers. In the animal experiment the disease appeared on the sixth day with high fever persisting three days. At the same time the animal lost weight and showed depression. The human subject first inoculated subcutaneously with the filtered secretion developed classical influenza (the duration of incubation is not stated). The other volunteer, who received an intravenous injection of the same type, developed no illness whatever. Later when inoculated with the monkey's blood during the febrile period, this time under his skin, the result was also negative. A second monkey inoculated under the same conditions as the first developed the same picture as the latter save that the incubation period was 5 days. At the same time a man inoculated subcutaneously with filtered virus from the same source developed a mild attack of influenza. Another man proved refractory to an intravenous injection. Both monkeys were inoculated by rubbing the virus into the nasal chambers and injecting it under the conjunctivae. The authors believe that the influenza virus is filterable and cannot be related to known bacilli, that it does not render the blood infectious, and that the source of contagion is the bronchial secretions. The sterile blood shows plainly that insects play no part in its propagation.

Color Music.

Music may be said to be the most universal of the arts; the art which appeals most generally to mankind. During the present war the psychological importance of music has been demonstrated more clearly than ever before and it is now recognized as an essential feature of the soldier's life, both in camp and at the front. It is therefore of particular interest just now to note what may be termed a "new departure" in music; though the idea may not be new, it has never been put to any extensive practical use, and Color Music is still more or less of an unknown quantity. The present note is not concerned with the employment of color in combination with musical compositions—as, for instance, with the "fire music" of Scriabine—but rather with the relation existing between music and color from a psychological point of view; and what we know of the laws of vibration makes it easy to understand the closeness of this relation. A strain of music and a harmony of color afford much the same sense of pleasure to an esthetic nature. It now appears that the relation existing between a tone of color and a musical tone (that is, the fact that each color has its corresponding sound) may be put to very practical use. It is claimed to be possible, by "absorbing" a knowledge of the musical tone which belongs to each color, to cultivate an intuitive sense of music; this, however, can only be accomplished through the subconscious mind. This knowledge cannot be acquired by reason. Its possession enables the individual to assimilate music, and to memorize a composition without difficulty even without touching an instrument. Cases are cited of pianists who had been unable to memorize and who therefore could not appear in public but who, by means of color music, committed to memory and played most advanced and difficult compositions after a few hours' study of the manuscript. An interesting story is recorded of a young girl who naturally associated music and color and when asking for a particular piece would say that "pink tune," or that "red tune." It is thought that children with their receptive minds will be able easily to assimilate this new teaching, if it can be placed on a teaching basis. It might even prove a means of elevating the race by increasing the perception and love of music.

Study of the Vitality of the Blood.

Research on this subject may take at least three separate forms, viz., study of death of the red cells through the use of coloring matters, pressure, and heat respectively. For example, fresh blood is allowed to flow into a solution of methyl violet. The microscope will show that in 30 seconds the central zone of the globules is not only colored blue, but the cells are beginning to show certain morphological changes. The latter are progressive, and after four hours fragmentation occurs. Compression is effected readily in the special apparatus of Maragliano and Castellino. In this a pressure of 700 grams causes fragmentation and one of 900 grams causes complete obliteration at the end of ten seconds. When heat at 50 deg. C. is applied for 30 seconds the globules are completely destroyed. Natural necrobiosis of the red cells is unlike the preceding, for when these cells are taken from their medium, they behave physiologically for a considerable time, then perish after undergoing morphological and chromatic changes. In morbid conditions these changes may be accelerated. According to Tarchetti and Goggia (*Riforma Medica*, August 28), if red corpuscles are taken from the circulation, cautiously stained, and placed in ordinary blood plasma at from 26 to 29 degrees C., they preserve their color for 50 to 70 minutes, after which they begin to undergo complex morphological changes such as are described in all works on physiology, fragmentation appearing in 10 to 12 hours. To obtain information as to the actual vitality of blood corpuscles in a similar case a more rapid and standardized method must be used and controlled by at least two other methods, all of which have been briefly mentioned.

News of the Week.

Influenza Mortality Exceeded that of War.—A statement from the Bureau of the Census states that the influenza epidemic has thus far taken a much heavier toll of American life than has the great war. The total loss of life throughout the country is not known, but the Bureau of the Census has been publishing, for 46 large cities having a combined population estimated at 23,000,000, weekly reports showing the morality from influenza and pneumonia. These reports, which cover the period from September 8 to November 9, inclusive, show a total of 82,306 deaths from these causes. It is estimated that during a similar period of time the normal number of deaths due to influenza and pneumonia in the same cities would be about 4000, leaving approximately 78,000 as the number properly chargeable to the epidemic. The total casualties in the American Expeditionary Forces have recently been unofficially estimated at 100,000. On the basis of the number thus far reported, it may be assumed that the deaths from all causes, including disease and accidents, are probably less than 45 per cent. and may not be more than 40 per cent. of the total casualties. On this assumption, the loss of life in the American Expeditionary Forces to date is about 40,000 or 45,000. Thus, in 46 American cities having a combined population of only a little more than one-fifth the total for the country, the morality resulting from the influenza epidemic during the nine-weeks' period ended November 9 was nearly double that in the American Expeditionary Forces from the time the first contingent landed in France until the cessation of hostilities.

Influenza Reaches Alaska.—Influenza is reported to be taking a heavy toll of lives in Seward Peninsula and to be spreading still further north toward the Arctic. Of 250 Esquimaux in the vicinity of Nome only 75 are said to be left and others are dying daily. At Fort Davis seventy-five out of eighty-five soldiers have had the disease.

New York's Influenza Record.—While new cases of influenza continue to be reported in this city, the epidemic stage of the disease seems to have

passed. The records of the Health Department show that from the beginning of the epidemic until November 16, there were in the Greater City 128,558 cases of influenza and 19,091 cases of pneumonia reported, with 20,086 deaths from the two diseases.

Better Protection against Influenza for New York Children.—The New York City Health Department announces that it has instituted a service to care for well children who have been exposed to influenza or whose parents have died and left them, temporarily at least, without proper guardianship. While Health Commissioner Copeland acknowledges that this is going out of the province of the Department he believes that in the present crisis this is really the work of his department. The day nurseries of the city have been called on to assist the Department of Health in this new undertaking.

New York Infirmary Continues Campaign.—The drive to raise $200,000 for the New York Infirmary for Women and Children which has been in progress for some time will be continued until the goal set has been realized. A big benefit performance will be held at the Hudson Theatre on November 24, for which a number of theatrical stars have volunteered their services.

No Relaxation of Red Cross Work.—As a result of the armistice the American Red Cross anticipates fresh demands on its services. In order to meet these the School of Information of the New York County Chapter has decided to invite all former students to attend the sessions of the school on its reopening on November 19, when new problems arising from the changed war conditions will be taken up.

"The Buffalo Medical Journal," which was the third oldest medical journal in America, having been founded seventy-four years ago by Dr. Austin Flint, and published regularly ever since, has been purchased by and will be incorporated into the *Medical Review of Reviews.*

The National Committee for the Prevention of Blindness will hold its annual meeting at the New York Academy of Medicine, on the evening of November 26, at 8.30 o'clock. The Honorable William Fellowes Morgan will preside and Lieut.-Col. James Bordley of Baltimore, Director of the Red Cross Institute for the Blind, will speak on "Our Returned Military Blind—Plans to Prevent Lives of Helplessness."

Dr. Charles W. Page of Hartford, Conn., has been elected president of the Connecticut Children's Aid Society.

Dr. Etienne Burnet of the Pasteur Institute, Paris, and Surgeon in the French Army, and Member of the Mission of French Scholars to the United States delivered a lecture in cooperation with Columbia University at the New York Academy of Medicine, on November 15, his subject being "Pasteur as Representative of the French Scientific Spirit."

Gifts and Bequests.—Among the bequests of the late Mrs. Russell Sage to charitable institutions are the following: An endowment fund of $10,000,000 to the Russell Sage Foundation, the income to be used for the betterment of social and living conditions; to the Russell Sage Institute of Pathology, an endowment fund of $300,000; for the Association for Relief of Respectable, Aged, Indigent Females, an addition to its building on 104th Street, $25,000; Adirondack Cottage Sanitarium, $25,000; Working Girls' Home on East Twelfth Street, $25,000; to the Young Men's Christian Association, for a new building for the International Committee on Twenty-eighth Street, New York, $350,000; for addition to Y. M. C. A. building at Brooklyn Navy Yard, about $340,000; for building at Fort McKinley, Philippines, $25,000; for Long Island Railroad branch, new building at Long Island City, $100,000; for new building at Fort Slocum, $50,000.

The will of Dr. William Benjamin Hardman bequeaths $50,000 to Mercer University, Ga., of which he was chairman of the board of trustees.

Under the will of the late Gerard Beekman of Oyster Bay and New York, a bequest of $25,000 is made to the New York Hospital as a memorial to the testator's father.

Chemical Institute Planned.—At a recent meeting of the New York branch of the American Chemical Society resolutions were adopted proposing the organization of an American Chemical Institute under the auspices of the American Chemical Society. The special function of such an institute would be to promote research with a view to the introduction of new or improved medicinal products, so as to make the United States independent of any future efforts to control this field by German manufacturers. Dr. P. A. Levene of the Rockefeller Institute has pledged his earnest support to the project.

Lebanon Hospital Enlarges Facilities.—The interior of Lebanon Hospital, in the Bronx, is being rearranged and redecorated, and an addition is being built that will provide new private rooms and a maternity ward. The training school of nurses connected with the hospital is launching a new scheme whereby any young woman acceptable to the management may be prepared for the nursing profession free of charge and yet receive the monthly allowance for pupil nurses. Full particulars with reference to this plan may be obtained by writing to the Superintendent of the Training School.

Venereal Disease Committee for Syracuse.—The Mayor of Syracuse, at the suggestion of the health officer, Dr. David M. Totman, after a conference with eighteen prominent men of the city, has appointed a committee to choose a building, either in connection with one of the hospitals or a suitable location in the city, that can be converted into an isolation hospital for cases of venereal disease.

Dr. J. W. LeSeur has been appointed acting health officer of Batavia, N. Y., in the place of Dr. Victor M. Rice who has resigned to accept a captain's commission in the Medical Corps of the United States Army.

Board of Medical Examiners of Maryland.—Dr. J. McP. Scott, secretary of the Maryland Board of Medical Examiners, announces that owing to general conditions and the limited number of inquiries concerning the December examination for licenses, the Board has decided to omit this examination.

Obituary Notes.—Dr. WILLIAM BENJAMIN HARDMAN of Commerce, Ga., died of pneumonia, following influenza, at his home, on October 28, aged 53 years. He was a graduate of the College of Physicians and Surgeons, New York, in 1890, and a trustee of Mercer University, Macon, Ga. He was a former president of the Georgia State Medical Society, and one of the party of physicians representing the American Medical Association, which made a tour of inspection of European medical universities in 1914.

Dr. JOHN E. WILSON of Denver died of pneumonia following influenza at his home, on October 25, aged 39 years. He was graduated from Harvard Medical School in 1905. He formerly practised in Colorado Springs, was surgeon for the Colorado and Southern Railroad, and lectured in the University of Colorado Medical School.

Dr. ROBERT SAMUEL TOPPING of Rutherford, N. J., a graduate of the University and Bellevue Hospital Medical College in 1911, died of influenza in the Presbyterian Hospital in Newark, on November 2.

Dr. ELIZABETH COWAN SLEIGHT died of pneumonia following influenza at her home in Mount Vernon, on November 5, aged 60 years. She was a graduate of the Woman's Medical College of New York in 1893, and was formerly connected with the New York Infirmary for Women and Children. She contracted the disease which caused her death while on duty as resident physician of the auxiliary hospital of Mount Vernon, where she was in charge of the influenza and pneumonia cases.

Dr. CALVIN FULLER KYTE, a graduate of New York University Medical College in 1881, died at his home in Jersey City, on November 8, aged 68 years. He was the oldest member in point of service on the staff of Christ Hospital, Jersey City.

Dr. THOMAS RUTHERFORD SAVAGE, a graduate of the College of Physicians and Surgeons, New York, in 1874, died at his home in New York on November 12, aged 66 years.

Dr. FREDERICK WILLIAM CUYLER LOCKWOOD, retired, a graduate of the New York University Medical College, died at his home in Cos Cob, Conn., on November 13, aged 62 years.

Dr. JOHN HENRY MACDONALD, a graduate of the New York University and Bellevue Hospital Medical College, in 1885, died of heart disease at his home in New York City on November 9.

Correspondence.

ABORTING THE GRIPPE.

To the Editor of the Medical Record:

SIR:—In your issue of the 9th inst. there appears a letter advocating with the usual therapeutic enthusiasm of its author, a justly eminent dermatologist, a method of "Aborting the Grippe," which would seem to my humble view dangerous in the extreme. Experienced physicians may not need this warning, but some young colleagues, aware of the good doctor's great reputation, may be misled. Hence this warning.

I believe that the danger from the coal-tar series is overrated. I regard them, when given in one moderate dose, invaluable in insomnia with high temperature of infectious fevers; also for certain headaches in nonfebrile conditions. But I must protest against giving 7½ grains of phenacetin every two hours for two days to a child thirteen years old.

I know of two cases of nephritis in elderly men traceable to the habitual use of these drugs. One has been cured and the other continues because that habit continues. The first case is of a man who has during the past few years become a great figure in history, who has been saved to the world by his skillful physician. The latter discovered that the patient had albumin and casts in the urine, and was often cyanotic. Inquiring closely into his habits, the doctor discovered that the patient was taking powders containing phenacetin, acetanilid and salicin, for colds. He abandoned this medication and placed the patient under hygienic conditions, golfing, etc., which converted him into one of the most robust men of his age that I have ever seen. The patient had used these powders for years, and regarded them as indispensable.

SIMON BARUCH, M.D.
51 WEST SEVENTIETH STREET, NEW YORK.

THE ALKALINE TREATMENT OF INFLUENZA.

To the Editor of the Medical Record:

SIR:—In your issue of Novebmer 9, 1918, there is an article by Dr. L. Duncan Bulkley on the value of sodium carbonate with phenacetin in aborting the grippe, to which I wish to add my mite. Away back in 1876 I was a pupil of Dr. Bulkley's at the old Demilt Dispensary, and there I learned to value his opinion. He has had a vast experience, and any statement he makes should have respectful hearing. That it is right to create an alkaline condition in a person exposed to a cold of any form or the grippe, I firmly believe, and to my own satisfaction I have verified the efficacy of the alkaline treatment in a general country practice of more than forty years.

It is not necessary here to attempt to account for the good results of the sodium bicarbonate treatment. Whether it combats the acidosis or inhibits the growth of the bacteria causing the disease, or both, may be left for another time. In 1875 my father, who was a practitioner of medicine, taught me the value of sodium bicarbonate in colds, especially when the larynx was involved, producing the customary croupy cough of children. Later, in pneumonia, patients seemed to do better when on alkaline treatment than any other; and finally it became my custom to give alkaline treatment where catarrhal and edematous conditions existed.

In this present epidemic the mortality from lung complications has been unusually large in Circleville, which is only sixteen miles from Camp Sherman, but I have had the same gratifying success with the sodium bicarbonate treatment as formerly. The edema which makes the lung complication so fatal seems to be absent when the patient is treated with alkalines. It is, however, not an eleventh-hour treatment. In the very beginning of the grippe I give 30 gr. of sodium bicarbonate every two hours. If there is much aching, instead of Dr. Bulkley's

10. gr. of phenacetin I have been giving 5 gr. each of phenacetin and strontium salicylate every four or five hours as long as the aching continues. This seems to act promptly in connection with the sodium bicarbonate. When there is no secondary infection the speed with which patients with grippe recover under the sodium bicarbonate treatment is very gratifying. Out of several hundred cases in the present epidemic I have had but seventeen of bronchopneumonia as a complication, and these have all recovered. In all cases I have insisted upon plenty of fresh air, plenty of water, no food unless relished, and good general nursing. I have given some morphine and some codeine when pain or cough demanded it.

I am not much of a believer in empirical medication, but I began the sodium bicarbonate treatment of colds and pneumonia in the days of empiricism, and I am pleased to believe that the laboratory has confirmed the value of alkaline treatment in the types of diseases in which I formerly prescribed it empirically.

HOWARD JONES, M.D.

CIRCLEVILLE, OHIO.

THE DRUG COMMISSIONER.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—It is reported from Albany, in a despatch to a New York newspaper, that Senator Whitney, the chairman of the Drug Investigation Committee, which after two years of labor brought in the bill for a Drug Commission for the State, cannot be appointed to the office of drug commissioner, a $6,000 a year berth extending over a period of six years. This appointment, it is said, may be left to the incoming Governor, as a senator cannot be appointed to a State office during his term as Senator, which expires in this instance on December 31, 1918. It appears, according to the published account of this matter, that Senator Whitney declined a nomination for Senator, an office he has held for many years, in the expectation of this new honor from the State. The fact that the "Great Drug Problem" has resolved itself into a commission form of control as a solution for its evils, like other State problems, such as pugilism and racing, is a matter to be deplored.

The Drug Commission will have many great and unusual powers and privileges over the practice of medicine, as well as over those "addicted" to the use of drugs. In Massachusetts, drug addiction has been judicially declared a "vice," and physicians have been sentenced to jail for not prescribing for addicts in accordance with the medical views of the court.

This extreme view does not obtain here, as yet, and it is of great importance to the medical profession that the Drug Commission should have more of a general knowledge of drugs and medical practice than can be obtained by the practice of law or while a justice in the criminal courts. In this respect Senator Whitney as a druggist and as an experienced legislator has much to recommend his candidacy over that of the ordinary politico-legal appointee. So far as is known up to the present time, the great medical bodies, such as the State and County Medical Societies, are never consulted in appointments so closely related to their affairs as that of Drug Commissioner. Perhaps under this law, as in the original law for a commissioner of health of this city, a physician is ineligible for drug commissioner. Whether he is or not, it is not likely that his views or those of the representative medical bodies of the State will be taken into consideration in filling this office, all of which may be said to be due to the indifference of medical men to matters of medical legislation.

JOHN P. DAVIN, M.D.

NEW YORK.

DR. L. H. BUNNELL, MEDICAL EXPLORER.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—The excellent article by Dr. William Browning in the MEDICAL RECORD of October 26, 1918, would (to your readers of the Pacific Coast) seem more complete if the work of Dr. L. H. Bunnell had been noted. He was a surgeon of the Maraposa Battalion, under the command of Major Savage, a veteran Indian fighter, and with the Savage party descended into the Yosemite Valley in a campaign against Tenaya and his band of renegade marauders, March 21, 1851.

He wrote a book on this discovery that is a frontier classic. To him and his courageous companions forever will remain the honor of first visiting this mysterious valley and making known to the world the majesty and splendor of its unsurpassed scenic beauty. The Indian name for this valley was Ah-wah-nee, meaning "grassy vale." Dr. Bunnell proposed to name it for the tribe of Indians inhabiting it, "Yosemite" (meaning Grizzly Bear). This name was accepted by his brave companions in arms.

It would be scant justice to the memory and merit of the intrepid Dr. L. H. Bunnell if his name is not included in the list of Dr. Browning's immortals.

H. E. W. BARNES, M.D.

SANTA ANA, CALIFORNIA.

SCRAP PLATINUM NO LONGER NEEDED.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—The Platinum Section and the Section of Medical Industry, War Industries Board, desire to express appreciation of the hearty response made by physicians, dentists, and others when the call for scrap platinum was made. As the governmental demand for platinum in the making of explosives, etc., has been tremendously decreased by the curtailed war program, it is requested that no further scrap platinum be tendered to the Government through the channels indicated in our communication of September 17, 1918.

CHARLES H. CONNER,
Chief Platinum Section.

LIEUT.-COL. F. F. SIMPSON, M. C., U. S. A.,
Chief of Section of Medical Industry.

Pithiatic Perturbations.—Vampré reports a case of hysterical manifestations of 17 years' standing. At present the patient has a contracture of the fingers of the left hand involving complete immobilization for 4 months.—*Annales Paulistas de Medicina e Cirurgia.*

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE INFLUENZA EPIDEMIC—THE ABOLITION OF JURIES AND MEDICAL JURISPRUDENCE—WOMEN IN PARLIAMENT—THE EGG SHORTAGE.

London, October 24, 1918.

THERE is a story of an Eastern pilgrim who, on his peregrination, met the Plague, and asked it its destination. "Bagdad," replied the Plague, "to kill 5000 persons." Later the pilgrim met the Plague again, and asked it why it had changed its mind, and killed 50,000 persons, to which the Plague replied: "I did not change my mind. I killed 5,000 persons; the other 45,000 died of terror." The story has a moral for this country at the present moment, when we are suffering from a severe visitation of influenza, if we substitute for the word "killed" the word "attacked." A vast number of the so-called cases of influenza have undoubtedly been severe cases of catarrh, running a protracted course owing to the mental depression of the attacked. And the necessary inconveniences of illness attacking large communities have been and are being aggravated by war conditions; shortage of doctors, rationing of supplies, restriction of traffic, by train and road, congestion of telegraph and telephone stations—these are a few of the obvious factors which tend by their aggregate influences to depress the population. And undoubtedly the number of cases of true influenza—whatever that may be—has been very large; in certain localities an epidemic of a severe and even dangerous type has occurred.

Rather late in the day the local Government Board has issued a public notice of instructions with regard to prophylaxis; the instructions are of the most obvious sort, but their value is much impaired by their non-appearance until the disease was in full swing in many districts. The advice of the local Government Board is of the usual pattern, and includes recommendations to avoid worry, overwork and unnecessary exposure, to keep warm and take proper nourishment. Fortunately, although we are in the fifth year of war, and although the many inconveniences I have already detailed, do not tend to diminish, still there is nothing approaching disorganization in any of our public or medical services. The instructions of the Local Government Board can be followed, as we have the reserves even under the added strain, but these instructions would have been worth incalculably more in the first or second week of September, when only sporadic visitation had occurred. It is by the way fortunate that no great military centers, camps or munition works have been attacked in undue proportion. For at a critical stage in the war that might have constituted a grave international affair.

Progressive medicine of course is looking in one main direction for the efficient prophylaxis—namely the preparation of an effective vaccine, but the bacteriology of what may be roughly termed "influenza catarrhs" is yet very undecided. Undoubtedly Pfeiffer's bacillus is the peccant body in a majority of cases, but this bacillus can be present in catarrhs presenting no similarity to typical influenza, and, moreover, can be absent in conditions of classic influenza. In the epidemic now visiting England and Scotland it is largely absent, and a streptococcus frequently present. A conference has been sitting in London under the chairmanship of Sir William Leishman, to inquire into the bacteriology of influenza and its congeners and the result will be the preparation in various ways of various polyvalent vaccines which will then be made the subject of trial on large scales. In this way there ought to be progress made to some prophylactic measure a little ahead of the grandmother's advice to keep warm and not to worry. It is unlucky that the last great and dangerous epidemic of influenza in England occurred 30 years ago, when the doctrines of vaccinal protection were hardly enunciated.

It is not so much a shortage of material from which to select "twelve good and true citizens," as a growing disbelief in the discretion of the twelve when selected, that has led to the considerable abolition of juries in this country. An act has been passed enabling judges of the High Courts to sit without juries in all civil cases except a small group, of which libel cases are the most important. Similarly coroners have been granted discretion as to holding inquests without juries in all cases where no question of crime is raised. The effect of this partial disappearance of juries upon medical evidence may be very valuable. Judges and coroners have not always shown themselves particularly intellectual recipients of medical evidence, but the scientific or professional side of medical matters can be expressed to an educated man in a way which it cannot be made clear to persons of the mental equipment or the ordinary jury. The difficulty in which a doctor is placed to make clear a pathological problem to a jury is very great, and when a cross-examining counsel attempts to obscure the issues the difficulty becomes insurmountable. He hesitates, he appears to contradict himself, he appears also to contradict other medical evidence, and he produces the impression of being an untrustworthy witness when he is trying to be a conscientious one. It is true that the judge may and should appreciate the position and it is true that he may and probably will try to make matters clear to the jury in his charges to them; but it is the jury that gives the verdict, and juries dislike dictation. If the jury thinks the medical evidence unreliable, because it is incomprehensible to them, they will give their verdict in accordance with their view whatever any judge may say. Medical witnesses will have no regret for the passing of the jury.

Against a negligible minority the House of Commons has decided that women, who have now obtained the parliamentary vote, have the right to represent that vote in actual legislation. Medicine comes in here in rather an amusing way, and yet a way that has its serious side. When the female suffrage movement began to assume appreciable proportion medicine presented toward it a double front. On the one hand the protagonists of the movement numbered many medical women, and the successful conduct by women of a very important side of professional life was one of the best arguments put forward by the female

suffrage party. On the other hand it was to physiology that the opponents to women's suffrage looked for their scientific effort, inasmuch as the pleas of equality of the sexes could be upset on the obvious ground that physiologically the sexes were not alike, did not play the same parts in any biological schemes, and were different in the risks to which they were exposed and the strains which they were able to bear. Medical men asked if it would not be rather awkward if the female minister of war found herself in child-bed on the eve of a war, to which the female suffragists replied that they were asking for a parliamentary vote, not for a seat in Parliament, and that the jibe was a deliberately unfair one. The reply was politic, but not frank. The demand for a vote was backed by women who actually disclaimed any idea of seats in Parliament for women, and in this way a great majority of women demanded the vote. But the more hard-headed leaders of the movement knew perfectly well that when the vote was granted the seat would follow—in other words they knew perfectly well that the instance of a pregnant politician was no jibe but a prophecy.

The egg shortage has become severe, and I do not suppose the censor will mind its being mentioned, though, judging by recent documents, the fact may bring some pleasure to Germany. For it is our wounded that suffer. The demands of the hospitals for a constant supply of fresh eggs is enormous, and the country is determined to meet it, though the Food Control Department does its best in the reverse direction. The present government ration is barely sufficient for breeding purposes and if it is not supplemented eggs will temporarily disappear from diet sheets. Doctors know that this would mean in the treatment and after treatment of some of the severest conditions with which they meet.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

THE SPANISH GRIPPE AGAIN BEFORE THE ACADEMY—THE PARIS COMMITTEE FOR WAR NERVE DISEASES.

PARIS, October 14, 1918.

M. ROUX, director of the Pasteur Institute, presented two reports to the Academy of Medicine upon the different manifestations of the present epidemic of grippe, one by Drs. Anthony and Orticoni and one by Drs. March-Hadour and Denier. The first mentioned in all of their cases remarked from the onset grave signs of infection. The cases were complicated by pneumonia and purulent pleurisy. A special condition noted was that the bacilli of Pfeiffer were found in both the blood and the liquid of the pleural cavity and were absent in the expectoration, only the pneumococci being present. The cases observed by Drs. March-Hadour and Denier were equally grave. It made its appearance in the midst of the fleet at Brest, attacking by preference the young recruits and caused the death of 53. The symptoms of invasion were always severe, chill, fever, cyanosis of face and hands with early advent of a cough and thick purulent expectoration similar to pneumonia. The tongue heavily coated and every evidence of profound infection. The heart's action usually rapid accompanied by profound adynamia. Pericarditis was a frequent complication. Recovering from the attack the patient remained for a long time feeble and anemic. Blood cultures exhibited streptococci of exceptional virulence. A local doctor accidentally inoculated by these streptococci died in a few days showing grave symptoms against which all remedies proved powerless. In both of these reports it is stated that the microbe is found in the blood, which doubtless accounts for the exceptional gravity and multiple complications observed.

Since the outbreak of the war there has been such an extension of nerve trouble among wounded men that a committee was founded in Paris to do the utmost possible to relieve the sufferings of those victims of the Huns' frightfulness. The committee includes several members of the Academie Française, notably M. Emile Boutroux, M. Maurice Donnay, M. Anatole France, M. Henri de Regnier and M. Ernest Lavisse, and a number of ladies. Invaluable work has been done by this organization which is operating with the authorization of the French Government under the title "L'Assistance aux Blessés Nerveux de la Guerre." So much expenditure is involved that the committee now requires new funds. In a pathetic appeal for new subscriptions the society mentions that, besides the unhappy invalids deeply struck with nervous disease, incurable and socially speaking useless, there are numerous wounded men, physically or morally lessened in strength, but capable of improvement, when placed in special conditions, and who may become, to a certain degree, fit to take up again their work. If these are reeducated but left to themselves, they do not readily find employment; when they find it, some of them are not able to keep it more than a short time, either because their weakened health causes in them a lack of energy and perseverance, or because they may appear more awkward than useful to their employers. The society's aim is to find these men appropriate employment in order to lighten in every possible way the burden of their infirmity through social life.

146 AVENUE DES CHAMPS ELYSÉES.

Progress of Medical Science.

New York Medical Journal.

November 9, 1918.

1. Destruction of the Physiological Function After Operation on the Nose and Throat. Wolff Freudenthal.
2. Diagnostic Value of Eye Ground Appearances in Nephritics. J. A. Kearney.
3. Acute Eczema Due to Faulty Metabolism of Food Elements. Louis Fischer.
4. Nervous and Mental Disturbances of Influenza. Smith Ely Jelliffe.
5. Temperament a Synonym for Nervousness in Singers. John J. Levbarg.
6. Confluent Suffocative Bronchopneumonia in the Wake of the Present Influenza Epidemic. Frank A. Jones.
7. Interesting Orthopedic Cases in the First Surgical Division, Fordham Hospital. Samuel W. Boorstein.

3. Acute Eczema Due to Faulty Metabolism of Food Elements.—Louis Fischer submits a discussion, based on his own clinical experience, of the view that internal, physical, and toxic conditions may be the cause of acute eczema. From a study of a large series of cases he has found that intestinal derangements due to faulty diet or excessive feeding cause eczema, and cites three cases of persistent infantile eczema in which marked improvement rapidly followed the elimination from the

diet of excessive fat and carbohydrates, which had induced faulty metabolism and resulted in the eczema. Fischer found that in both acute and subacute eczemas the internal administration of the lactic acid bacillus, or the Bulgarian bacillus in pure culture, could be given after each milk feeding. When, however, Bulgarian milk or buttermilk was given, the improvement noted was more rapid and steady. Meat, the protein of fish, and white of egg were found to have a peculiar tendency to irritate. Milk is a special article of diet, but was not as beneficial as sour milk. By using the Bulgarian bacillus the casein is transformed into casein lactate, to which the excellent effects are due. Vegetables in the form of spinach, peas, string beans, sprouts, and even cabbage are well borne and have a laxative effect; they aid in removing putrefactive bacteria, and their earthy salts have a decided nutritive value; moreover, they do not heat the body as do the carbohydrates. Water should be given frequently, in order that toxic products may be eliminated through the kidneys. Itching and excoriation may be greatly modified by feeding large quantities of bicarbonate of soda in water—one-half teaspoonful of bicarbonate of soda may be given every hour by mouth. The infant, of course, must not be disturbed during sleep. Active catharsis, by giving fifteen to thirty grains of phosphate of soda in water several times a day, is of marked benefit. To effect a cure, Fischer insists upon the diet being continued for at least from six months to one year.

Journal of the American Medical Association.

November 9, 1918.

1. Military Aspect of Status Lymphaticus. James Ewing.
2. Suppurative Gingivitis with Alveolar Involvement: A New Surgical Procedure. Arthur Zentler.
3. Possibilities of Fractional Gastric Analysis. Martin E. Rehfuss.
4. Renal Complications of Pregnancy from the Standpoint of the Urologist. Henry G. Bugbee.
5. Importance of Bedside Instruction in the Teaching of Therapeutics. Francis H. Williams.
6. The Probable Endocrine Origin of Peptic Ulcer. G. A. Friedman.
7. Microscopic Studies of Diseased Peridental Tissues. Edward H. Hatton.
8. Osteoma of the Frontal Sinus. W. W. Boardman and Mary M. Donovan.
9. The Spreading Power of Coal Oils. Torald Sollmann.
10. Bone Holding Forceps. Robert Emmett Farr.
11. A Tonsil Expressor. Julius H. Hess.
12. Accidental Injection of Bile Ducts with Petrolatum and Bismuth Paste. Adolph Reich.
13. Studies of Roentgenograms of the Accessory Nasal Sinuses, with a Description of a New Method of Taking Such Pictures. Preliminary Note. Max Unger.
14. An Automatic Distributor for Neutral Solution of Chlorinated Soda (Dakin's Solution). Lyman J. Strong.
15. Rapid Method for Detection of Ova of Intestinal Parasites in Human Stools. Charles A. Kofoid and Marshall A. Barber.
16. Pandemic Influenza and Pneumonia in a Large Civil Hospital. John W. Nuzum, Isadore Pilot, F. H. Stangl, and B. E. Bonar.
17. Incorrectness of the Diagnosis of Death from Influenza: Presence of Broncho-Pneumonia in Practically All Persons Severely Ill with Influenza. Henry A. Christian.
18. An Epidemic of Influenza at Manila, P. I. A. Francis Coutant.
19. The Morphology of the Influenza Bacillus. Gladys Henry Dick and Eleanor Murray.
20. Two Cases of Human Anthrax at Camp Jackson. Oscar T. Schultz.

1. Military Aspect of Status Lymphaticus.—James Ewing discusses constitutional predisposition to disease as evidenced in military life by "irritable heart," "irritable thyroid," nervous instability, or functional shell shock, all of which are due chiefly to anatomical defects. Since such defects cannot be remedied, the question arises whether they can be recognized and prevented. In status lymphaticus it is possible to recognize pronounced forms during life and to a considerable extent to avoid its dangers. This condition is characterized by a feminine type of conformation in the male, absence of auxiliary and deficiency of pubic hair, delicacy of integument, tendency to deposits of subcutaneous fat, rickets, small size of heart and thinness of aorta and other arteries, persistence of thymus, and hyperplasia of lymphatic tissues in tonsillar ring, ileum, and spleen. In infants and before puberty, lymphatic hyperplasia, large thymus, and signs of rickets are prominent, while in adults the lymphatic hyperplasia is succeeded by atrophy and by a form of sclerosis. In the female, thinness and delicacy of skin, narrow waist, arched thighs, and scanty hair are among the external signs; there is usually delayed menstruation, the uterus may be infantile, and the breasts poorly developed. Thymic pressure is probably one of the chief factors of death in infants. In about 80 per cent. of cases the pharyngeal ring of lymph follicles is enlarged, the lingual follicles being affected more than the faucial tonsils. The splenic follicles are enlarged and structural changes consist of overgrowth of lymph follicles and lymphocytes. Degenerative and necrotic changes occur in the centers of follicles and are followed by sclerosis (Symmers). At necropsy, hypoplasia of heart and aorta are found. (In four of Woodward's cases the heart weighed 5½ ounces or less, and in one only 4 ounces.) The condition is one in which the endocrine glands and the nervous system are involved, and is relatively common in the mental deficient. It is pronounced in cases of suicide. The entire cerebral vascular system is probably involved, a fact which may prove of importance in aviation. Cameron attributes lymphatic hyperplasia to chronic inflammation of the mucous membranes, due to poor hygiene and excessive carbohydrate feeding, whereas Blumer and Symmers favor the idea of autointoxication. Ewing considers the condition principally from the military standpoint. He points out that in the lesser grades of status lymphaticus the signs are not definite enough to be of diagnostic value. In obvious cases, however, or cases of irritable heart, thyroidism, nervous breakdown, epilepsy, shell shock and fulminant infectious diseases, status lymphaticus should be looked for. It is evident from the fact that the disease is one which carries with it a defective vitality which results in sudden death in many conditions of trauma and disease that every effort should be made to detect its presence, and nowhere can this be done so well as in the army. If not rejected as unfit for military service, subjects should at least be given the less hazardous and taxing duties. Evidences of the condition should be looked for at every postmortem and the anatomic changes noted for future reference. Histologic studies are also required on the thymus, thyroid, hypophysis, pineal gland, carotid gland, pancreas, suprarenal, testis, sympathetic system, bones and bone marrow, and particular attention should be paid to the circulatory system. Of course, the final test of the existence of such a condition must be clinical and particularly in the lesser forms of the disease are keen observation and sound clinical judgment essential. The existence of status lymphaticus is of the greatest importance in the choice and administration of anesthetics, as the possibility of death from respiratory failure must be remembered. Great care must also be exercised in the injection of alien proteins and arsphenamine. According to Bartels, subjects of status lymphaticus acquire a resistance to tuberculosis, and it is almost exclusively in such subjects that Addison's disease occurs. Moreover, these subjects do badly under infection and it is possible that a fulminant course of meningitis or pneumonia is largely determined by status lymphaticus. The author remarks that it would be of interest to determine what proportion of patients with shell shock and other forms of nervous breakdown are subjects of status lymphaticus. He adds, however, that such study must be undertaken with the greatest caution or the condition will be lost in a maze of minor clinical disorders.

The Lancet.

October 19, 1918.

1. The Treatment of Gunshot Wounds of the Joints. Part II Captain J. Campbell.
2. Report of an Outbreak of Scurvy in the South African Native Labor Corps. Captain Hamilton W. Dyke.
3. A Case of Absence of all Sensation. Captain E. D. Roberts.
4. The Prevention of Relapse in Hysterical Manifestations. Captain T. A. Ross.
5. On Abdominal Evacuation of the Pregnant Uterus Before Viability. Victor Bonney.
6. The Medical Man's Income Tax. John Burns.
7. A Case of Polio Encephalitis Treated with Novoarsenobillon. Surgeon Lieutenants Eric Bayley and Alfred G. Simmins.
8. Acute Pneumonia Followed by Pneumothorax: Femoral Thrombosis; Recovery. Major Reginald G. Hann.

3. A Case of Absence of All Sensation.—Captain E. D. Roberts reports a case of a Breton sailor, aged

thirty-seven, who emigrated to Canada eight years ago and enlisted in the Canadian Army in 1916. In June, 1918, he was admitted to hospital at Aldershot for mumps. This man exhibited complete absence of both superficial and deep tactile sense over the whole skin surface and also over mucous membranes where attainable. Sense of pain was completely absent (In 1916 patient underwent the radical cure of double inguinal hernia without anesthetic and without feeling any pain), and even the cornea shared in the general anesthesia. Thermal sensation was also absent; upon placing the hand in water hot enough to raise a blister there was a slight convulsive movement and patient was conscious of what he described as an "electric shock," but the feeling was not painful. Cold water evoked no sensation; neither did atmospheric changes affect the patient. Muscular sense appeared to be completely absent in this man. With eyes closed he could not distinguish between a heavy weight placed in one hand and a light object in the other. He was, however, able to walk with eyes closed and was a good swimmer. He felt no fatigue and stated that the only way he became aware of failing strength under prolonged effort was by falling to the ground. Sense of position was also absent and was accompanied by fixation of limbs, that is, if the man's eyes were closed and his limbs placed in a certain position by the observer, he was totally unaware of being touched. In addition there was complete absence of sense of taste; the patient ate anything and on one occasion consumed a lump of bath brick; he stated that he was in the habit of eating rats, mice, dog or serpent uncooked. He stated that he was never conscious of hunger or thirst and, for a bet, once went without food or drink for eight days without inconvenience or ill effects beyond an abnormal tendency to sleep. Sense of smell was practically nonexistent. Patellar reflexes were normal, the orbicularis palpebrarum muscles contracted in touching the cornea but evoked no sensation; pupils reacted. There was never desire to defecate or micturate, but both took place once in the twenty-four hours at about 8 a.m., and patient said that as a precaution he gave himself the opportunity to pass urine also at about 4 p.m., but often without result. Patient moreover seemed to lack most of the common emotions and to be without family affection or love of country; he made neither friends nor enemies. However, he was always ready and willing to help in hospital duties. The history of this case showed that as a child the patient possessed a slight degree of cutaneous sensibility, its complete absence dating from an attack of yellow fever in Senegal when he was seventeen years of age; otherwise he had enjoyed robust health. A provisional diagnosis of syringomyelia combined with hysteria was made.

4. The Prevention of Relapse in Hysterical Manifestations.—Captain T. A. Ross points out the distinction between the removal of hysterical symptoms and the "cure" of the patient. The removal of symptoms is not sufficient, for that which underlay the hysterical manifestation remains untouched, and therefore one of two things will happen, the patient will either begin to complain of other symptoms, such as headache, or during emotional stress the symptoms will reappear. In order to prevent recurrence, every patient should be instructed that his symptoms may return as an emotional reaction, but that such reaction will not persist and little inconvenience will be caused. It is essential that the patient should be cured without the employment of any agent or apparatus; otherwise he will feel that he cannot effect a cure himself without the aid of this same agent. Relapse may also be prevented—and perhaps in a better way—by careful inquiry to ascertain why the patient ever had hysterical symptoms, for instance, fear of insanity, fear that he had been a coward, and so on. Patience will be required in many cases, but this underlying cause can be elicited. By persuasion and suggestion in the course of conversation the cause of the hysteria may be dissipated, but it is important that the reason for the symptoms should be made perfectly clear to the patient, or he will certainly relapse. It will be found that when the patient's mind has been relieved by getting him to see his trouble in a different light, his capacity to withstand emotional reactions will be greatly increased.

British Medical Journal.

October 19, 1918.

1. The Preventive and Curative Treatment of Gas Gangrene by Mixed Serums. Francis Ivens.
2. On the Treatment of Pneumonia. A Series of 67 Cases with 2 Deaths. Major D. Elliot Dickson.
3. Lobar Pneumonia Complicated By Pleurisy Treated with Polyvalent Serum. A. Cowan Guthrie.
4. Ablation of the Labyrinth in a Case with Meniere's Symptoms. Courtenay Yorke.
5. A Case of Acute Yellow Atrophy. Surgeon A. C. Roxburgh.
6. The Curative Effects of Kharsivan and Neo-Kharsivan in Diseases Other than Syphilis. G. Stopford-Taylor.
7. Adenoma of Small Intestine in an Infant, with Resulting Volvulus. J. S. Manson.
8. The Work of a Venereal Disease Clinic. The First Five Hundred Males. Owen L. Rhys.
9. Cerebrospinal Meningitis Treated with Autogenous Vaccine. Norman MacFadyen.
10. Treatment of Ankylosis of the Elbowjoint. J. F. Steedman.
11. Successful Cesarean Section for Eclampsia. A. Z. C. Cressy.
12. Some Uses of Menthol. F. P. Atkinson.

Berliner klinische Wochenschrift.

September 9, 1918.

Experiments in the Use of Quinidine in "Absolute" Arrhythmia.—W. Frey refers to his former articles on this subject (*Berliner klin. Woch.*, 1918, Nos. 18 and 19). His electrocardiographic studies bring him to the following conclusions: (1) Quinidine combined or not with digitalis causes the disappearance of the fibrillation of the auricles in about 50 per cent of cases, as well as the very irregular arrhythmia which is a dependant upon it. This medicament must be prudently dosed as certain subjects possess an idiosyncrasy in respect to it. (2) Quinidine exercises a depressive action over the contractile property of the myocardium. The pulse is not affected in its energy, the ventricular systole being slightly prolonged. On the electrocardiogram the T-wave is lowered, a fact which the writer connects with a vagotropic action, inhibitory of the metabolism of the cardiac tissue. The precision of the fibrillation may be summed up, in other words, in an inhibition of excitation and excitability in the auricle. The regular rhythm when once re-established is accompanied by an extension of the arterioventricular conduction.

The Nature and Effects of Food During War.—A. Loewy and C. Brahm read a paper on this subject in which the following official statistics are of some interest:

	April, 1916	June, 1916	April, 1917
Albumin consumed daily by an adult	68.29	66.77	55.93
Calories per day and per person..	2320	2230	1985

Other statistics give:

Producers (peasants, etc.), albumin per day, 100.7, calories 3194.

Non-producers (well-to-do), albumin per day, 75.65, calories 2284.

Non-producers (small means), albumin per day, 54.4, calories, 2243.

In producers the loss in weight in 1917 was 0.9 per cent, while in non-producers it was 12.2 per cent for males and 6.8 per cent for females. The writers have studied the effect of an alimentation of more than 1000 calories and one of less than 2000 calories. The subjects submitted to the latter regimen had a negative nitrogen elimination (that is to say, they did not assimilate the albumins). In the other class the nitrogen output was stationary even in the case of obese subjects before the war and having attained the weight of 50 kilos. Therefore, the writers found that in the latter class a new equilibrium in the organic changes became established and remained fixed with a daily ration of 2000 calories.

Münchener medizinische Wochenschrift.

September 3, 1918.

Treatment of Gout and Other Chronic Articular Inflammatory Processes with Extracts of Cartilage.—E.

Heiler builds this treatment upon a series of reasonings as follows: All organic tissues are called upon to live in permanent contact with various products of waste or of disintegration of normal metabolism. In order to defend themselves against the toxic action of these products, the tissues elaborate physiologically certain defensive substances which prevent the action of these products of metabolism upon the tissues. The writer recalls the similarity of this conception with the well established fact of the immunity of the gastric mucosa in relation to the gastric juices. He calls this fundamental property of the tissues a "local tissue defense." A disturbance of this function may involve one or several of the products of metabolism. Therefore, gout represents an attack upon the tissues deprived of their ordinary means of defense against uric acid by this puric derivative. The elective localization of the affection to the articular cartilages is due to the predilection of this tissue for uric acid. In the absence of, or the insufficiency of tissue defense against uric acid, the chondral tissue is the first to become impregnated with uric acid and thus offers the well-known clinical picture of gout. Therefore, the writer endeavors to stimulate the defense of the cartilage against uric acid by injecting extracts of cartilage. He thinks that by this means he has obtained encouraging results not only in gout, but also in cases of arthritis deformans. Extracts of calves' cartilage, or better still that of the fetus of a calf, possess a more marked action than the cartilage of adult animals. The writer explains this fact by the greater intensive metabolism of young animals necessitating a greater tissue defense.

Deutsche medizinische Wochenschrift.

September 5, 1918.

Treatment of Malaria by the Quinine Alkaloids and Their Chemical Substitutes.—J. Morgenroth justifies in the continuation of his paper the important assertion he made, namely, that quinine given per os or subcutaneously tends to accumulate in the red blood corpuscles. This remark is true for both quinine and its various alkaloids. Morgenroth's demonstration is made by three series of experiments: (1) The anesthetic action on the heart of rabbits. This is more marked in the case of a suspension of corpuscles first treated with quinine than for a watery solution of the same concentration or the primary blood mixture. (2) The greater antiseptic action of sera mixed with quinine than that of the total blood mass treated in the same way. (3) The proof derived from the hemolytic action of globular suspensions treated with quinine. This fundamental fact having been established, Morgenroth passes to the study of the probable mechanisms of the antiparasitic action of the quinine alkaloids. This action may be: (a) Ectoglobular, a possibility already discussed and refuted by the writer. (b) Endoglobular. This is rendered probable by the storing up of the alkaloids in the red blood corpuscles. (c) An action of repulsion. The mesozoite coming in contact with a red blood corpuscle charged with quinine is unable to penetrate it, and therefore is condemned to perish in the blood serum. The writer appears to attach considerable importance to this means of defense of the organism against the parasite so that treatment should have as an object saturation of the blood with quinine at the time that the schizontes burst forth as well as the dissemination of the merozoites. Finally, Morgenroth puts forward the problem of the comparative action of quinine and its various alkaloids. For example, optoclime possesses a more effective action in the trypomosomiases and malaria and the same applies to hydroquinine.

The Biology of Koch's Bacilli.—G. Lockemann concludes a series of studies on the influence of the conditions of development; the vitality, morphology, chemism, etc, of the bacillus of tuberculosis. The writer has gone to much pains to demonstrate what has been known in all countries outside of Germany for a long time.

La Presse Médicale.

October 10, 1918.

Pandemic of Influenza.—Violle first lays the rumor that the present affection has anything actually in common with the pneumonic pestilence of Manchuria, although there is an accidental resemblance thereto. The former is spread purely as pneumonia and is not grafted on influenza. The causation of the deadly Manchurian plague is, of course, quite absent in the present pandemic. The idea of wearing the gauze mask may have been suggested by the same custom, which is absolutely essential to the protection of the doctor and nurse in the Asiatic pestilence, but as yet we do not know that it is a complete safeguard in influenza. Attempts to connect it with other epidemic maladies are no better justified. The disease is simply influenza as we have known it for centuries—grippe in pandemic incidence. The present wave started from the Oriental Mediterranean several months before it was recognized and where it would be readily masked by certain endemic maladies as three-day fever. The earliest cases were both mild and scattered. Even the outbreak in Spain was almost benign. Just why it should first become pandemic in that country is not apparent, for Spain was not engaged in warfare, and the war is certainly responsible for the behavior of the epidemic. The latter appeared to gain virulence as it traveled north. The cold of the more northerly countries seemed to act as a check, which of course has not been apparent until recently. At least it was noted that the spread was again changed toward the South. In this capacity it did little execution, evidently because some immunity had been gained by the victims. In this connection it has been noted that mild cases as well as severe ones must be reckoned in the total—even cases so mild that they pass for a slight coryza—nay, even unmotivated lassitude without coryzal symptoms must be regarded as a possible grippe equivalent. But it is only too evident that we cannot speak of acquired immunity of the type seen in measles, for example. Incubation is of the briefest, not over twenty-four hours. Prodromes are absent and the onset is especially violent. Fortunately, and not realized sufficiently, the normal course is brief—one day, two days, rather than longer. Three or four days are really seen in the minority of patients. But weeks pass before the subject recovers fully. Death from influenza *per se* seems due to the action of the toxins on the medulla, one expression being acute edema of the lungs. When we consider the global incidence the case mortality must be ranked as low. We no longer look upon the familiar bacteria of sporadic grippe as the cause of the pandemic. Much more probably is it a filtrable virus which eludes us just as the cause of measles and scarlet fever eludes us. Filtered blood serum is as toxic and infectious as unfiltered. Outside of the body fluids the cause has little viability. The unknown cause can certainly devitalize the body and make it an easy prey for epiphytes roused to virulence. This greatly lowered resistance stands in some intimate relation to the *asthenia paradoxa* of the disease. Nicolle writes instructively of what he terms the *microbes de sortie*, which play a rôle in all epidemics. Thus in hog cholera the primum mobile is an invisible and filtrable organism which attacks the animals and alone would not give rise to the disease. Invariably, however, an epiphyte bacillus of the paratyphus type makes a sortie and the result is a symbiosis which causes hog cholera. Pathologists are seriously entertaining the theory that even the bacillus typhosus and cholera vibrio are microbes *de sortie*. We are now able to state that Pfeiffer's influenza germ is only a microbe of this type, for the present pandemic has proved it. It must henceforth take its place with the pneumococcus, streptococcus and other domestic germ life. These superinfection germs destroy life. The grippe sentences the victim, but the complication executes the sentence. In this connection the keystone of the treatment should be, in the pneumococcus case at least, the proper antiserum used as prophylactic. Injections should be made as soon as the influenza is in the least suggested. Nothing is said of immunizing the healthy in this connection. There is but one risk run, to wit, that the pneumococcus may not be the active agent. This can only be determined by rapid examination of smears. In pneumococcus cases the results are surprisingly good. Even after double pneumonia has developed the injections should be tested, for some desperate cases have been saved. The author has had little experience with streptococcus and polyvalent sera, as in his vicinity the pneumo-

coccus was the dominant germ—only the outnumbering microbe is considered in serotherapy. The author has vaccinated the healthy exposed subject, but as all other precautions are taken the exact result cannot yet be determined. Convalescent blood, while impracticable, is clearly specific both as a cure and preventive.

Norsk Magazin for Laegevidenenskaben.

July, 1918.

On Phenolphthalein as a Test for Renal Function.—Motzfeldt first gives a short review of the relative value of the different tests for estimating the functional activity of the kidneys, and enumerates the more important articles on phthalein. His own conclusions are drawn from observation of a clinical material of 136 patients, of which number 61 suffered from nephritis. The method used was the well known one of Rowntree and Geraghty—intramuscular injections in the lumbar region and estimation of output for two hours. The excretion of healthy kidneys is shown in a separate table. In the author's Table III it is shown that in cases where the excretion is distinctly delayed the differences after intravenous and intramuscular injections are very slight. The author is able to show also that the excretion depends on the amount of urine secreted in the two hour period. He contrasts the phthalein elimination with the presence of edema, hypertrophy of heart, systolic blood pressure and urea content of the blood, and reaches the following conclusions: The test is very valuable, and if one can make but one test, is dependable. Its simplicity makes it readily carried out by any practitioner. In subjects with normal kidneys the author has never seen excretion delayed, save slightly in cardiac patients. The average excretion for normal organs is 65 per cent of the whole and the lowest limit 50 per cent. Since in many cases of nephritis excretion is normal, the test can give no direct information as to presence or absence of this condition. It does, on the other hand, show presence or absence of functional impairment or insufficiency, and delayed excretion is always a grave sign in both acute and chronic conditions. Whenever there is delayed excretion the blood should be examined for its nitrogen content. Whenever excretion reaches 25 per cent nitrogen retention may be anticipated. The test is of much diagnostic and prognostic value when uremia is actually present. There is no relationship between phthalein excretion and albuminuria, edema, or hypertrophy of the heart.

Correspondenz-Blatt für Schweizer Aerzte.

July 20, 1918.

Typhus Fever.—Hitzig, of Mexico City, contributes this article. The literature of the subject has now become enormous, because of late years the disease has regained some of its lost prestige as a European pestilence. The first certain description of typhus goes back to 1521. Its tendency has always been to lurk where the people are unusually poor and insanitary—Ireland, Poland, Galicia, the high lands of Mexico, etc. From such foci it was generalized by wars. Very striking was its failure to appear in the Franco-Prussian War and on the West Front in the present conflict. It has not always been spread by war, however. for in 1848 it invaded England from Ireland and there were more than a million cases as a result. That it has never attacked the Mexican coast is due clearly to the greater cleanliness of the people, who can bathe in the sea the year around and also keep their clothing clean and hence changed. It changed from endemic to epidemic largely because of the civil wars. Virulence varies directly with underfeeding—the prosperous have a mortality of but 10 per cent., while among the indigent it is four to five fold that figure. Of possible bacteriological causes the author discusses the Ploetz bacillus, the Weil-Felix proteus, and the Rickettsia. Ploetz and coadjutators would render a great service by going over the work of their competitors—especially Ploetz seems never to have worked with lice. It is not unlikely that the germ may be diffused by droplet infection—when there are complications in the bronchial passages—and by the dust storms that occur in Mexico. That the louse body may be made to transmit the disease, that the microorganism is able to provoke an endarteritis obliterans in connection with the roseola, that petechiæ may be artificially provoked, are well verified results of experiment. In Mexico beginning typhus simulates grip, while in the child measles has to be excluded. As variola occurs in this country it also must be excluded at the earliest possible moment. Yellow fever occurs exactly where typhus does not—on the litoral, never on the table lands. If the exanthem fails the author has much faith in the efficacy of the Weil-Felix reaction. This, however, is not obtainable until about the seventh day. Preventive measures of a biological type have not been tried in Mexico, nor, apparently, therapeutic measures of the same type. The author only mentions quinine in his personal experience and apparently more as a preventive than curative remedy. Treatment is wholly symptomatic. Here belong saline in fusion, digitalis, camphor, lumbar puncture, etc.

Revue médicale de la Suisse Romande.

July 18, 1918.

Pneumococcemias in Children.—D'Espine and Reh of the pediatric clinic in Geneva have long practised hemocultures in febrile affections and have thereby secured a large body of information about the activities of the pneumococcus. Four categories of localization readily group themselves, viz.: pleuropulmonary, meningeal, anginal and pure sepsis. The total death rate from pneumonia is very low, for in eight years there were but sixteen deaths among 406 pneumonia patients. Among these few deaths were two of unexplained virulence in children of one family in whom precocious empyema developed. Such cases have been extremely infrequent. On the other hand, pneumococcus meningitis proved very deadly with eight deaths out of nine cases. Suppuration, so rare in pleuropneumonia, seems to be the rule here. In one case there was a mixed infection of pneumococci and meningococci, a combination usually fatal, yet this patient recovered under serum treatment. Under angina the authors mention only one case in which there was positive hemoculture, as an example of benign pneumococcemia. In regard to pure sepsis of severe degree, i.e. pneumococcemia with clinical sepsis, one case is mentioned in which recovery followed intravenous injection of electrargol.

Prolonged Pneumococcemia.—Turrettini relates a case of this affection in a young nursling in which the pneumococcus persisted in the blood for 180 days. The onset of the infection was violent and oxygen and camphor were administered. There was no frank pneumonia but several crises of fluxion to the upper lobes with cyanosis. Worthy of mention is the formation of abscesses in the punctures of the hypodermic needle which may have acted as counterirritation. During the entire summer the temperature showed fresh accesses at intervals of from a few hours to seventy-two hours. In the autumn there was an inversion of this movement, the febrile periods becoming longer and the afebrile periods shorter in the same ratio. Finally when winter arrived the patient settled down to a steady subfebrile temperature up to the time of defervescence and sterile blood.

The Open Window in the Treatment of Tuberculosis.—Sabourin mentions the great hostility of the public to the open window treatment. Apparently it is necessary to compromise with the patient's relatives on this score. There is of course no objection to airing the room while it is empty. The windows should be closed when the patient returns, to allow him to undress, and the bed should be as far as possible from the open window, with its foot turned toward the latter. The window should be wide open after the patient is abed. The author has had windows open in his practice for 30 years in all febrile affections and at an early period extended the practice to all sicknesses and has never seen any inconvenience caused. However, it is advisable to establish tolerance by raising the window but a short distance the first night and increasing it gradually. There are various devices to be used in cold weather to keep the wind from blowing on the patient, chief of which is a screen to be placed at the foot of the bed.—*Journal de médicine et de chirurgie pratiques.*

Book Reviews.

THE MEDICAL RECORD VISITING LIST OR PHYSICIANS' DIARY FOR 1919. Revised. Prices, $1.50 to $2.25. New York: William Wood and Company.

THIS well known Visiting List is issued early and contains the customary blanks for patients, with special blanks for consultation practice, obstetric engagements and practice, vaccinations, register of deaths, addresses of patients and nurses, and cash account. There is much miscellaneous information at the beginning of the volume. This visiting list has long enjoyed a well deserved popularity, not only on account of its excellent arrangement and good paper, but also because it is of convenient size and is handsomely bound.

ORAL SEPSIS IN ITS RELATIONSHIP TO SYSTEMIC DISEASE. By WILLIAM DUKE, M.D. Ph.B., Kansas City, Mo. Professor of Experimental Medicine in the University of Kansas School of Medicine: Professor of Medicine in Western College, etc. Price, $2.50. St. Louis: C. V. Mosby Company, 1918.

CHAPTERS are devoted to pyorrhea alveolaris and alveolar abscess as the two leading causes of dental focal sepsis, to metastatic infection proper and the relation of oral sepsis to non-related forms of infection, on the purely toxic effects of local sepsis and the relation of dental sepsis to headaches. The work is illustrated with 170 radiograms. Two questions which require answers are "is the book original or only a compilation?" and "is oral sepsis overemphasized as a cause of morbidity?" While the author freely acknowledges his indebtedness to writers on the subject, the radiograms, laboratory reports, etc., all show plentiful evidences of first hand work. As for the second question the author appears to be conservative—for example he states that dental sepsis ranks theoretically as a very frequent cause of ill health. Again he states that therapeutic results based on treatment of dental sepsis as a cause of disease "are often disappointing." We therefore believe the author to be a safe guide in this difficult contemporary problem.

SUI DISTURBI TROFICI OSSE| CONSEGUENTI ALLE LESIONI TRAUMATICHE DEI NERVI PERIFERICI. Dott. E. TROCELLO. Maggiore Medico nella R. Marina, Aiuto di Clinica. Supplemento agli *Annali di Medicina Navale e Coloniale*, vol. 1, fasc iii, 1918. Roma. Stabilimento Tipografico della Societa delle Cartiere Centrali, 1918.

THIS volume comprises 38 radiographic plates with about double that number of original photographs, practically all of the hands and feet, and of the paws of experiment animals, their object being to visualize the osseous changes which result from traumatisms of the peripheral nerves. The text describes all of the trophic alterations in the limbs with special emphasis on the skeletal changes. The causes of these injuries are various, including projectile wounds, freezing, immobilizations, vascular injuries, etc. The alterations are summed up by the word atrophy. The great bulk of the book consists of case histories—31 in all—and protocols of animal experiments.

ANIMAL PARASITES AND HUMAN DISEASE. By ASA C. CHANDLER, M.S., Ph.D. Instructor in Zoology, Oregon Agricultural College, Cornwallis, Oregon. New York: John Wiley and Sons, Inc.

THIS book is addressed to a wide audience. The author says: "It is the aim of this volume to present the important facts of parasitology, as related to human disease, in such a manner as to make it readable and useful not primarily to the parasitologist, but to the public health and immigration service officers; to the physicians who are concerned with something more than their local practice; to teachers of hygiene, domestic science or other subjects in which health and preventive medicine are important; to college and high school students; to the traveler; and to the farmer or merchant who is interested in the progress of science and civilization." Readers who belong to the class of college or high school students, travelers, farmers or merchants will find in this book the important facts of parasitology as related to human disease presented in a readable manner. The book is divided into three sections; the first deals with protozoa, the second with "worms," and the third with arthropods. There are numerous illustrations, and the volume includes a valuable list of "sources of information."

The author seems to have been particularly unfortunate in the physicians whom he has met and with whom he is acquainted. He tells us that "Many physicians at the present time have little knowledge of venereal disease" (page 58); and (page 4) "Popular ignorance of diseases, even such common ones as malaria and syphilis, is nothing short of appalling. This ignorance is by no means confined to the poorly educated masses; it is widespread among educated, college-bred people, and, piteous as it may seem, *is characteristic of many professional men, among them even physicians bearing good reputation.*" (Italics ours).

CONCERNING SOME HEADACHES AND EYE DISORDERS OF NASAL ORIGIN. By GREENFIELD SLUDER, M.D. Clinical Professor and Director of the Department of Laryngology and Rhinology, Washington University Medical School, St. Louis. With 115 illustrations. St. Louis: C. V. Mosby Company, 1918.

THE object of the book is to show that many headaches and eye troubles, although attributed to other causes, have their origin in the nasal organs. Dr. Sluder presents his arguments for this point of view in coherent and well marshalled order. The first chapter deals with vacuum frontal headaches with eye symptoms only and affords a demonstration that the "astheriopics" are not eye cases but nose cases of a kind not yet understood. The subject of headaches and eye disorders arising from nasal diseases or disorders is discussed from all standpoints. Dr. Jonathan Wright presents an introduction to the pathological anatomy and he as well as other authorities are quoted and referred to in support of Dr. Sluder's contentions. The book is adequately illustrated.

HYGIENE AND MANAGEMENT OF PREGNANCY. A Booklet Concerning the Care of the Prospective Mother. By MORRIS J. KROHN, M.D. Attending Physician St. Anthony's Hospital, Denver, etc. Price, 35 cents. Denver: Published by the author, 1917.

THIS booklet bound in paper is written entirely for the prospective mother. The 32 pages comprise 19 chapters each of which deals with the hygiene of pregnancy or the expected confinement. Under the latter head are fixation of the date, when to arrange with the accoucher, collection of urine, the lying-in room and other preparation for labor. Under hygiene we find such subjects as exercise, diet, sexual life, clothing, care of breasts, care of bowels, etc.

PRACTICAL GUIDE TO DISEASES OF THE THROAT, NOSE AND EAR FOR SENIOR STUDENTS AND JUNIOR PRACTITIONERS. By WILLIAM LAMB, M.D., C. M. Edin., M. R. C. P. Lond. Honorary Surgeon, Birmingham Ear and Throat Hospital. Fourth Ed. Price, $3. New York: William Wood & Company, 1918.

THE first edition of this work, which appeared in 1905 was styled a "Guide to the Examination of the Nose, Throat and Ear." The volume has now become a full fledged textbook, but the word Guide has been retained in the title. The number of pages is 372 and the number of illustrations 61. The latter, which contain little that is hackneyed, impress us as well chosen and of good teaching values. The book is practical from cover to cover, with all the terseness of a manual for a technician.

HOW SHALL I TAKE EXERCISE AND SET-UP? A Physician's Analysis of the Why and Wherefore, etc. By SAMUEL DELANO, M.D. Price, $2. Boston: The Four Seas Co., 1918.

THIS volume is illustrated with 35 photographs showing free gymnastics. It is a personal book and there is no allusion to the writings of others in the same field, as Lagrange, Sargent and McKenzie. We find few actual facts concerning the physiology of muscle and exercise but the author discounts such omission in his preface. He devotes chapters to exercise in general, breathing, games and sports, set up, round shoulders, exercise for invalids, fat and cognate subjects, and appends a full description of the special exercises, which form the subject of the illustrations.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held November 7, 1918.

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

THE program for this meeting was furnished by the foreign delegates to the American College of Surgeons.

Dr. WALTER B. JAMES, in opening the meeting, stated that this was an exceptionally interesting evening on an exceptionally interesting day. (Applause.) The outside enthusiasm which reached our ears must be echoing around the world; probably there were very few places in the world that were not making such noises as we were listening to. We all knew deep down in our hearts what our Allies had suffered during the last four years and what they had suffered willingly. We also realized what would have happened to us if their lines had broken down. Those of the profession who were in khaki and also those who had stayed at home knew the part that medicine had played in winning the war. They knew what the mortality from diseases had been in previous wars in comparison to that of the present war, and that it would have been almost impossible to have endured the long suffering imposed by the present war had it not been for the work of the medical profession. The surgeon liked to feel that, though he had not carried a gun, he had carried a scalpel and had a hand in the winning of the war. We had with us this evening a group of men who stood at the top of our profession on the other side. It was a pleasure to feel that the war had drawn the members of the profession closer together, not only those who were in the war, but those who were not able to be at the front. We had learned to love the French, the Italian, and the Belgian physicians as our own brothers and it meant much to us to have these men on the platform this evening to talk about some of their most vivid experiences.

Dr. James said that they had found it necessary to take liberties with the program and had decided to devote a good part of the evening to the discussion of the "Modern Military Aspects of Lung Surgery." Many of those present could remember when they had dreaded to approach the pleural cavity and some of them remembered when the contents of the abdominal cavity were handled with fear, whereas they were now handled with impunity. It now came as a surprise that the surgeon could do with the contents of the thoracic cavity much the same as he did with those of the abdominal cavity. We had with us this evening men who had done as much as any in the development of lung surgery.

Major PIERRE DUVAL of the faculty of the University of Paris and Consulting Surgeon of the French Army addressed the audience in his native language and was interpreted by Lieutenant-Colonel Raffaele Bastianelle. He declared that surgery had had the greatest evolution during this war. This statement was especially true of surgery of the chest. Whereas we formerly considered the chest inaccessible to surgery, we now dealt with the lung in the same way as with the organs of the peritoneal cavity. The evolution of thoracic surgery has occurred through three stages. At first they had treated wounds of the chest by expectant therapy, but it was seen that the mortality was very high, 40 or 50 per cent. They had tried after this experience to treat chest wounds according to the same principles which they had found useful in the treatment of other wounds in other parts of the body. In the French Army these principles had been applied and perhaps they had been applied less extensively in other armies. The application of the principles for the treatment of wounds in other parts of the body included the excision of all injured tissue and primary closure of the wound. After this treatment primary union with good results might be expected in from eight to fifteen days. These principles could be applied to lung wounds. They had acquired a technique which permitted them to have access to the lungs and to treat them in a very safe way. The evolution in chest surgery had been hindered by the idea that operations on the lungs could not be undertaken except by the use of special physical apparatus which was supposed to make these operations safer. Instead of this they had adopted the method of opening the chest widely and of not fearing the production of artificial pneumothorax. They did not fear to pull out the lung and to excise or suture it, just as they did the intestines, which one could take out, subject to a surgical procedure, and put back again. Having this technique, they had treated lung wounds under the following conditions: 1. When death threatened within a few hours from severe hemorrhage. 2. When sufficient damage had been done to the lung to threaten the subject with asphyxia. 3. In wounds recognized as not so dangerous, but which it was feared would become infected. For the cases of severe hemorrhage the rule had been to open the thorax, to check the hemorrhage, and to suture the wounds. These cases had had a very high mortality, 40 per cent., and that meant that they saved 60 to 65 per cent. of all the cases of severe hemorrhage. In a chest with lung lesions they had learned that the chief complications came from infection or from a foreign body lodged in the wound. In such cases the first thing to do was to remove the foreign body and to treat the wound according to the general principles of treatment of war wounds, that was by excising the margins of the wound, suturing the wound, and closing the chest wall. The general result that they had obtained with this method might be summarized as follows: Previous to the adoption of this method for the treatment of lung wounds in army hospitals the general mortality was 25 to 30 per cent., while since the adoption of this method it had been lowered to 9 per cent. The total revolution in chest surgery was based on three principles. These were, first, a wide opening of the thorax wall which produced complete pneumothorax and taking hold of the lung and treating the wound as elsewhere in the body. They had found that operative pneumothorax had no danger in itself, as was shown by the work of Crile, and as they had learned from their practical experience in war surgery. The technique consisted in making a large opening in the chest wall removing a section of rib and putting in the rib spreaders so as to have easy access to the thoracic cavity. This was the technique introduced by Dr. Willy Meyer. The second principle was to seize with the forceps each lobe of the lung, consecutively, pull it down, inspect it and treat it according to the special indications. The third principle was that the chest wall must be closed completely, no drainage being inserted. The pleura, thoroughly cleansed, would take care of itself. The results of this method were very good and very encouraging. The speaker in his last thirty-three operations had lost no case. Furthermore, the cure that was obtained by this method was of a quality superior to that obtained by any other method in that it secured a complete restoration of function. The lung could expand completely and the man came out of the hospital with perfect function of the lungs and was a new man.

Major Duval illustrated his address with lantern slides, demonstrating this method of opening the chest, treating severe hemorrhage, removing foreign bodies, and closing the chest wall. Slides also showed the results in a number of typical cases.

Lieutenant-Colonel RAFFAELE BASTIANELLI, Professor of Surgery of the Royal University of Rome and Consulting Surgeon to the Armies of Italy, said he would try to conduct his hearers along the road that was taken by Major Duval, since the principles that he had expounded were sound not only for the treatment of war wounds, but for civilian practice as well. In Italy war surgery was the same as in other countries. Custom, tradition, and the rules of military practice had during the early part of the war prevented them from interfering with chest wounds. In fact military regulations prohibited operating on wounds of the chest in the early part of the war, but the mortality was so heavy under the expectant plan of treatment and infection such a common cause of death in these wounds that they began to treat them by the methods which Dr. Duval had described, that was, by removing fragments of shell, bullets, or other foreign bodies, and suturing the wound. It was important that they should have a union that was airtight. They

had found that chest wounds could be divided into two categories, one in which the chest wound was closed and did not permit air to come into the pleural cavity and the other in which the wound permitted the free entrance of air. The complete operation as described by Major Duval was easy if the chest wall was widely opened, because one could then inspect the contents of the thoracic cavity. The difficulty was with the closed chest wounds in which it was difficult to prevent infection. In the hands of men like Major Duval and Colonel Gask these operations were easy, but they were not easy for everybody. First, as to the lung wounds themselves—these might be of three varieties: 1. Lung wounds were sometimes perforating and there might also be contusions. This class of wounds he would not consider at the present time. A lung wound might bleed so extensively that the man arrived at the first aid station in such bad condition that he was not sent back to the hospital. 2. There were wounds with moderate hemorrhage. 3. There were wounds with concealed or silent hemorrhage. In these the man came in with the signs of a lung wound and a very small amount of blood in the pleural cavity. The following day there would be a larger amount of blood and exploratory puncture would reveal the fact that there was a concealed hemorrhage. These cases occurred much more frequently than was suspected, the bleeding being slow because of the physiological factor, the negative pressure. Because of the continuous expansion and contraction the lung was never immobile and this was not favorable to closure of the wound. However, one often saw hemorrhages into the pleural cavity which were cured by nature. The factors which stopped the hemorrhage in these cases were thrombosis, or blood, or air, in the pleural cavity. It was not admitted that the blood was a very favorable factor because even 2000 or 2500 c.c. of blood in the pleural cavity did not put the lung in a condition of immobility, as the liquid could not follow the expansion of the chest wall and lung as did air. Since they had been opening the thoracic cavity it was a very familiar sight to see the lung collapsed to the size of a hand, the blood vessels being scarcely perceptible and the hemorrhage very slight. The production of artificial pneumothorax checked hemorrhage and if the lung was immobilized a condition was produced which was essential in the treatment of any wound. If we allowed nature to treat these cases there was often extensive clotting of the blood and as the lung expanded and contracted it was forced to take a position which did not correspond to its natural anatomical position and adhesions then formed so that the lung could never again take its normal position, with the result that there might be mediastinal deformity and the heart might be displaced, and the lung never recovered its normal function. As long as there was air in the pleural cavity the lung was collapsed and movable and in time the lung expanded, and even if slight adhesions were formed they were not unfavorable to recovery of function. In the open cases the course was clear, but when a case presented a closed chest and a wound, one had to remove the blood and introduce air. This was the artificial pneumothorax of Dr. John B. Murphy. Again it was to be remembered that it might be dangerous to remove the blood from the pleural cavity if air was not introduced. As to their results, they had had 370 cases of chest wounds brought to a certain hospital 290 of which were penetrating wounds of the lung Of these 206 were closed wounds and 84 were open chest wounds. These 206 were treated with artificial pneumothorax and only seven died, which was a very favorable showing for closed chest wounds. Of the 84 with open chest wounds 19 or 22 per cent. died. (They did not have blood transfusion at the time.) Eight of these died within twenty-four hours, or on the following day. Of the remaining 76, 11 died of empyema, and 4 of septicemia. The empyema was due to the open chest and plugging with rubber bags. Since they had been doing the airtight sutures, they had 35 cases with 2 deaths, which meant a mortality of 5 per cent. This meant that artificial pneumothorax was worth while trying.

Colonel Bastianelli gave a lantern slide demonstration of his apparatus which could be used for drainage and also as a suction apparatus in cases of empyema. By the use of this apparatus cure was effected much quicker than by the old method of open drainage tubes. Slides were also shown demonstrating the method of using an apparatus which was so devised that it could be used both for washing out the pleural cavity and for introducing air.

Sir THOMAS MYLES, formerly President of the College of Surgeons of Ireland, spoke of some of the later phases of lung surgery in this war. The British had not had at their front a Major Duval, a Colonel Gask, or a Colonel Bastianelli, men who had had experience in the early treatment of lung wounds, and as a result they had gotten back in due time, and the Americans would also get back, men who had injuries of the chest or who had a projectile or shell fragments still embedded in the lung. That these men escaped the high class surgeon and reverted to the surgeon at home was due to the exigencies of war time. A large number of these men reached base hospitals and when they did they came in a variety of conditions. Some came with a bullet in their lung and said it did not give them any trouble, but these were very rare. The majority who had had chest wounds had physical signs or they did not. Those who had physical signs manifested them by hemoptysis or purulent expectoration. Those who did not have physical signs complained of shortness of breath, pain in the side, and were unequal to sudden effort. They had to deal also with men who, in addition to these troubles, had vivid imaginations; they had, as he termed it, "a bullet in their minds." They were likely to attribute every slight or imaginary ailment to the presence of a bullet in the chest. The bullet might be in the chest, but the shadow of the bullet was in the mind, and in handling these cases it was necessary to get the bullet out of the mind as well as out of the chest. There were two schools of thought as to how to approach this problem of getting the bullet out of the chest. The one was that represented by Sir Berkeley Moynihan, which might be called the statutory method, and the other was that represented by Major George Gray Turner. In the development of the statutory method the reasoning was something like this: Theoretically, the examination of the chest was made by the *x*-ray man. He told the surgeon that the bullet or shell fragment was so many centimeters from a certain point and so many centimeters from another point; but when one came to look for the bullet at the point designated it was like hunting a needle in a haystack. You might add to the *x*-ray, auscultation, percussion, and palpation, and you would still find that there were many uncertainties involved. It had been the speaker's experience that one very rarely found that the opinion expressed in writing as to the location of a foreign body corresponded to the facts exposed at operation. There was still a hiatus in our methods. He simply called attention to this in passing in the hope that the young medical student would recognize that here was a field for future discoveries. The surgeon who started to find a foreign body in a lung at the present time embarked on an unknown sea. For this reason he favored the statutory method, which consisted in making an incision along the fourth rib, starting at the lateral line of the sternum and extending for five inches in a line corresponding to the horizontal border of the pectoralis major muscle; through this incision the rib could be lifted up after dividing it at the costal cartilage. The periosteum of the rib must be left with the pleura, because the pleura was very delicate and would not carry a suture, but the pleura and peritoneum together would carry the suture and remain water tight and resistant. When the pleura and periosteum were opened either the lung collapsed or it did not. If there were no adhesions it collapsed; if there were adhesions it collapsed as far as possible; if there were very extensive adhesions it did not collapse at all. If the lung collapsed it presented an entirely different picture from that to which we were accustomed. When we saw a lung inflated it filled the whole thorax, but when we saw it collapsed it had shrunken to a very small compass and was bloodless. When it was in this condition one was dealing with a mobile viscus that could be handled with perfect freedom and without the need of special apparatus. In cases in which there were adhesions it was advisable to break them down,

because if left they were likely to cause pain and shortness of breath. If the pulmonary and parietal pleura could be kept separated for a few days the adhesions would not be likely to reform. Having broken up the adhesions the next step was to get rid of the blood in the pleural cavity and to thoroughly dry the thorax. The lung could then be dropped back, wounds sutured, and the rib replaced. No drains were used and hence it was necessary to cleanse the pleural cavity very thoroughly. The attempt was made to keep the pulmonary and parietal pleura apart from forty-eight to seventy-two hours, but they had not as yet developed a thoroughly scientific method of doing this. Only when one was very sure just where the bullet was located was he justified in cutting directly down to where it seemed to be. Another point to be brought out was that trying to reach a bullet or shell fragment through a very small incision made it impossible to deal with all the conditions that one might meet. For these reasons the statutory method of approach seemed preferable.

On motion, a vote of thanks was unanimously accorded the speakers of the evening.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Wednesday, October 23, 1918.

THE PRESIDENT, MAJOR FRANK C. HAMMOND, IN THE CHAIR.

The Value of Active Immunization with Vaccine Virus Against Influenza.—Dr. JOHN H. KOLMER, in speaking upon this subject, desired that his remarks be interpreted purely as a preliminary statement. He said that by most bacteriologists the disease was regarded as due to the influenza bacillus. In the work of Dr. Kolmer and his associates, however, considerable difficulty was being experienced in isolating this bacillus. In their findings the streptococcus seemed to predominate. The vaccine prepared by them contained not only the influenza bacillus, but the pneumococci, particularly Types II and IV, which they had found to predominate in the sputum and in the pulmonary lesions, also many strains of streptococci and of *Micrococcus catarrhalis*. Certain serological investigations, he said, were under way to determine the more exact relationship of these organisms to the disease. In a preliminary way he would state that evidence was at hand indicating that the streptococcus and *Micrococcus catarrhalis* were also concerned in the pathology of the infection; possibly, not as primary agents, but as secondary factors of considerable importance. That the resistance of the patient might not be reduced small doses of the vaccine had been given at intervals of three days until three injections had been made. A distinction, in Dr. Kolmer's opinion, should be made between the practical value of commercial stock vaccine, and those prepared from organisms from the present epidemic. Reports from the vaccine prepared by Dr. Kolmer and his coworkers had been generally favorable; such were, however, to be accepted for the present with a good deal of reserve. While the administration of the vaccine at intervals of three days seemed to protect a certain percentage of individuals against influenza, Dr. Kolmer stated that it did not confer absolute immunity. Reports by direct correspondence from other cities were of similar nature. It might, therefore, be tentatively stated that the vaccine was worthy of trial, particularly in institutions and hospitals. Concerning treatment of the disease, even more conservatism was to be maintained. While the majority of clinicians who had used the vaccine were of the opinion that it cut short the febrile period, Dr. Kolmer was not prepared at this time to make any definite statement. It was his belief that the vaccine was well worthy of trial in the prevention of disease, that it might even prove of distinct benefit in treatment, provided it was given early and in small doses. He believed that the dosage bore important relation to the results.

The Physical Findings in Pneumonia Complicating Epidemic Influenza.—Dr. M. HOWARD FUSSELL, describing the simple case of influenza said that it began with cough, pain in the legs and back, depression, temperature of from 98° to 103° for a day or two, dropping back to normal, then rising and again dropping. In cases in which the temperature, after having been normal for three or four days rose to 103° and 104° and remained at that point for two or three days, lung involvement might be expected. In hospital and private work he had been impressed with the fact that one of the characteristic facts in regard to severe pneumonia was that the patient with influenza had been well for two or three days, and then developed pneumonia. This had been borne out in the experience of nurses in two hospitals in which Dr. Fussell had service. In one hospital eighteen out of twenty-four nurses had been sick with influenza; two or three of these developed pneumonia and all recovered. In another hospital sixty-five nurses had influenza, three had pneumonia, and all recovered. This favorable result was not, in his opinion, because of any specific treatment, but due to the fact that the instructress of nurses had been told that immediately upon the appearance of the first symptom of influenza the nurse should be put to bed and kept there until the attack was entirely over. In the pneumonia developing in a patient who had been kept in bed and whose temperature had been normal for three or four days, then became elevated, the condition seemed to be localized; there was observed, first: dullness over the affected area, with crepitation; in a day or two large moist râles were heard; then when the individual was almost well there was blowing breathing. In the cases of pneumonia beginning suddenly like lobar pneumonia the patient soon became cyanosed; the pulse was not very rapid until the very end, but there was evidence of an overwhelming toxemia, and in this form of pneumonia all forms of treatment had failed. It was to be regretted that careful scientific work during the epidemic was practically impossible. This was no one's fault, being due to the few available for help and so many being ill. The duration of the physical signs in the chest after recovery of the patient was to be noted. In one patient discharged and sent to Atlantic City these signs had been about as pronounced as when the temperature had come to normal. Another observation was that of the large continuance of blood in the sputum. The menses were apt to appear at an unusual time; and nosebleed was common. In Dr. Fussell's experience the mentality was preserved even in the patients dying from the intense toxemia. In the cases seen by him only two persons were over fifty years of age; in only four had empyema developed. There had been three or four cases of parotiditis; these patients recovered under the ordinary surgical treatment. In 320 cases of influenza there had been ninety deaths; this did not mean the cases of pneumonia, many of these having died within twenty-four hours. He had had only four recoveries in pregnant women.

Report of Eight Cases of Acute Appendicitis Complicating Epidemic Influenza.—Dr. MOSES BEHREND advised operation under nitrous oxide gas and oxygen anesthesia when the differential diagnosis between chest and abdominal conditions was impossible. In the event of a mistake the course of the pneumonia would not be altered. The one sign which more than any other differentiated pneumonia from appendicitis was, in his experience, rapid breathing with playing of the alæ of the nose. This was absent in acute appendicitis. It had been a constant observation that appendicitis occurred in increased frequency after epidemics of influenza. Lichtenstern was quoted as believing the condition a typhilitis rather than one of true appendicitis, that exceptional cases of true appendicitis might occur, and that coincident appendicitis simply accompanied an attack of influenza. In only one of the cases reported by Dr. Behrend was there history of several attacks of appendicitis; neither could he subscribe to the theory of typhilitis. Such cases, he believed, were primarily appendicitis, the inflammation spreading to the cecum. Of the eight cases reported three had been operated upon and recovered. In the other five operation was not done because, from the number of râles present, it was feared that pneumonia would result; these râles had been indicative of an extensive edema rather than of pneumonia, and in these the appendical symptoms gradually subsided. The appendicitis had developed at the height of the attack of influenza.

The Nasal Complications of Epidemic Influenza.—Dr. G. W. MACKENZIE observed that practically all our present knowledge of sinus disease dated from the works of Zuckerkandl and Hajek following the last world epidemic of influenza occurring in 1889-1890. Septal deflection was mentioned as one of the most important predisposing causes of sinus disease. The intranasal complications of epidemic influenza should be guarded against by treatment directed to the systemic condition. There should be avoidance of local applications to the nose and throat, no antiseptic being sufficiently strong to destroy a virulent strain of the *Bacillus influenzæ* which would not injure the mucous membrane. He emphasized the importance of breathing through the nose, and through both sides simultaneously. The use of alcohol was to be avoided. In fatal cases of influenza with cerebral complications suppuration of one or more sinuses was regarded as an important factor. In acute sinus disease drainage was regarded by the rhinologist as conservative treatment. Results so far observed had been better from surgery alone than from vaccines alone.

Dr. RICHARD C. NORRIS attributed the extraordinarily high mortality of influenza in pregnant women to the overwhelming toxemia present at a time when their resistance was reduced by the process of pregnancy. Reference was made to the arrangement of wards and rooms at the Preston Retreat, making isolation of patients easily possible. The few cases occurring in the Retreat had been put at once under the care of special nurses and all contact with the rest of the house severed. No deaths had occurred. One woman brought in from another hospital where no room had been available had a pulse of 138-140 and was cyanotic. Recovery took place and the woman did not miscarry. Whether the patient had pneumonia Dr. Norris could not determine; temperature was 104°; respirations, 32; pulse, 138. There was not a sign of pneumonic change that he could detect. Contrary to the experience at the Preston Retreat was that at the Methodist Hospital. Within a week ten women with pneumonia had been brought in, of whom nine died, and out of the entire group there were but three living children. Of influenza cases not complicated by pneumonia Dr. Norris had seen five in his private practice. All had recovered; three had living children. In many cases of influenza with pneumonia he had been consulted upon the advisability of induction of labor. His position had been that a woman so handicapped had better not be placed under the additional strain of falling into labor. In two earlier instances in which the patients were borderline cases he had induced labor and the patients had died. Since that time he had declined to follow this course of treatment. In two cases presenting no sign of pneumonia he had induced labor because of the toxemia of pregnancy. In multiparæ, some of whom had been exposed to the most virulent type of influenza and others showed slight temperature, he had terminated pregnancy. All had made good recoveries and the children lived. This was not, however, justifiable in primiparæ.

Lieutenant RUSSELL S. BOLES said that of the cases observed in the camp hospital marked drowsiness was the most noticeable feature. The onset of the infection was sudden, the period of incubation being apparently twelve to forty-eight hours. There was lack of coryza and sneezing. Harassing cough was present, also epistaxis. Fever of 101° to 103° was almost invariably noted. There was severe lumbar backache attributed to the intense degree of nephritis; also a peculiar cyanosis like that following the use of acetanilid. The abdominal pain confused the condition with appendicitis. Of the 525 cases of influenza there were 168 cases of pneumonia with 48 deaths. In the apparently early recoveries emphasis was placed upon the importance of not allowing the men to return to the training camp until cure had been established. The complication of nephritis had sometimes been very severe. Otitis media was present in ten or fifteen cases; four suppurated. While there were many so-called mastoiditis cases, none had proceeded to suppuration. The gastrointestinal complications when severe were regarded as unfavorably influencing prognosis. Pleurisy and empyema were relatively uncommon. Immunization with vaccine, while not absolutely preventive, was regarded as of some value. In prophylaxis the greatest reliance had been upon the use of the mask.

Dr. THOMAS C. ELY, in outlining his treatment of influenza patients, said that he first cleansed the intestinal tract with calomel and a saline purge. This was immediately followed by the active administration of the alkalies used to combat acidosis—bicarbonate of soda, citrate of potash, and the calcium salts in the form of lime water. To every patient was administered a teaspoonful of bicarbonate of soda to a pint of lukewarm water every four hours by enema. He had given by the mouth bicarbonate of soda and citrate of potash every hour alternately. The calcium salts he had given in the form of lime water one-third and milk two-thirds. To patients with fulminant attacks of vomiting and severe headache unable to tolerate the potash salts he had given only the sodium bicarbonate mixture every hour and the soda enemas. He had used neither aspirin, coal tar series, heart depressants, serums, nor vaccines. In his opinion these patients so desperately ill could not have recovered without the basic treatment by the alkalies upon the acidosis theory. When tolerated he had given quinine, 4 grs., morning and evening. He had recommended quinine in connection with the soda salts as a preventive. He had also given strychnine and quinine every four hours during convalescence. He believed that early sweating by hot drinks and the giving of water only during the first twenty-four hours were beneficial procedures.

Dr. S. SOLIS COHEN regarded the use of mixed bacterins as highly scientific, useful, advisable, and necessary. He believed that they prevented the incidence of influenza and pneumonia. In instances where such incidence was not prevented they rendered the attack much less severe. They seemed also to give some protection against the streptococcus, the most deadly of all the bacteria concerned. He would hesitate to give the mixed bacterins in the presence of influenza and streptococcic toxemia at a late stage. When, however, they could be given early he would place as much reliance upon their efficacy as upon the use of mercury in syphilis, or of quinine in malaria. He agreed with Dr. Ely upon the importance of the early alkalinization of the blood throughout every attack of pneumonia, of influenza, and of mixed infection. In pregnant women he was convinced that the administration of aspirin and phenacetine was responsible for many deaths.

Dr. LIDA STEWART COGILL said that the present epidemic had been in her experience very fatal to mother and child. At the Woman's Hospital seven prenatal cases had died. The patients who had had influenza before coming into the hospital had done well and the babies had lived. With those developing pneumonia the babies were dead before they were born.

Dr. WILLIAM EGBERT ROBERTSON remarked upon the small number of colored persons who had contracted influenza. He thought it the general experience that this race had been rather exempt. Following early intravenous administration of bacterins, particularly of the sensitized bacterins, his results in the present epidemic had been little short of brilliant. A matter of surprise to him had been the withholding of food from patients with elevated temperature. It was his opinion that if a patient were fed to his ability to take food his opportunities for recovery were enhanced.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Annual Meeting Held in Philadelphia, September 23, 24, 25, and 26, 1918.

(*Continued from page 880.*)

SECTION ON MEDICINE.

First Day—Tuesday, September 24.

Pneumonia.—Dr. W. J. K. KLINE of Greensburg laid importance upon the trained ear in the diagnosis of this disease. Active diaphoresis was indicated, which might be produced by external moisture and heat and by internally creating active secretion of the internal organs, this to be followed by warm potations

and a saline cathartic. Veratrum viride was recommended in the presence of arterial tension. The routine use of veratria was discouraged. The tincture should be used in doses of eight to ten drops every two hours, the dose to be reduced or increased as required to bring the pulse rate down rapidly to 80 or to 60 beats, until nausea appears, when the rate would be lowered. This rate, to be maintained for from 24 to 48 hours, was an important factor in clearing up the congestion.

Dr. Charles Rea of York said that since the greater number of cases followed measles, therapeutics should be directed toward prevention. In the treatment of lobar pneumonia there should be avoidance of polypharmacy, in the form of drugs or bugs. Early digitalization was regarded favorably in that the patient might respond quickly to digitalis by the mouth should sudden necessity arise. Turpentine in enemas and stupes was regarded as the best means of combating abdominal distention. In the treatment of streptococcus bronchopneumonia there was little to offer beyond preventive measures and intelligent care.

Dr. S. Solis-Cohen of Philadelphia confessed to a change of feeling regarding the value of mixtures of stock bacteria since having observed the work of Majors Smith of Uniontown, Dare, and Bergey of Philadelphia. They had prepared a vaccine from streptococci, staphylococci, *Micrococcus catarrhalis*, and four types of pneumococci, after the use of which the mortality was less than 6 per cent.

Some Recent Results of Coordination of Laboratory and Clinical Researches in Pneumonia.—Dr. S. Solis-Cohen of Philadelphia gave a report of results of coordinated research by Drs. Kolmer, Heist, Steinfeld, Weiss, and himself, showing the chemotherapeutic activity of cinchona derivatives against the pneumococcus *in vitro* and *in vivo;* the inferiority of optochin to ordinary quinine compounds in human pneumonia; pneumonia poison in the human lung; the inhibiting effect of quinine on this and pneumotoxins; the Lacy-Heist method of studying immunological power of whole circulating blood; immunity of certain individuals and birds against pneumonia; bacterins (vaccines) and quinine mouth washes as preventives.

Dr. David Riesman of Philadelphia believed that in no disease was the close cooperation of laboratory workers and clinicians more opportune than in pneumonia, oratory examinations. The man not educated in the climate. Its problem was to be attacked more from the point of prevention than had obtained hitherto. That a healthy carrier might spread the disease was a discovery of the utmost importance.

Dr. George D. Heist of Philadelphia said that in their research work they had found that the serum of a man receiving five and sometimes ten grains of quinine dihydrobromide every three hours over a period of a number of days killed pneumococci with great regularity after an exposure of 24 hours. The bactericidal element in the serum was proportionate to the quantity of quinine received. The dihydrobromide was the most active salt.

Laboratory Methods, Their Value and Practicability in General Medicine.—Dr. M. Howard Fussell of Philadelphia made a plea for accurate diagnosis by history taking, thorough physical examination, and routine laboratory exminations. The man not educated in the more modern and accurate diagnostic methods should associate with himself a young man to do this routine work for him. Dr. Fussell exhibited a well arranged kit with facilities for making diagnoses in conditions met in the work of the general practitioner.

Dr. Henry Rhea Douglas of Harrisburg cited a case demonstrating the importance of diagnosis upon the principles enunciated by Dr. Fussell. In a boy of nine years, treated for an eye condition accompanied by anemia and glandular enlargement, subsequent history taking suggested a Wassermann test, which gave a reaction of four plus.

Dr. H. W. Mitchell of Warren emphasized the value of laboratory study in diagnosis of patients admitted to the hospitals for the insane.

Dr. Paul G. Weston of Warren urged the more frequent employment of lumbar puncture in diagnosis and the necessity of a chemical analysis of the blood to accompany the uranalysis.

Some Drug Eruptions.—Dr. M. B. Hartzell of Philadelphia said that while a large number of drugs produced eruptions, but relatively few affected all individuals; that the same drug did not always produce the same form of eruption. The iodides, usually causing an acneform eruption, might give rise to more serious disturbance; this was true also of the bromides. The hypnotics produced eruptions of varying character. Arsphenamine sometimes caused a violent dermatitis, with symptoms of nephritis. The possibly etiological factor of a drug should always be remembered in the presence of an unusual form of eruption.

Dr. Julius H. Comroe of York cited an idiosyncrasy to drugs mentioned to him by Dr. B. A. Thomas of Philadelphia, in the administration of 270 grains of potassium iodide three times a day in ascendng doses for almost three months wthout producing an eruption. The administration of three grains in another case had been followed by a most intense rash. Routine ascending doses were discouraged, it seeming to be wiser that each case should be treated as an individual entity, with diminution or interruption of the dose upon the beginning of an eruption.

The Place of the Medical Inspector in Preventive Medicine.—Dr. Clarence R. Phillips of Harrisburg said that contagious diseases were the diseases of childhood largely because of compulsory education, which brought children into close contact. The problem of prevention was distinctly one to be handled by the State. The instrument for protection in the scheme of the State Department of Health was said to be the county medical inspector. Parents should be educated and teachers instructed; stern measures might be required to enforce the provisions of the new school code pertaining to communicable diseases.

Dr. Wilmer Krusen, Director of Health of Philadelphia, claimed for the county medical inspector the cooperation of the public in eliminating preventable diseases. Quarantine would be unpopular until the family appreciated that the rights of the individual ceased where the rights of society began. Development of the conscience of the practitioner who saw communicable diseases in their incipiency was also, in Dr. Krusen's opinion, an essential in the eradication of preventable disease.

X-Ray Examination of the Heart and Great Vessels.—Dr. G. W. Grier of Pittsburgh had seen in *x*-ray examination only two cases in which the heart was unquestionably too small for the performance of normal function, being in each instance about the size of a baseball. The athletic heart was said to be often hypertrophied; the small "drop" heart was supposed to indicate predisposition to tuberculosis of the lungs. Dr. Grier had fluoroscoped one case of heart block. The slow, massive contractions of the left ventricle occurred about twenty times to the minute, while the rapidity of the contractions of the right auricle was extraordinary. He regarded the *x*-ray as of distinct advantage in determining size and contour of the heart. In the differential diagnosis of aneurysm of the aorta and solid tumors in the mediastinum both fluoroscope and radiogram were to be used.

Second Day—Wednesday; September 25.

The Problem of Combating Septicemia with Especial Reference to the Use of Arsphenamine.—Dr. Samuel R. Haythorn of Pittsburgh said that arsphenamine had been administered in 29 cases of proved septicemia, with 17 recoveries and 12 deaths. The treatment was found to be beneficial, when used early in septicemias, if they were associated with primary foci easily accessible to surgical interference. In endocarditis, and conditions in which secondary localizations had become firmly established, arsphenamine was disappointing because it did not affect the localized lesions on the heart valve, appearing to be effective only in the blood stream.

Dr. Harold A. Miller of Pittsburgh had used arsphenamine in 14 cases. In none were there any untoward symptoms attributable to the drug. It was his experience that puerperal sepsis presented no contraindications to the use of arsphenamine which were not also contraindications in syphilis or other diseases.

Dr. Grover C. Weil of Pittsburgh cited a case of staphylococcus septicemia in a compound fracture with

fluctuating temperature for five weeks with a drop of temperature to normal five days after administration of salvarsan and with disappearance of the staphylococci five days later.

Dr. HAYTHORN, in closing, observed that the increased leucocyte count was a constant find following the administration of arsphenamine. Results in the treatment of endocarditis were discouraging.

One Hundred Cases Treated with Autogenous Vaccines.—Dr. WILLIAM A. WOMER of New Castle classified results in 100 cases including arthritis, acne, abscess, boils, carbuncles, endocarditis, eye, ear, nasal sinus and other infections. Of the 100 cases 87 per cent. recovered completely. The most satisfactory results were obtained in infections of the skin and subcutaneous tissues. The results in respiratory conditions were not satisfactory.

Dr. WALTER D. BLANKENSHIP of Lancaster emphasized that while autogenous vaccines were not a panacea, in certain cases they were imperatively indicated. General lines of treatment as indicated should be used in conjunction with the vaccine therapy.

Physical Examination in the Diagnosis of Early Pulmonary Tuberculosis.—Dr. LOUIS V. HAMMAN of Baltimore stated that of one hundred men presented for examination at least seventy-five had pulmonary tuberculosis. Of the seventy with signs of pulmonary change only four or five would develop pulmonary tuberculosis. Nothing could be of greater importance than to distinguish between tuberculous infection and tuberculous disease. The physical examination in the diagnosis of pulmonary tuberculosis, he said, really obtained its value from the relations of all the other associated clinical facts. One exception to this statement was that the presence of definite moist râles limited to an apex was an almost absolute indication of pulmonary tuberculosis.

Dr. ELMER H. FUNK of Philadelphia agreed with Dr. Hamman that physical signs were valuable only as emphasized by the consideration of history and symptoms. Of far more importance was the determination whether the disease was clinically active or inactive.

Dr. CHARLES H. MINER of Wilkes-Barre regarded as the most important question the relation between the extent of the pulmonary changes not due to active disease and the probability of developing active disease under conditions of unusual exposure.

Dr. ALEXANDER ARMSTRONG of White Haven, while disinclined to criticise the work of the draft boards in any other than a constructive way, cited one instance, typical of many, in which a man who had been under treatment for pulmonary tuberculosis was told by the draft board that his lesion was healed, and who had been passed into the first class. Inside of two months the man had become a physical wreck.

Dr. THOMAS MCCRAE of Philadelphia regarded as of doubtful accuracy the view held by some that the man in the Army was not greatly exposed to infection. In the diagnostic points dwelt upon by Dr. Hamman he regarded as of first importance the fact that suspicion is aroused. It was then the physician's duty to exclude the possibility that tuberculosis was present rather than to take the view that the condition was, for example, nothing but bronchitis.

Dr. JOHN A. LICHTY of Pittsburgh asked whether Dr. Hamman meant by "pulmonary tuberculosis" a specific or a mixed infection.

Dr. HAMMAN, in closing, admitted the great difficulty involved in a discussion of physical diagnosis—one man, very experienced, might hear râles where he could not; make out dullness where he could not. To such a man râles and dullness would be entirely different things from what they would be to him. Replying to Dr. Lichty, he meant by pulmonary tuberculosis, specific infection with the tubercle bacillus.

(*To be concluded.*)

Tailor's Thimble in the Nasopharynx of a Child.—Schönfeld reports that up-to-date parents brought their six-year-old child to the local x-ray institute after the disappearance of a thimble. The lower food and air passages were clear and the object was found wedged in the nasopharynx.—*Correspondenz-Blatt für Schweizer Aerzte.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

THE STATE MEDICAL BOARD OF THE ARKANSAS MEDICAL SOCIETY.

Little Rock, May 14 and 15, 1918.

(*Concluded from page 838.*)

GYNECOLOGY.

1. When is a curettement indicated?
2. Give differential diagnosis between ectopic pregnancy and acute appendicitis.
3. When should a ruptured perineum be repaired, and why?
4. What conditions justify the removal of one or both ovaries?
5. Describe symptoms of a retroverted uterus. How would you correct this condition, describing operation?
6. Give treatment for acute pelvic cellulitis.
7. Give symptoms and physical changes occurring during menopause.
8. Diagnosis and treatment of specific vaginitis.
9. What complications may arise following condition in question No. 8?
10. Describe salpingitis; give treatment.

SURGERY.

1. Give symptoms and treatment of corneal ulcer.
2. Give causes, symptoms, and treatment of brain abscess.
3. State causes and give treatment of suppuration in antrum of Highmore.
4. Discuss the symptoms and surgical treatment of hyperthyroidism.
5. Give in detail the treatment for gunshot wounds of chest.
6. Discuss causes and give treatment for acidosis following surgical anesthesia.
7. Given a patient two days before laparotomy for interval appendectomy, state the laboratory tests you would make. Give in detail preparation of patient for said operation.
8. Give symptom, physical signs, and treatment of intussusception in children.
9. Give in detail the surgical management of a case of acute osteomyelitis of the tibia.
10. Discuss the management of open Pott's fracture.

HYGIENE.

1. What are the dangers of surface water and dug wells?
2. What measures must be used in crowded apartments to insure good health and prevent spread of disease?
3. What measures should be taken in a community to prevent the spread of venereal diseases?
4. Name some of the ill effects of school life on the health of children.
5. What would you consider the duties of a medical supervisor for a school?
6. What constitutes a first class eating apartment?
7. What are the dangers of using ice?
8. Give name and description of malarial mosquito.
9. Which is to be preferred, autogenous or stock vaccines, and why?
10. What is sewer gas? How does the inhalation of it in large quantities affect the system?

ANSWERS.

GYNECOLOGY.

1. *Curettage is indicated:* (1) For removal of placental débris, (2) in hemorrhagic endometritis, (3) in some forms of dysmenorrhea (membranous), (4) for diagnostic purposes, (5) in some cases of puerperal sepsis, (6) sometimes to check hemorrhage due to fibroids.

2. *Differential diagnosis between ectopic pregnancy and acute appendicitis:* Appendicitis in its onset and in its further course may very closely simulate a ruptured tubal pregnancy, but in appendicitis there are

none of the general and local signs of pregnancy. There is often a history of previous attacks, with intervals of complete or partial freedom from pain and intestinal disorder. The distress is almost always confined to the right side, while in ectopic pregnancy it is often referred to the median line or left side. In both of these conditions the pain appears suddenly, and may be intense; in ectopic pregnancy it may be momentary, while in appendicitis it usually persists throughout the attack. The sudden pallor and collapse frequently following immediately upon the rupture of a tubal pregnancy never occur in appendicitis. It is at this time that a most suggestive sign appears, *i.e.*, uterine hemorrhage accompanied by a discharge of decidual membrane. In such an event there can be no further consideration of appendicitis. Much dependence is placed upon the further finding of an enlarged soft uterus and an irregular mass attached to it at the side or lying behind the uterus. When doubt exists, the uterus may be explored with a curet and the scrapings examined for decidual tissue." (Findley's *Diseases of Women.*)

3. All tears should be repaired as soon as possible (unless there are contraindications). A primary operation is best, because the edges are fresh and can be approximated; little (if any more) anesthetic is wanted; the woman has to lie in bed, and therefore only one absence from household work is requisite; infection is less likely. In any case, operation may prevent rectocele, cystocele, prolapse of uterus, and general weakness, malaise, and disability.

4. *Indications for removal of one or both ovaries:*—Ovarian tumors (unless specially contraindicated), malignant degeneration of the ovaries, abscess of the ovaries, cirrhosis of the ovaries, and some cases of osteomalacia.

5. RETROVERSION OF THE UTERUS.—*Etiology:* Relaxation of uterine ligaments; increased weight of fundus; subinvolution; ovarian or other tumor pressing on front of uterus; distended bladder; peritonitis or cystitis; prolonged dorsal decubitus and tight bandaging in the puerperium. *Treatment:* Remove the cause, if possible; replace the uterus and keep it in position by pessaries, tampons, and knee-chest position; pelvic massage and vaginal douches; proper hygiene, particular attention being paid to the bowels, clothing, and exercise. *Curative treatment:* The choice lies between ventral suspension of the uterus and shortening of the round ligaments.

Ventrosuspension: "An incision is made through the abdominal wall in the median line just above the symphysis pubis and extending upward for a distance of two inches. The index and middle fingers of the left hand are passed into the peritoneal cavity and gently inserted between the uterus and the rectum. The adhesions are then carefully separated and the fundus of the uterus lifted forward into its normal position. The peritoneum at the lower angle of the wound is seized with hemostatic forceps and drawn into the incision and the first suspension suture introduced close to its divided edge on the left side. The index and middle fingers of the left hand are then passed into the abdominal cavity and the uterus securely held while the suture is passed through the fundus. The suture is now introduced into the fundus directly on a line dividing the uterus transversely into two equal halves and buried one-quarter of an inch deep in the uterine tissue with a distance of about half an inch between the points of entrance and exit. The uterus is then released by the fingers of the left hand and the suture passed through the peritoneum opposite to its point of entrance. The second suture is now passed through the peritoneum on the left side one-quarter of an inch above the first suture. It is then passed through the fundus about one-quarter of an inch behind the first suture, and finally through the peritoneum opposite to its point of entrance. It is not necessary to hold the fundus between the fingers while the second suture is introduced, as the uterus can be easily controlled by making traction upon the free ends of the first suture. After both sutures have been introduced their free ends are seized with forceps and placed on each side of the abdominal incision. The through-and-through sutures closing the abdominal incision are introduced and suspension sutures tied. The first three sutures closing the incision at the lower angle of the wound must be introduced so as to pass completely under the peritoneum at its points of attachment with the fundus, otherwise the weight of the uterus will cause stripping and a large dead space will result which will eventually become filled with serum or blood and suppurate. After all of the incision sutures are introduced the suspension sutures are drawn taut so as to take out the slack and bring the fundus of the uterus up against the peritoneum. The sutures are then tied and their free ends cut off close to the knots. The abdomen is closed and the wound dressed in the usual manner. The fascia is first united with a continuous suture of catgut and the wound then closed by tying the through-and-through sutures. The sutures in the lower angle of the wound are tied first, and special care must be taken to remove the slack and bring the peritoneum, at its points of attachment with the fundus, snugly against the abdominal wall." (Ashton's *Gynecology.*)

6. *Treatment of acute pelvic cellulitis:* "The patient is confined to bed, the bowels are kept regular by means of saline purgatives, and warm vaginal douches should be frequently administered by a careful nurse. Glycerin tampons help to relieve the pelvic congestion. When there is much abdominal pain, warm fomentations to the hypogastrium give great relief. When suppuration occurs and the pus can be localized, an incision should be made into it and the abscess drained." (Sutton and Giles's *Diseases of Women.*)

7. *During the menopause:* Menstruation first becomes irregular both in periodicity and quantity, and then ceases; the patient suffers from hot flashes, giddiness, pains in breasts, abdomen or limbs; indigestion, flatulence, constipation, and obesity may be present. The ovaries become smaller and wrinkled, the vagina becomes smaller, the cervix atrophies, the body of the uterus diminishes in size, the pubic hair becomes less, and is shed, the external genitals atrophy.

8 and 9. SPECIFIC VAGINITIS is due to gonorrhea.—*Etiology:* The gonococcus of Neisser. *Symptoms:* Pain and burning in the vulva; pain and burning on micturition; dyspareunia; yellowish or greenish discharge, in which the gonococcus can be found; the vagina is hot, red, swollen, and tender. *Possible results:* Cystitis, urethritis, vulvitis, endometritis, salpingitis, septic peritonitis, sterility, condylomata of vulva, abscess of Bartholin's glands. *Diagnosis* is made from the symptoms, particularly from finding the gonococcus in the discharge. It is so *serious* on account of the possible results enumerated above; it often leads to chronic invalidism, and may be the cause of death.

Treatment: Rest, if possible in bed; freedom from alcoholic or sexual excitement; a mild and unirritating diet; salines and diuretics; plenty of water to drink; a warm sitz bath; douching of vagina with about a gallon of a 1:5000 bichloride solution, or of borax (1 dram to the quart), or of potassium permanganate (1 per cent. solution); the douche is to be taken in the recumbent position.

10. *Salpingitis* is inflammation of the Fallopian tube. *Causes:* Gonorrhea, septic infection, subinvolution, fibroids, uterine displacements, lacerated cervix, taking cold at menstrual periods, and certain diseases such as the eruptive fevers and syphilis or tuberculosis. *Symptoms:* Pain or discomfort, made worse by pressure, examination, defecation; or colicky pains over the tube; dysmenorrhea; increased menstrual flow; tubes are found to be dilated and swollen. *Varieties:* Hematosalpinx, when tubes are distended with blood; Pyosalpinx, when they contain pus; Hydrosalpinx, when they contain serous fluid or exudate. *Diagnosis:* A dragging sensation in the neighborhood of the affected tube; colicky pain, which is increased on exertion or even on standing; abdominal tenderness; menstrual disorders, as amenorrhea, metrorrhagia, dysmenorrhea, menorrhagia; dyspareunia; there may be septic symptoms and peritonitis; sterility generally ensues. On examination there will be found a fullness in Douglas' pouch and one or both lateral fornices; in these latter will be felt either the tubes, distorted and possibly adherent, or a sausage-shaped tumor, which is very painful; the uterus is retroverted or retroflexed, and may be bound down by adhesion; there may be an intermittent expulsion of pus accompanied and preceded by a burning pelvic pain. *Treatment:* Rest in bed, hot vaginal douches, saline purgatives, liquid diet, morphine (if necessary) for

pain, removal of pathological conditions and complications; radical operation (salpingectomy, or salpingo-oophorectomy) may be necessary.

SURGERY.

1. *Corneal ulcer* is detected by oblique illumination, the ophthalmoscope, or convex lens, and by dropping fluorescine upon the cornea, the denuded area being colored green. Pain, photophobia, lacrimation, swelling of the lids and conjunctiva, and destruction of tissue are symptoms. Corneal opacities, staphyloma, perforation, adherent leukoma, atrophy of the eyeball, and prolapse of the lens and vitreous may result. The *treatment* consists in putting the eye at rest, instilling atropine, and the application of a bandage. Leeches to the temple will relieve the pain. Hot compresses have the same effect. The eye should be douched with sublimate solution, 1:5000, and iodoform dusted upon the cornea. Stronger sublimate solution, boroglycerid 50 per cent., and formalin 10 per cent. are sometimes necessary. Cauterization is occasionally indicated. If perforation seems probable, it should be hastened by a puncture.—(*Cyclopedia of Medicine and Surgery.*)

2. ABSCESS OF THE BRAIN.—*Causes:* "Pyogenic infection is the cause in all cases, and the commonest method is by spreading from chronic otorrhea. Other cases are traumatic in origin, as in septic compound fractures and penetrating wounds, the frontal and parietal lobes being then chiefly affected. The commonest seat of abscess in the brain, due to middle-ear disease, is the cerebellum. The next most common seat is the temporo-sphenoidal lobe. The suppuration may extend directly through the tegmen tympani, the membranes and brain becoming first adherent to it; but usually there is a healthy area of brain intervening, so that the extension of infection has been along the course of vessels and lymphatic sheaths running between the brain and middle ear. Similar abscesses rarely follow suppuration in the frontal, sphenoidal, and ethmoidal sinuses, and thrombosis of the cavernous sinus. Pyemic and chronic tuberculous abscesses also may occur. An abscess in the brain is usually chronic, but terminates in compression, either from the onset of spreading edema or rupture into one of the lateral ventricles.

The *symptoms* in traumatic cases are acute, and, as there is usually diffuse meningitis, there is intense pain, fever, and rigors, coma quickly supervening. In the more common chronic cases the symptoms are often vague in the early stages, but when well marked consist in signs of intracranial pressure. 1. The headache and tenderness are severe and localized to the site of the abscess. 2. The temperature is subnormal, unless there is associated meningitis. 3. The pulse is markedly slowed, even down to 30 or 40. 4. The patient is quite intelligent, but cerebration is very slow; vomiting and optic neuritis are usually present. 5. Motor symptoms may occur if the abscess is in the anterior part of the temporo-sphenoidal lobe, either irritative or paralytic. If the cerebellum is affected, there is giddiness both while walking and lying down, together with weakness of the hand-grip and increase in the knee-jerk on the side affected. Lateral nystagmus often occurs.

Treatment: The abscess must be opened as soon as possible. Unfortunately, many cases are only diagnosable when it is too late for evacuation to produce a cure. As cerebellar abscess is more common, it is as well to explore the cerebellum first, unless focal symptoms point to the temporo-sphenoidal lobe as the site. A flap is turned down and a piece of bone removed with a trephine. The dura is then incised and the abscess punctured with a trocar and cannula or sinus forceps. These should be passed in various directions till the pus is found, and then the opening must be enlarged, the pus gently washed out, and a drain left in for several days.

For a temporo-sphenoidal abscess the trephine opening should be made ¾ in. above the posterior root of the zygoma, and directly above the posterior border of the bony meatus; for a cerebellar abscess, 1½ in. behind the center of the external auditory meatus and 1 in. below Reid's base line. In most cases the mastoid antrum should be first explored; by removing the bone behind it the lateral sinus can be exposed, and by working above or below it the cerebrum and cerebellum can be explored.—(*Aids to Surgery.*)

3. "*Abscess or empyema of the antrum of Highmore* is a collection of pus within the maxillary antrum. It results from inflammation of the jaws, the teeth, or the mucous membrane of the nose. It causes pain, edematous swelling of the overlying soft parts, and crepitation on pressure upon the superior maxillary bone. Pus may escape from the nostril of the diseased side when the head is bent in the direction of the healthy side. A rhinoscopic examination discloses the fluid passing into the nares. The antrum on the side of the abscess cannot be transilluminated by an electric light in the mouth. The constitutional symptoms of suppuration usually arise. *Treatment:* Bore a gimlet-hole through the superior maxillary bone, above the canine tooth, or perforate the bone by means of a trocar. Irrigate daily with boiled water or normal salt solution. Keep the opening from contracting by inserting a small tent of iodoform gauze. In persistent cases it may be necessary to draw a tooth, break through the socket of the first or second bicuspid into the antrum, and insert a silver or hard-rubber tube, and also to perforate the antrum from the inferior meatus and keep the opening patent. In very persistent cases osteoplastic resection of a portion of the upper jaw will be demanded." (DaCosta's *Surgery.*)

4. *The symptoms of hyperthyroidism* are thus given by Schaeffer: Lowered blood pressure; rapid pulse, often with some irregularity; nervous excitability; flushing of the skin, with feeling of heat; increase of perspiration; and increase of nitrogen metabolism. If long continued the fat of the body is diminished and glycosuria may be caused. There is considerable wasting, although the appetite is increased. There are often digestive disturbances. In extreme cases there may be exophthalmos and other effects referable to cervical sympathetic excitation, such as dilatation of the pupils; psychical excitement; sleeplessness; tremors of the limbs; in short, most of the symptoms of exophthalmic goitre.

Surgical treatment: The whole gland must not be removed, or myxedema may result; and the parathyroids must not be removed, or the patient may develop tetany. Ligation of one or more of the thyroid vessels may be done, or one-half of the gland may be removed. Local anesthesia is safer than general anesthesia in these cases.

5. *Treatment of gunshot wounds of the chest:* "After the application of a clean dressing the patient should be put to bed with shoulders elevated to insure comfort. Transport should be delayed until danger of complications has passed or until the wounds have healed. (Failure to observe this may result in hemothorax and empyema.) Chest cases should be treated in the first aid zone whenever practicable. The majority of cases of hemothorax are slight and require no treatment other than rest in bed. When the amount of blood embarrasses respiration aspiration is in order. When practicable this should be delayed to a time when injured vessels have had sufficient time to heal lest coagula are disturbed with the recurrence of hemorrhage. The source of hemorrhage is generally from the intercostals or mammary arteries. When it is not practicable to ligate the bleeding vessels, pressure by Desault's method should be practised. This is accomplished by pressing the center of a square piece of gauze in the wound with the finger and subsequently packing the pocket thus made with loose gauze. The corners of the gauze originally pressed in by the finger are pulled upon to make pressure on the internal surface of the wound next to the sternum or ribs. When large quantities of clotted blood fail to be absorbed, or infection sets in, free incision and resection of part of one or more ribs should be practised, followed by thorough irrigation." (*Reference Handbook of Medical Sciences.*)

6. The *causes of acidosis after surgical anesthesia* are thus given by Grove: In *fat children* it may arise spontaneously without other disease, and cause recurrent attacks of vomiting. *Sepsis* is only a contributing factor. *Trauma* or severe operation may produce acidosis. *Chloroform* acts as a protoplasmic poison and causes fatty degeneration of liver and kidney cells. *Ether* may act in the same way but to a less extent. The majority of cases have occurred when chloroform has been given to fat children or diabetics, with pre-existing acidemia, for a serious operation. *Treatment*

consists in copious infusions of solution of bicarbonate of sodium (one dram to the pint) both intravenous and rectal.

7. The laboratory tests include examination of the urine and the blood. *Preparation for operation:* "Whenever possible the patient should be under observation for at least two days before operation, in order that the patient himself, as well as the disease, may be carefully studied. The history is taken, and a thorough examination, especially of the heart, lungs, urine, and blood is made. The diet should be free of vegetables and consist principally of albumins, in order to leave little residue in the intestines, which are cleared by laxatives, usually calomel, ½ grain every hour for eight doses, followed by magnesium sulphate, half ounce. This prevents autointoxication, and in abdominal work renders the intestines docile, so that they may be kept from the operative field by gauze packing. Before operations on the mouth, esophagus, and gastrointestinal tract the number of bacteria in the alimentary canal may, aside from purgation, be diminished by removing carious teeth and tartar, frequently rinsing the mouth with an antiseptic wash, and sterilizing all food. Hexamethylenamine, because of its antiseptic effect upon the bile, the urine, and the cerebrospinal fluid, may be administered previous to, as well as after, operations involving the biliary tract, the urinary apparatus, and the central nervous system. The patient is given a daily soap and water bath, and should, in order to prevent 'colds,' wear an undershirt in bed, if so accustomed.

"The day before operation the part to be operated upon is shaved, and then, after disinfection of the hands, it is surrounded with sterile towels and thoroughly scrubbed with soap and water, using a sterile brush with soft bristles, or a piece of gauze if the skin is tender. Special attention is given to folds and creases in the skin and to such places as the umbilicus. The disinfection should extend around to the spine, up to the breasts, and down to the pubes, including the upper part of the thighs. After scrubbing with soap and water, the skin is rubbed with alcohol (70 per cent.), in order to dissolve the sebaceous matter and fat in the mouths of the glands, and thus clear the way for the bichloride of mercury solution, 1 to 1000, with which the part is next scrubbed. Gauze soaked in bichloride of mercury (1 to 2000) and covered with waxed paper, or, better, a dry sterile dressing, is applied to the disinfected region until the time of operation, when the whole procedure is repeated. A nervous sedative may be administered the night before the operation, if the patient is unable to sleep. No food should be given for at least six hours before operation, in order that the stomach may be empty and that vomiting may not occur. Several hours before operation the rectum should again be cleansed by a soap and water enema, one pint, so that any stimulating or nutritious fluids may be absorbed in case their injection becomes necessary. Immediately before operation the patient should pass urine or be catheterized, so that voiding will not occur on the table, so that there will be no danger of injury to the bladder, and so that the surgeon will know the exact quantity of urine secreted subsequent to the operation." (Stewart's *Surgery.*)

8. *Acute intussusception* "is most common in children. It begins suddenly with severe abdominal pain and vomiting. Blood-stained mucus is passed, perhaps with tenesmus. Collapse soon comes on, and may be fatal in twenty-four hours; otherwise death occurs in a few days from peritonitis. In most cases a 'sausage-shaped' tumor can be felt, usually along the course of the colon, but lower down, or just above the pubis. The right iliac fossa feels empty. A natural cure may follow, but rarely, from sloughing of the intussusceptum, while the peritoneal cavity is protected by adhesions uniting the entering and ensheathing layers.

"*Treatment:* The reduction of the intussusception at the earliest possible moment is the only treatment admissible, and this can only be done with certainty by operation. The abdomen should be opened over the tumor if it can be felt; if not, in the mid-line below the umbilicus. The intussusception is then reduced by squeezing out the entering portion, beginning at the lowest part. The intestine should never be pulled out, for fear of tearing it. If there is any difficulty, the wound must be enlarged and the lump brought out. If, owing to adhesions, reduction cannot be done, the intussuscepted portion must be excised through an incision in the ensheathing layer, but the outlook is bad in these cases. If the bowel is gangrenous, the condition is so bad that nothing more can be done than to bring out the coil and establish an artificial anus. If, owing to any reason, an operation is not possible, non-operative procedures must be tried. These consist of attempting to reduce the invagination by inflation with air, or better still, by fluid. A catheter is passed into the rectum, and fluid poured in from a funnel raised not more than 2 feet. A hand is placed over the tumor to feel when the lump disappears. The objections to this are that after twelve hours reduction cannot be obtained by this method; that valuable time is wasted if it fails; that you cannot tell if the last inch has been reduced (and if it has not, recurrence is certain); that it is no use in the enteric or ileo-colic forms; and that the bowel may be ruptured." (*Aids to Surgery.*)

9. *Treatment of osteomyelitis of the tibia* is immediate incision down through the periosteum; the surface of the bone must be opened with gouge or chisel, pus evacuated, and drainage instituted; irrigation with hot bichloride solution and packing with gauze. The medulla of the bone must be freely exposed, and any suppurating material removed. Constitutional treatment and rest are, of course, indicated.

10. "In the treatment of compound fractures the main object is to render the wound antiseptic and to give efficient exit to the discharges. For this purpose the patient should in all cases be anesthetized, the limb shaved, and thoroughly purified, and the wound enlarged and thoroughly washed out with some reliable antiseptic. It may be advisable to excise torn and dirty fragments of skin, muscle, and tendon, especially when dirt has been ground into them. Loose fragments of bone are removed and portions denuded of their periosteum may be taken away lest necrosis should ensue; where fragments retain any considerable connection with the soft parts they may be left without fear. When a sharp end of one of the fragments is protruding through a small opening in the skin it is first purified thoroughly before attempting its reduction and then replaced after enlarging the wound in the skin, or a portion sawn off. Hemorrhage is dealt with in the usual way, and the fragments are placed as nearly as possible in their normal position. If the fragments can be brought accurately into position it is well to fix them by some mechanical appliance; but where the ends of the bone are much comminuted the small portions must be arranged in position as well as possible, and no attempt made to wire them. A good-sized drainage tube is inserted, and, if need be, counter-openings are made; the external wound is closed or not, according to circumstances, and dressed, and suitable splints are then applied. Under such a régime the majority of cases do well. Immovable apparatus may be used after a time, windows being left in the plaster casing to allow wounds to be dressed." (Rose and Carless' *Manual of Surgery.*)

In case of Pott's fracture the fracture should be reduced by relaxing the calf muscles and applying traction to the foot. The limb must then be fixed on the back splint, with side splints in addition. The foot must be at right angles to the leg, the bony points in line, and the posterior displacement corrected. The surest way of maintaining the foot in good position is to at once apply plaster of paris. Other splints used are Dupuytren's and Syme's horseshoe splint.

HYGIENE.

1. The danger in surface waters and dug wells lies in the fact that filth, sewage, and, indeed, anything *may be* conducted into these waters. Hence, the possibility of disease being caused by drinking this water. The wells and springs should be at a distance from dwelling houses, especially from outhouses, privies, etc.; they should be well protected and covered, so that no extraneous matter can enter them. All shallow wells should be protected with good coping stones and good masonry for several feet below the surface.

2. Extra crowding must be avoided; animals should not be kept indoors; the maximum of sunlight and fresh air should be obtained; the plumbing and heating ar-

rangements should be in as good repair as possible; every case of communicable disease should be promptly reported and removed to hospital; the place should be kept as clean as possible; flies, rats and mice, etc., should be excluded; garbage and refuse must be removed promptly.

3. *Practical steps to prevent the spread of venereal diseases in a community:* (1) The scientific and practical control of prostitution (this is always opposed); (2) the education of the public on the dangers of venereal diseases (this is generally opposed); adequate instruction in hygiene in the public schools.

4. *Some of the ill-effects of school life on the health of children:* Dyspepsia, headaches, nervous troubles, chorea, epilepsy, neurasthenia, back aches, defective eyesight, spinal and other physical deformities, skin diseases, infectious diseases.

5. *The duties of a medical supervisor for a school* include regular and thorough inspection of the school premises and buildings; regular and efficient inspection of the pupils by physicians; prompt exclusion and isolation of any one suffering from a contagious disease, or coming from a house where such disease is; compulsory notification of all infectious and contagious diseases; individual towels, drinking vessels, and other implements; children who have had a contagious or infectious disease or who have come from a house where such disease prevailed should not be readmitted to school until sufficient time has elapsed since the occurrence of the last case to insure safety.

6. A *first-class eating apartment* should be clean, light, airy, well ventilated and (in winter) properly but not excessively heated; there should be no back yards with exposed garbage, no flies; plenty of water, and screens; the employees should be clean and healthy; there should be no cooking of food in the eating rooms; there must be adequate room for food storage, also ice boxes or refrigerators in clean condition; all the furnishings and table equipment must be clean.

7. *Ice* may be as impure as the water from which it is made; hence it may convey most of the diseases which can be conveyed by water: typhoid, cholera, colon bacillus infection, dysentery, etc.

8. The mosquito which transmits malaria is the *Anopheles.* Its wings are usually spotted; in the resting posture, the axis of the head, proboscis and body are in the same straight line; its body is of a dark gray or brown color; the female alone bites and transmits the *Plasmodium malariæ;* the larvæ float on the surface of water.

9. *Autogenous vaccines* should be used whenever possible. Being prepared from the patients' own bacteria they are much more likely to be curative than stock vaccines. In some diseases, such as pneumonia, vaccines made from one strain will not protect against another strain.

10. *Sewer gas* is a mixture of a number of gases, such as carbon dioxide, ammonia, hydrogen sulphide, and certain organic matters the result of animal and vegetable decomposition. When large quantities are inhaled there may result vomiting, headache, prostration, purging, loss of appetite, anemia, and general impairment of health.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

THE SURGERY OF ORAL DISEASES AND MALFORMATIONS. Their Diagnosis and Treatment. By GEORGE VAN INGEN BROWN, D.D.S., M.D., C.M., F.A.C.S. Third Edition. 734 pages. Illustrated. Price, $7.00. Published by Lea & Febiger, Philadelphia and New York.

IL COLPO DI CALORE. By Dott. SALVATORE GANGI. 293 pages. Published by V. Giannotta, Catania, Italy.

THE MEDICAL RECORD VISITING LIST, or Physician's Diary for 1919. Revised. Price, 30 Patients, $1.50; 60 Patients, $1.75 and 90 Patients, $2.25. Published by Wm. Wood & Company, New York.

Miscellany.

The Practice of Medicine in Cuba.—Dr. Lainé of Havana, who moved from Philadelphia to Cuba in 1898, recently gave an interesting account of his twenty years' experience on the island in the *Revista Medica Cubana.* Upon his arrival he found the Cubans practising in accordance with European traditions, especially favoring the French school. At this period, it will be recalled, the island was just undergoing its first experience under a free government. After the revolution the hospitals and other medical charities were left in a deplorable condition and the author was requested by the Military Commission on Evacuation to examine these institutions and report to them his findings. The author's first patient, seen in consultation with a Cuban colleague, was an American ill with typhoid fever in a large Havana hotel. When he returned the following day he found that the patient had been removed to the colleague's private clinic. Soon afterwards he saw in consultation a Cuban patient and was afterwards requested by the family to take charge of the case. The request he refused as unprofessional. The fee for a consultation at that time was but $10 instead of the $25 often demanded in the United States by exclusively consulting practitioners.

Of interest to the American medical visitor were the various institutions for the sick in which many thousands of individuals received treatment annually. These institutions were known in Spanish as quintas and at first sight seemed to represent a worthy charity, but they tended to pauperize the beneficiaries, while at the same time they influenced unfavorably the practice of medicine. The amount of good done was very small; but few physicians were employed and the emoluments of the latter were not large. Each medical attendant was obliged to examine and treat 70 or 80 patients in a few hours. A quinta physician once informed the author that in one day's service he had prescribed a laxative for 60 patients of the 80 who came to consult him. Diagnosis was, of course, out of the question in such cases.

The Cuban has the genuine American fondness for proprietary medicines. Salts and calomel are used in medicinal heroic dosage. The natives are great meat eaters and cookery is far from scientific. Ailments ascribed to excess protein consumption, as uric acid morbidity and arteriosclerosis, are common. The Cuban fears the night air and sleeps with closed windows. This fear was once well grounded, for the precaution doubtless was a wise one when insect-borne diseases prevailed. Nocturnal air is also relatively cold and very damp. Acute lobar pneumonia and acute articular rheumatism are both rare in Cuba. Scarlet fever, whooping cough, and influenza run a mild course. Dengue affects the eyeball in a specific way, causing both pain and tenderness to pressure. In conclusion the author cites the extreme natural conservatism of all Latin-Americans, and says that, bearing this in mind one may say that the medical profession in Cuba has accomplished a great deal in twenty years and has absorbed much good from the United States.

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Original Articles.

A CASE OF PERFORATION OF THE DUODENUM TREATED SUCCESSFULLY BY DUODENAL (JEJUNAL) ALIMENTATION.

BY MAX EINHORN, M.D.,

NEW YORK,

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PERFORATION of the duodenum may be advantageously divided into two groups: (1) Internal (intraabdominal). The symptoms are all internal, the perforation is usually the result of an ulcer which has ruptured. The whole catastrophe plays within the abdomen. The diagnosis is made with some difficulty, and also uncertainty. The treatment is surgical, and the sooner the condition is recognized and operated upon the better are the chances of recovery. (2) External (extraabdominal). Some of the symptoms involve the external surface of the body. The perforation here is generally due to some recent cause, trauma and the like, and occurs after operations, principally on the gall-bladder and its ducts. The rupture of the duodenum leads to a fistulous opening, which permits an outpouring of duodenal contents (food particles, pancreatic juice, bile) outside of the abdomen through the laparotomy wound. The powerful pancreatic juice irritates

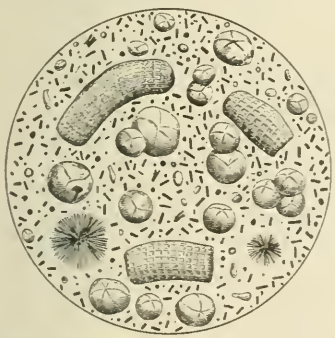

FIG. 1.—Miscroscopic picture of the contents from the fistula of Mrs. A. L. M. on March 13, 1918: Starch cells; muscle fibers; tyrosin crystals; fat globules; bacilli and cocci.

the wound surface and the skin, which undergo partial digestion. The surface surrounding the fistula is greatly inflamed and painful. The diagnosis is easily made with exactness (finding of food and pancreatic juice in the secretion of the wound). The treatment in this group is ordinarily more difficult, and the prognosis very grave indeed.

The case to be reported belongs to the second group. It will therefore be of interest first to discuss this variety more fully, detailing the prognosis,

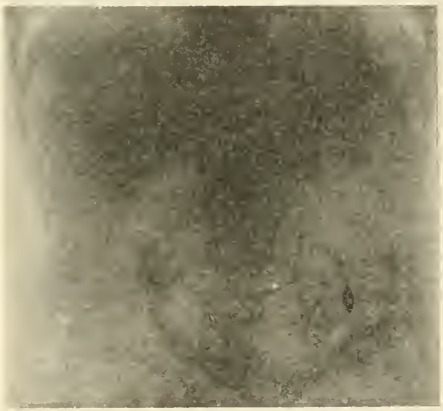

FIG. 2.—*X*-ray of Mrs. A. L. M., after filling the duodenal tube with a bismuth mixture. The tube is seen running along the stomach, duodenum and jejunum. April 26, 1918.

symptomatology and treatment. Then the case will be described and the new regime of treatment.

Most writers consider the prognosis of a perforation of the duodenum as very grave. Thus Pannett[1] says: "Recovery from a duodenal fistula, even with adequate surgical treatment, is a rarity. Only three cases are to be found in the writings of the last ten years."

Pannett operated upon his patient. The duodenal-jejunal flexure was identified, and a loop about eight inches from this drawn out of the wound. The afferent and efferent limbs at the base of this loop were made to communicate by a lateral anastomosis. A rubber catheter was sutured into the efferent limb of the loop according to the technique of Witzel for gastrostomy. The bend of the loop was then sutured to the parietal peritoneum and the wound was closed. Feeding through the jejunostomy opening was regularly performed, and food was also given by mouth. In ten days the fistula closed. Now the jejunostomy tube was withdrawn. No leakage took place. The patient made a rapid recovery.

Berg[2] thus expresses himself regarding the prognosis of duodenal fistula: "A duodenal fistula, unless it is of pinhole size, usually occasions a very rapid death from starvation."

In this paper Berg recommends a gastrojejunostomy and pyloric occlusion for the cure of duodenal fistula. He has performed this operation on two patients and had partial success in one. Berg also considers the point whether in cases of ruptured duodenum that may be followed by a fistulous opening it is advisable to resort to a primary gastrojejunostomy and pyloric occlusion in addition to repairing the opening in the duodenum, or to content ourselves at the first operation with direct repair of the perforated viscus. Berg answers this question with the following words: "If the peritoneal surfaces surrounding the perforated part are normal in character, and are not brittle or friable, or fixed in inflammatory or neoplastic exudate, we have every reason to expect a successful issue to our efforts at repair by suture; but if this healthy yielding condition of the surrounding peritoneal surfaces does not exist, it is not likely that the healing by suture will occur, and in such cases it would be wiser, if the patient's condition permits of it, to at once proceed to gastrojejunostomy and pyloric occlusion."

Palmer,[3] in a recent excellent paper on duodenal fistulas says: "Experience gained during apprenticeship from association and hearsay and in two personal cases forces me to conclude that fistulas of the duodenum following operative procedures are neither the rare nor the simple benign affairs the silence of the professional pen might lead one to conclude. Reference to this subject has almost invariably a pessimistic tone, and but little encouragement is given. The symptoms of duodenal fistulas are succinctly given by Palmer as follows:

1. Inanition is such as will occur following a fistula in no other part of the intestinal tract, and is comparable in effect to a break in a mill race above the water wheel—no power is obtained.

2. Dehydration rapidly follows unless energetically combatted by rectal or subcutaneous injections. This dehydration follows the loss of a large output of fluid in the form of bile (1 liter), pancreatic fluid (0.5 liter), etc., and also the interference with the fluid absorption.

3. A marked specific toxic action may follow the systemic absorption of the normal or changed secretions from the uncovered fistulous tract.

4. The digestive action of the normal secretions has full sway on the duodenal fistula and the tract leading to the surface, to such an extent that the hole shows a progressing enlargement, in contradistinction to the behavior of most other intestinal fistulas. Digestion of the skin of the abdomen and back is so rapid and unrelenting as to make the life of the patient a hardship to himself because of discomfort and pain, and to the nursing force because of the frequency of the needed dressings.

5. The secretions to be controlled are so varied as to render the problem more difficult than appears at first sight. These are the secretions of the stomach, the liver, the pancreas, and the duodenum itself.

6. Bleeding from the raw surface of the tract may assume alarming proportions.

7. Fat necrosis is sometimes observed in these cases.

8. Extension of the peritoneal inflammation may occur, owing to the digestion of adhesions.

9. The amount of discharge is out of all proportion to the size of the aperture; this may be due to the sphincteric action of the circular muscle fibers at this location.

Palmer had two cases of duodenal fistula which he successfully treated medically.

The expectant treatment, according to Palmer, has the following objects in view: (1) Protection of the skin and the tract itself against the digestive action of the secretions; (2) introduction of fluids and nourishment in quantities sufficient to maintain not only life but also the reparative power of the tissue; (3) reduction in the amount of gastric and intestinal secretions; (4) neutralization and dilution of these secretions.

1. The use of a low-melting-point paraffin applied hot to the dry skin is good. . . . For the tract itself the injection of liquid petrolatum and zinc oxide ointment to the bottom of the tract is not only painless but is apparently of benefit; and liquid petrolatum, because an inert mineral oil, should be given by mouth in large doses, so that it may in part coat the fistulous tract from within out.

Fig. 3.—Same as Fig. 2, after the ingestion of barium and sago into the stomach. The tube is discernible as above. The stomach is visible as a mottled area above the capsule end of the tube. April 26, 1918.

2. Glucose (10 per cent.) by rectum, with plenty of sodium bicarbonate. Later, when food is given by mouth it must be such as will produce the least secretory stimulation.

3. Milk, fats, oils are then permitted, while beef extracts are forbidden. Alkalies, atropine, and epinephrin are recommendable.

In the foregoing the expectant medical treatment, as outlined by Palmer, and the surgical treatment as suggested by Berg and Pannet, have been described. In short, the principle consists in keeping the stomach and duodenum as empty as possible, while the organism should receive as much nutritive material and fluids as conditions permit. In the medical plan of treatment the main avenue of nutrition and fluid instillation is the rectum. In the surgical regime the jejunum is utilized for nutrition, either by a jejunostomy (Pannet) or by a gastrojejunostomy and pyloric occlusion (Berg). The pyloric occlusion serves to divert the chyme from entering the duodenum and irritating the fistulous opening.

The duodenal tube, when made to reach the

jejunum can accomplish all that the suggested operations do without the necessity of cutting. It furnishes at once a perfect canal for the introduction of nutritive material and fluids into the jejunum and it also prevents the entrance of chyme into the affected duodenum. The stomach being kept without food, there is usually no gastric juice. If there should be gastric secretion anyway, additional medication with atropine will accomplish its cessation.

The plan of treatment will, therefore, consist in introducing the duodenal tube (a long one) into the jejunum, and as soon as the tube has reached this place to commence feeding according to the rules of duodenal alimentation.

Duodenal alimentation was first used in a perforated gastric ulcer by Dr. N. de Rosas,[1] with perfect recovery.

A similar plan of treatment was successfully carried out by Dr. Willy Meyer and myself in the following case of perforation of the duodenum. We are both confident that this measure saved the life of the patient, for she was not in condition to have stood the risks of any additional operation.

Case.—On July 1, 1917, Mrs. A. L. M., about 40 years old, had a severe attack of pain in the upper abdomen, lasting ten days, and requiring codeine to allay it. The pain radiated toward the back and was quite pronounced below the right shoulder blade. There was tenderness over the region of the gallbladder.

On September 6, 1917, there occurred another severe attack of abdominal pain, lasting twenty-four hours, with remission for thirty-six hours, and reappearance for twelve hours. Patient felt chilly during the attack.

On September 21, 1917, patient complained of some discomfort in the epigastric region. There was tenderness on pressure in the epigastrium, principally under the right costal margin.

From October 11 to 15 I had the patient under observation. The gastric contents showed HCl + acidity = 40; the string test was negative; the examination of the duodenal contents in the fasting condition showed greenish brown, turbid; Alk = 20; A = 8; S = 2; T = 3. The digestive test capsule passed in forty-eight hours, all the test substances having disappeared. The *x*-ray revealed a somewhat enlarged gall-bladder, with probable stones. The blood showed no leucocytosis. The diagnosis was cholecystitis with probable gallstones. While in the hospital the patient had another attack of pains and became slightly jaundiced.

The patient was operated upon on October 27, 1917, by Dr. Willy Meyer. The gall-bladder was found to be distended, dark (not bluish), with greatly enlarged blood vessels. No stones in bladder or ducts. Diagnosis: "Cholecystitis without stones." Cholecystectomy was performed, the cystic duct tied with chromicized catgut; the gall-bladder, when incised after removal, showed velvet-like mucosa and was dark brown. The bile, aspirated before incision, was dark brown like Kulmbacher beer. Twelve hours after the operation bile appeared in the dressing. A few days later jaundice developed. The wound drained plenty of bile and patient gradually improved. She left the hospital November 25, 1917.

The loss of bile from the wound continued to be excessive and jaundice appeared as soon as the flow lessened. Patient lost considerably in weight. At times, when the bile did not drain off well from the wound, she suffered from colicky pains. This condition continued from November, 1917, until February 18, 1918, in spite of all attempts to bring the biliary fistula to a close. Then, with no prospect of improvement, it was decided to have the patient undergo a secondary operation, with the object of finding and removing, if possible, the suspected stone in the common duct.

On February 21, 1918, Dr. Willy Meyer undertook this operation. After a most thorough exposure and painstaking search the task had to be given up, as the patient's condition became so alarming that any further handling might have had a fatal issue. It had been intended to open the duodenum and probe the bile ducts through the papilla of Vater as a last resort for bringing relief. The wound was closed by sutures and drained. On February 24 and 25 there was continuous profuse parenchymatous bleeding from the wound, necessitating a blood transfusion, which was done on February 26 with much success.

After gradual improvement, patient felt much worse on March 10, was restless, and complained of an intense itching and burning in the wound and on the surface of the skin surrounding it. The skin looked dark red and somewhat eroded. The contents of the fistulous opening had a yellow brownish turbid look. Upon examining the contents we found pancreatic juice and bile in it, and also food particles; the specimen obtained from the wound was turbid, dark yellow, with a tinge of green, and sediment; Alk = 55; A = 3; S = 1.5; T = 11; microscopically: muscle fibers, starch cells, and tyrosin crystals. (See Fig. 1.)

A perforation of the duodenum had, therefore, taken place, making the patient's condition very grave. On March 12 I introduced the duodenal tube, which did not enter the duodenum until the morning of the 14th. We had selected a specially long tube and we made it pass beyond the duodenum into the jejunum (95 cm. from the lips). Patient was first fed in the usual way through the tube by the syringe method, giving her the standard milk, egg, and lactose mixture. She, however, complained of so much nausea, fullness, and distress that Dr. Meyer and myself decided to give her milk and lactose through the duodenal tube by the drip method. She took three quarts of milk and a considerable quantity of lactose and also saline daily, which she stood very well. On April 2 the old tube was removed and a new one introduced. Patient during this time had picked up considerably in strength and probably also in weight. The skin near the wound looked normal and there was not much flow from the wound noticeable.

On April 19 the fluid collected through the wound from the fistula showed: yellow clear; A = 0; S = 0; T = 0; no food remnants. This indicated that the hole in the duodenum must have healed. On April 26 an *x*-ray was taken showing the tube in the jejunum (see Figs. 2 and 3). On April 29 the tube was removed. On April 26 the bile stopped flowing from the wound and the patient had a chill with a temperature of 104°. When the bile began to flow the temperature went down to normal. This occurred again on May 1 and 2, when the temperature rose to 106° and jaundice increased. On May 10 the duodenal tube was reintroduced with the object of flushing the system and in this way allaying the septic state. The bile began to flow profusely on May 15, and the patient began to improve. In the bile from the fistula there were never any more food particles found nor pancreatic juice. On June 6 the duodenal tube was definitely removed. In order to build the patient up and save her from the great loss of bile through the fistula, the bile was collected in a bottle and twice daily poured into the stomach by means of a catheter.

Patient has since picked up considerably in weight and is up and about. There is no jaundice. Still there exists some leakage from the fistula, which is kept open by means of a small drainage tube. The greater amount of bile flows into the duodenum; stools are well colored. The patient needs further treatment and probably another operation.

Remarks.—In our patient, perforation of the duodenum had taken place some time after a laparotomy. Patient was then so weak that operative intervention could not have been thought of. Nor would any expectant plan of treatment have been of any material assistance. The rectum would not have sufficed to keep the patient alive for the long period required for the healing of the fistula. Jejunal alimentation at once removed all the obstacles and smoothed the way toward recovery.

There seems to be no doubt that the jejunal ali-

mentation is the ideal plan of treatment for perforation of the duodenum whenever the fistulous opening leads to an external wound (second group of duodenal perforation). In the first group of perforation (usually duodenal ulcer) an operation is always demanded, and suture of the duodenum after infolding is frequently done. If the tissue is brittle, and there is danger of bursting, Berg recommends, as mentioned above, an additional operation of gastrojejunostomy and pyloric occlusion. I would venture to suggest, instead of adding this operation to use jejunal alimentation right after the laparotomy. This will surely do as much good as the operation of gastrojejunostomy. It has the great advantage of not being connected with any risks and of establishing adequate nutrition right from the start. Another advantage is that by this régime the physiological relations of the viscera remain undisturbed, while a gastrojejunostomy, especially with pyloric occlusion, creates new conditions to which the organism must gradually adapt itself, sometimes with difficulty.

This suggestion does not apply to operations which produce a considerable narrowing of the lumen of the duodenum; here a gastrojejunostomy with pyloric occlusion is a necessity which cannot be obviated.

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20 East Sixty-third Street.

A CASE OF LABYRINTHAL MENINGITIS,

WITH SUGGESTIONS FOR A NEW LABYRINTH OPERATION.*

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On or about the 7th of April, 1917, Mr. W. R., age thirty, called on me with the history of a discharging ear over a period of years. He stated that this foul discharge, together with headache and at times dizziness, was so unpleasant to him that life had become unbearable, and that on several occasions he had very strongly contemplated committing suicide. The patient had already undergone a radical mastoid operation in Texas the year before, but, if anything, his condition had been worse since the operation.

His physical examination showed a large perforation in the upper posterior quadrant of the drum, from which exuded a foul discharge. The posterior bony canal wall was partially down, and the canal showed evidence of an incomplete radical operation. At the time of this examination, I could not understand why it was that the operator had not finished the radical operation, and it was only at the time when I operated that I discovered a far forward sinus, which had been exposed at the time of the first operation. The operator at that time seems to have been inexperienced and to have hesitated going further, after having exposed this far forward sinus. The patient was not totally deaf in the diseased ear. A radical mastoid was recommended and the patient was admitted to the New York Eye and Ear Infirmary on April 9. At the time of this radical operation, much to my surprise, the necrosed area seemed to be along the floor of the middle ear and to involve the internal wall of the middle ear, especially in the region of the round window. A fistula could not be demonstrated. In my endeavor to remove all necrosis, I fear that at this point in the operation, as I now look back at it, I must have injured the internal wall of the middle ear in the region of the round window. I especially mention this on account of the relation it had with the subsequent symptoms and final outcome of this case. The patient progressed satisfactorily until, on April 11, two days after the operation, he complained of being dizzy and showed a nystagmus towards the healthy ear. The patient complained of dizziness for three or four days, until on April 14, six days after the operation, his temperature rose to 103.5°. From April 9 to April 14 his temperature fluctuated between normal and 100.5°. On April 15, the seventh day after the operation, his temperature rose to 106°. Nystagmus stopped; the patient was totally deaf in the diseased ear. I mention the fact that the patient was totally deaf and his nystagmus halted, as a demonstration that we were here dealing with a dead labyrinth, and because of the fact that according to the Vienna school, the fact of a dead labyrinth occurring in the course of labyrinth disease, associated with meningitis, is a prima facie ground for doing the labyrinth operation. The patient, at this stage, April 15, became unconscious and presented very marked symptoms of meningitis. He had a stiff neck and showed Koenig's sign. He also had a high spinal fluid cell count. This is the case mentioned by Dr. Perkins at a recent session of the Academy of Medicine in his paper on the peculiarities of the spinal fluid in cases of this type. He stated at that time, and has since stated to me personally, that notwithstanding the fact that my patient recovered, having the symptoms of a true case of meningitis following a labyrinthitis, with total destruction of the labyrinth, this labyrinthitis following the radical mastoid operation, I should have done the labyrinth operation. He could not account for this patient's recovery. After April 15 the patient's temperature gradually dropped. He regained consciousness, and except for the fact of facial paralysis, which followed the operation and which is now almost entirely cleared, the patient made an uneventful recovery and was discharged from the hospital April 30. His wound was dressed by me for several weeks after his discharge, and he now has a perfectly dry cavity and is in excellent shape. I have asked the patient to appear here to-night for your inspection.

I have given this case considerable thought, and I attribute his recovery to the fact that the diseased area involved the inner wall of the middle ear, that this wall was soft and necrotic, and that it was further accidentally injured at the time of the radical operation in my anxious endeavor to remove all necrosed bone; that it was through this passage, by way of the internal auditory meatus that the labyrinth was destroyed and that meningitis took place. This wall afterwards broke down (at my subsequent dressings there was a discharge of spinal fluid) and I was able to pass quite a large-sized probe down to the internal auditory meatus. I kept the cavity firmly packed up to almost the end of the last dressing. It is for this reason, if you will examine the patient, that the radical cavity granulated almost up to the surface, and that the radical cavity itself became entirely obliterated. With the experience of this case in mind, and with its evident recovery due to a direct drainage from the meninges through the internal auditory meatus, through the internal ear, middle ear, etc., through an accidentally artificially created opening, the possibilities of a new labyrinth operation have made themselves apparent.

Before actually outlining the operation a few preliminary remarks might be in order.

*To be read at a meeting of the Otological Section of the New York Academy of Medicine, January 10, 1919.

First, the operation is intended as a radical measure, as a last resort in meningitis coming from infection through the labyrinth and infecting the meninges of the internal auditory meatus. It might be used as a last resort following the usual operation, for the relief of diseases of the labyrinth. These various labyrinth operations which I have in mind all bear very close relationship and have been variously outlined by other otologists, notably Jansen, Hinsberg, and in America Richards. These operations are intended, as I understand it, for the relief of purulent diseases of the labyrinth, and not as a means of draining infection from any area involving the meninges. If they are intended for drawing away infection when it has once reached the brain covering, thereby causing a meningitis, to my mind they are notably deficient. In fact, as I look at it, meningitis is very often due directly to the labyrinth operations here referred to. The technique of these operations is well known, I am sure, to all of you; but referring to them again in a general way, the substance of these operations consists in draining the labyrinth by opening up the various semicircular canals and then by taking away a part of the inner wall of the middle ear down to and covering the first turn of the cochlear, thereby draining the labyrinth. These operations are very often done after actual development of the meningitis. To my mind, they have little effect in relieving the meningitis, and their sphere of usefulness at its seat in the meninges and to drain it over as wide an area as possible, and I believe that the operation which I am about to outline will find a field not only for local involvement and the involvements of serous meningitis, but that it will have should absolutely be limited and demarcated as operations for infections involving the labyrinth and the labyrinth only. The advocates of this type of labyrinth operation all emphasize the fact that the operation must be done with extreme attention to detail, and that great caution must be used in removing the various layers of bone, so that the modiolus will not be injured and thereby cause a flow of cerebrospinal fluid, opening a passage directly to the brain. I repeat again, and strongly repeat, that the forms of labyrinth operation herein referred to should be limited strictly to the purpose of draining the labyrinth. When meningitis has taken place these operations are useless. The object then becomes to drain the point of infection

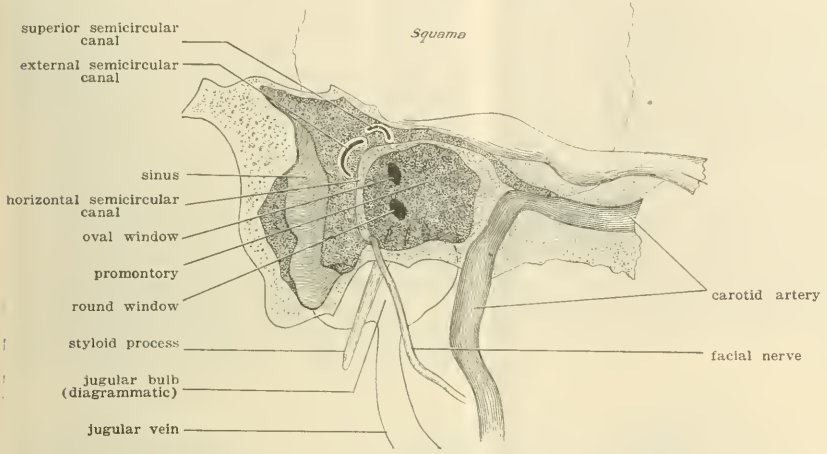

FIG. 1.—The normal bone.

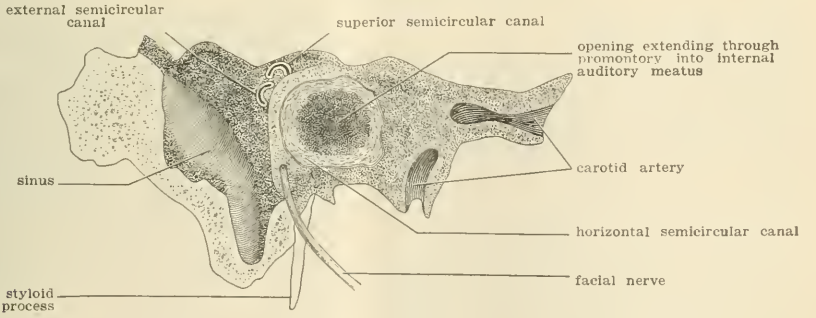

FIG. 2.—Destruction of the promontory and opening through into the internal auditory meatus.

a field for diffuse meningitis, even of a purulent character, if the area of meningeal involvement is not too far out of the area of drainage.

The only procedure that we have at the present time to combat meningitis of the type which I am now describing is the Neumann operation, which consists in working down on the posterior border of the petrous portion of the temporal bone, the object being to open into the internal auditory meatus. To my mind this procedure appears to be insufficient; it does not drain the area as intended, it is extremely difficult to do the operation well, and there is always great danger of fracturing off the petrous bone through the internal auditory meatus forward.

The object of my operation is to drain as wide an area of the meninges as possible. The meninges must be exposed over a large surface; the opening leading into the meninges must be large and the drainage directly out into the radical cavity, where the wound can easily be handled—not through a small opening, but through a large opening directly under the eye.

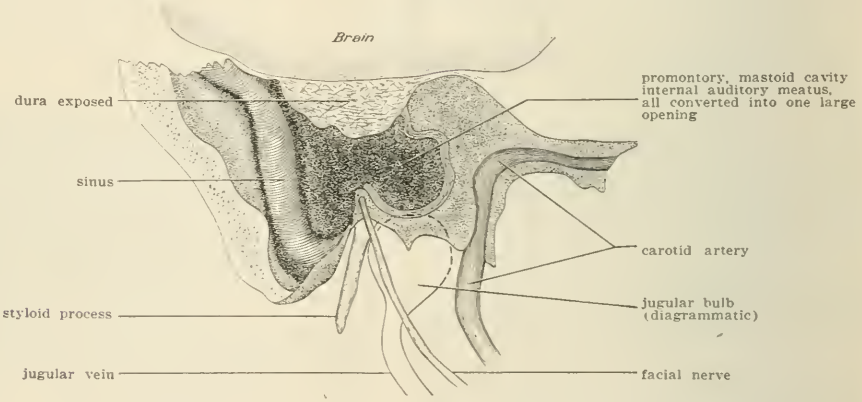

FIG. 3.—The completed operation.

Technique of the Operation.—First: Performance of the radical operation.

Second: The radical operation must be carried to its furthest limits; the facial ridge must be cut down to its very last shaving; the middle ear must be curetted till the bone surrounding it is extremely thin; in other words, the middle ear cavity must be enlarged as much as possible. The sinus should be exposed from above the knee, and exposed and followed downward toward the bulb as deep as possible. The bone in front of the sinus must be cut away as deep as possible, exposing the soft parts beyond; the dura outlining the middle cranial fossa above the middle ear should be exposed as deeply and as far forward as possible; in fact, the dura should be exposed over such an area that it will form a junction with the dura covering the sinus region, and the exposure should extend as far forward as the superior semicircular canal. The dura outlining the middle and posterior fossæ and covering the sinus should be exposed; the horizontal and external semicircular canals, and, if possible, the superior semicircular canal, should all be brought into view.

Third: The promontory is now opened, and a direct passage is made through it, so that the internal auditory meatus communicates through a direct passage with the middle ear. The modiolus and whole internal ear should be broken down, and this communicating path between the internal auditory meatus and the middle ear should be made as large as possible. When the modiolus is broken down, and the internal auditory meatus opened, there will be an escape of cerebrospinal fluid; the passage must then be packed tightly, as we enter upon the final stage of the operation.

Fourth and final stage: The bridge of bone now remaining between Trautman's triangle posteriorly, and the middle ear, which holds the facial nerve and the horizontal, external, and superior semicircular canals, should be broken down and absolutely destroyed; you have now exposed a large area of dura and have converted the anterior and posterior portions of the radical cavity into one large cavity. In other words, the brain is exposed over an area extending from the carotid artery in front to beyond the sinus behind, and the area of dura in the region of the internal auditory meatus has a straight passage for draining to the outside.

It seems to me, regarding this operation, that there would be two points of criticism: the first, the destruction of the facial nerve. This should be offset by the fact when you consider that this operation is indicated only as a last extreme measure to save life where death is practically certain; under the circumstances, the facial nerve should be sacrificed. The other objection might arise that opening of the modiolus causes a loss of cerebrospinal fluid; and that by opening the internal auditory meatus you open a direct pathway for infection to the meninges; but in this connection it must be remembered that the meninges are already infected, and that if infection cannot enter it also cannot escape. The destruction of the promontory and wide opening of the internal auditory meatus make possible drainage of this area of infection. This is a fact that cannot be denied.

Further, in this connection, and as regards the

escape of cerebrospinal fluid, I desire to call attention to the work of West & Scott, who describe an operation of drainage of this area by means of a wire drain. I discovered their work in reviewing the literature concerning this subject. I consider it of greatest importance that this radical labyrinth cavity be finally packed and drained by means of gauze. I mention this because of the fact that when gauze is used the tissues have something substantial around which to build and to demarcate the infection. A large quantity of infectious material is absorbed very quickly by gauze.

50 East Forty-second Street.

SYPHILIS IN 1918.

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THERE follows in the train of every great war in history a notable increase in the venereal diseases, and the present war is no exception, other than that the percentage of increase in syphilis is unprecedented.

For the first time the American army is sent to European shores to battle in the cause of right and justice. The menace to the health of our troops in the ever-increasing percentage of syphilis found in every part of England and France would seem to make this an opportune moment to review the progress that has been made to combat this disease, and particularly the latest accepted, and, so far, most reliable remedies brought before the profession.

After my graduation from the medical department of the University of France I looked about me for some service in particular to follow, and attachd myself to the celebrated Fournier at St. Louis. Several months after the commencement of my service, at the close of the morning clinic, he reviewed the work of the morning, as was his habit, and concluded somewhat as follows: "Gentlemen, what is syphilis? We don't know. Where did it come from? We don't know. Can it be cured? We don't know. Has it ever been cured? We don't know." Much that I had encountered in the work before this had seriously discouraged me, and following this frank confession of the impenetrable mystery shrouding syphilis I hung up my hospital blouse and apron for the last time at the clinic of that great master and turned my attention to the field of gynecology, finally attaching myself to the service of that great master and savant, Richelot, who still lives and works, and whom I count among my oldest and most valued of masters and friends. Being incapacitated for further surgical work by the injury I received at the front, I was transferred to the medical service, and attached to the present great Fournier (Louis) in the syphilitic wards of Cochin Hospital, just as he was commencing the systematic proof of the value of the new remedy for syphilis, discovered by Danysz of the Pasteur Institute. Two years' experience with upward of 10,000 cases exhibiting every phase of this dread disease has fascinated me anew with the antiquity of its origin, mystery of its history, and terrifying consequences attending the neglect of proper treatment, not only to the subject, but to succeeding generations, typifying the law "I will visit the sins of the fathers upon the children unto the third and fourth generation."

With respect to present conditions in France, the lewd women from all parts of the interior have flocked to Paris, where they are the most likely to encounter the soldiers on leave, making this city a hotbed of prostitution, and General Pershing has recognized the danger, and made it difficult for men to visit Paris. In the genito-urinary clinic of Cochin Hospital, prior to the war, three out of every one hundred applicants for admission were affected with syphilis. Our statistics for 1917 show that twenty-one out of every one hundred are so affected. Professor Gaucher, who until his death a few months since was in charge of the clinic at St. Louis Hospital, said:[1] "Whereas before the war, in round numbers, out of 3,000 clinical patients 300 had syphilis, or 1 in 10, during the first months of the war these increased to 800 in 5,000, or 1 in 6. During the last eight months of 1916 this increased to 600 in 2,300, or 1 in 4. I therefore find that from August, 1914, to the end of December, 1915, the ratio of syphilis had increased more than one-third, and from January to August 1, 1916, it had increased more than one-half, and since then has advanced to almost two-thirds." (January, 1917.) By the report from Cochin Hospital in October, 1917, syphilis is shown to have increased seven times since the outbreak of the war.

It is only a few years ago that we thought we had come to a perfection of knowldge in the use of mercury and iodide that gave practical assurance of ability to control and subdue syphilis and give security to the patient from the effects of its ravages; the first-named remedy playing by far the most important rôle because of its proved activity at all stages of the disease, from the appearance of the chancre to the remote accidents of the teriary period; the iodide filling a well recognized requirement at every stage where is found cellular infiltration, from which are derived the gomma and sclerose conditions, and therefore most commonly employed in the tertiary stage. Outside of the "curative" properties of mercury, it was also recognized to possss certain preventive action not attributable to the iodide. The great Fournier was convinced, and taught, that mercury, and it alone, possessed the quality of prevention of relapse of secondary accidents, and that it alone, administered with perseverance over a long period, was capable of preventing the disease from advancing to the tertiary period.[2]

The preventive properties found in mercurial treatment were found most prominently presented in the new-born. Innumerable have been the records of cases where the infected father or mother has submitted to a prolonged mercurial treatment, the curative qualities of which were demonstrated by the birth of a healthy child, following a previous history of a series of miscarriages or death of the offspring at an early age as the result of hereditary infection.

Two methods have for a long time been recognized for the direction of the treatment: One very properly termed the "opportunist" the other the "pre-

ventive." The first was employed only when the symptoms of the disease manifested itself, and as a consequence was confined to the treatment of the disease in activity and lost all controlling influence over the latent condition. The treatment was discontinued with the disappearance of active symptoms and as a consequence the disease little by little made progress by stages to the period where the tertiary accidents were manifested.

Fournier who for a long time weighed and discussed the opportunist treatment, finally by weight of his great authority and influence secured the general adoption of his method of "chronic mercurialization," a series of treatments by this remedy, separated by regulated periods of repose. His treatment was governed by the following rules:

The hydragyric treatment ought to commence at once that the existence of a true chancre is recognized.

The treatment should at once be pushed to the most intense degree that can be supported by the patient, rapidly increasing the dosage to the limits of toleration.

No matter in what form the mercury is employed, metallic or salts, soluble or insoluble, the patient is submitted to an intermittent treatment, but successive, regulated as follows: The first and second years' treatment by mercury alone, for periods of twenty or thirty days; the first year repose of one month between each period of treatment; the second year, periods of two months of repose between each period of treatment. The third year, the iodide of potassium is added to the cure; giving one month of mercury followed by one month of iodide, followed by two months of repose. Maintained in that ratio during the year. The fourth and fifth years, two cures analogous to the above with two intervals of four months each.

Fournier in later years was struck by the frequency of refractory cases, giving evidence of secondary symptoms, after the five years of regulated treatment which had not destroyed the disease germ. Tormented by the failure of mercury to check the progress of the disease to the grave tertiary forms (tabes, general paralysis, leucoplakia), he counselled the continuation of the mercurial cure over the seventh and ninth years (corresponding to the most frequent evidences of these tardy accidents) by intensive application of frictions or by injection.

Marriage was considered unsafe until four years had elapsed since the patient was seized, and the disease had been subjected to at least three years of intensive treatment with mercury, there being a minimum of one year since the subject had exhibited any signs of the disease; and as an additional precaution a month's treatment should be administered prior to the wedding.

During the past few years all of these opinions and conclusions, based upon so many years of patient study and experiment, have been brought into question; the value of therapeutics heretofore employed, direction and duration of the treatment, together with many new problems attached to both, have been discussed with new vigor. It can be said that never has the therapeutics of syphilis had a greater number of students or been more persistently and passionately studied than in those years just preceding the war.

Three important factors have, in our judgment presided over the active researches made: (1) The discovery of the syphilitic parasite in 1905 by Schaudinn and Hoffmann. (2) The discovery of the seroreaction by Wassermann in 1907. (3) The new ideas of the liability and frequence of the infection revealed by the lumbar puncture and study of the cerebrospinal fluid. (Widal.)

The discovery of the treponeme and its study, established its analogy, more or less marked with the parasites of the order of the Spirilla. Ehrlich and his principal collaborator, S. Hata, for a number of years pursued with unflagging persistency the study of chemical bodies susceptible, on the one hand, of fixing upon these parasites, upon the chemioceptors of their protoplasma, and on the other hand, of a toxicity sufficiently feeble to permit of administration in destructive doses without injury to the human organism.

These experiments made upon recurrent fever (Ehrlich and S. Hata, Iversen, Bitter and Dreyer) upon the spirillosis of chickens (Ehrlich and S. Hata), frambesia (H. Nichols) showed that the best results were furnished by a series of arsenical agents: first, by the derivatives of phenyl-arsenic; later more remarkable results were furnished by other arsenical derivatives of arsenobenzol. Ehrlish and S. Hata commenced the experimental treatment of rabbits, inoculated with the syphilitic germ (keratitis, orchitis, syphilis of the scrotum), and secured the radical abolishment of these lesions by a single dose of dioxydiamino-arsenobenzol, and in 1910 it was presented to the profession as the savior of an afflicted race in the form of salvarsan. realizing by a single treatment the sterilization of the human organism infected by the treponeme (*therapia sterilisans magna*).

The Wassermann reaction then took place as the arbiter of the efficacy of treatment declaring whether or not the organism was freed from infection, the reaction being positive in presence of the germ, or negative where the germ remained latent or had been driven from the blood current and the subject was freed and pronounced cured. It also served in suspected cases to demonstrate the presence or absence of the infection.

In the presence of this great step in advance in the recognition of the malady, the empirical methods of treatment heretofore in vogue became obsolete. We are now in possession of a scientific means of determining at any moment when the subject is infected, the duration of the disease, when it reappears, and when the cessation is definitive.

The systematic practice of lumbar puncture in the subject of syphilis (Widal, Ravaut, Milian. Jeanselme and Vernes) permits the establishment of the frequency with which the nervous system, always immune during the primary stage, is invaded at the secondary period and chiefly in those who have submitted to no treatment up to the manifestations at this time; when found it presents most frequently in form of a latent meningitis, purely histological in character, at times expressing itself clinically in form of headache; very rarely may be found a type of acute meningitis; in any case, the alterations found in the fluid which normally is always sterile, consist in a hypertension more or less marked, albuminose (globulin) in quantity

equal to 20 grams, lymphocytosis of a variable intensity.

The prognostic importance of these early evidences is easily understood, if the later anatomopathological and clinical development of tabes and general paralysis has its beginnings (Babinski, Widal, Nageotte, Ravaut, Vincent, Sézary, Jolivet) in this histological meningitis.

The result of these additions to our knowledge has given rise to certain rules of procedure in the diagnosis, control, and cure of syphilis.

Put into action at the earliest moment possible, an energetic antisyphilitic treatment before the general infection of the patient has been realized, before the state of immunity has become established, and reinoculation by the chancre is possible, while the Wassermann test still gives a negative result, and the cerebrospinal fluid still presents no alteration, say within twenty days after the appearance of the chancre, permits us to hold out the hope to every patient of a radical and permanent cure and to realize it in a certain number of cases, the fact of which is proved by his or her reinoculation at a later period.

During the treatment the progress of the malady must be constantly recorded by the repeated examination of the blood, to the period where the Wassermann test gives a persistently negative result and the sterility of the cerebrospinal fluid, gives proof that the syphilitic infection has been completely driven from the system.

If we examine the different forms of medication employed to secure this result, by those authors whose extensive experimental studies and long years of practice lend to their opinions almost the weight of law, we find they are a long way from being in agreement. The number and variety of products that have issued from the German and French laboratories for the cure of syphilis during the past ten years are almost legion, and have built up a certain following in every instance, so much so that we can say that after the introduction into France in 1910 of the 606 of Ehrlich, the syphilographists have divided into two camps, one that supports mercury as the only safe, sane, and certain cure, the other equally as persistent advocates of arsenic as the only radical curative agent. Recently a third group has slowly and gradually been attracting public attention by the moderation but persistency of their published opinions favoring an eclectic treatment, combining both mercury and arsenic. In order that the reader may form an intelligent opinion of the merits of the present-day treatment of this dire malady, I want to lay before him a clear résumé of these three doctrines.

The agents actually employed in the mercurial treatment of syphilis are various, comprising the metal itself or its various salts, both soluble and insoluble. The methods of administration are equally various, but a certain number have fallen into disuse. Injection by the buccal route which at first was the rule, is now less frequently employed. Mercury was used in pill form (blue pill), in powdered form (gray powder, hydrarggram cum creta) the protoiodide in pill or powder (gram 0.10 per day), the bichloride in pill (Dupuytren gram 0.10 two and three times per day) the lactate (Gaucher). The administration by friction is now less employed, yet nevertheless in doses of 4 to 8 grams per day, thoroughly rubbed in, Neapolitan ointment, constitutes an active and powerful treatment and produces rapid results. It will ever remain an energetic means of treatment in acute cases. More especially in those exhibiting cerebral accidents.

Intramuscular injection constitutes to-day the favorite mode of administration. We use the soluble salts in daily injection or an insoluble product suspended in oil, injected every fifth or seventh day; this deposits in the tissues a provision of the remedy to be slowly absorbed by aid of the interstitial juices. All of these injections are made with great care as to aseptic precautions, using a needle 6 centimeters long, under the aponeurosis of the thigh, at well-determined points (points of Smirnoff and Galliot). Ordinarily these are made in two time; the needle is introduced the full length and if no blood appears by aspiration the syringe is adjusted and injection made.

The soluble salts most frequently employed are the benzoate (solution 1 in 100: 0.01 to 0.03 gm. pro die) the biniodide (aqueous solution 0.03 gm. pro die) the bibromide, which is, as a rule, accompanied by considerable soreness and pain (0.018 gm. per centimeter cube of solution) the cyanide (first used by the oculists and much employed for intravenous injection, every day or every two days in dose of 0.01 gm. per centimeter cube of distilled water).

The injection of the soluble salts has the great advantage of permitting an exact dosage, easily regulated following the indications in each patient. An objection which has been brought against them is that they demand great care and attention to secure expected results and avoid accidents of faulty administration; but the technique becomes a matter of habit with frequency of administration.

In the injections of the insoluble forms, mercury itself suspended in vaseline oil (gray oil) in the proportion of 40 to 100 of actual weight, represents 0.02 gm. of Hg. per division of the Pravaz syringe. Commercially there are syringes of the Barthelemy type which give 0.01 of Hg. per division. We inject each week 7 to 8 divisions, using as a rule dosage 0.01 gm. per kilogram of weight of the patient. Gray oil is a form of medication much favored at the present day; it is benign, free from many inconveniences attached to other forms. It is efficacious, but has not the intensive effect wrongly attributed to it by some authorities. It has the inconvenience of sometimes giving rise to pain and at times leaves at the seat of injection a nodule that remains painful for some time. It has been responsible for some grave accidents, even of death, and for this reason has created some irreconcilable adversaries. We will later consider these objections and their consequences.

Calomel suspended in vaseline oil or olive oil in proportion of 0.05 gm. per cubic centimeter injecting 1 to 2 c.c. per week furnishes a medication of superior activity. Unhappily it is as a rule very painful, giving rise at times to violent sciatic pains, not immediately, but the next day or the day following. An effort has been made to overcome this inconvenience by the addition of cocaine, guaiacol, orthoform (Duret), of camphor, of calomel of Zam-

belitti. It has been known to cause aseptic abscesses, free from pus, of a chocolate color.

The salicylate of mercury suspended in vaseline oil 0.066 gm. per cubic centimeter cube (0.5 c.c. dose, twice a week).

In addition to the criticisms we have cited, as made against the employment of the insoluble forms of mercury, there remains the fundamental objection that it is a blind treatment in which it is impossible to demonstrate with any certainty the amount or rapidity with which the injected material is absorbed and the clinical observations go to show that this process varies widely in different subjects.

The iodide of potassium is employed chiefly internally (solution of 1 gram to the tablespoonful) 2 to 10 grams in the twenty-four hours, largely diluted and taken with meals. With those who show gastric intolerance or difficulty in swallowing the mixture, it can be administered by way of rectal injection (2 to 6 grams in 200 grams of milk with 10 drops of tincture of opium, and finally by hypodermic injection (Bouchard, Bousseau) 0.50 gm. per c.c. repeated from 3 to 5 times in the 24 hours, 2 c.c. to the dose. These injections are more or less troublesome owing to the pain and lameness following them. As substitutes for the iodide there have appeared the iodipine of Merck 10 to 20 per cent. iodide, and the lipiodal of Lafay 40 per cent. iodide. Five to ten c.c. of these may be injected every two days.

The treatment of syphilis at the first appearance of the chancre, treatment as early and as intense as possible (for it seems to be well established that these two conditions have the most important bearing upon the future course of the disease), is best realized to-day by intramuscular injections (or in the employment of the newer remedies by intravenous injection). During the first six months of the malady the soluble salts of mercury are used (at first 0.01 gm., then 0.02, and then 0.03 gm. of the benzoate and the same of the biniodide) in series of twenty to twenty-five daily injections, with an interval of one month between each series. Some authorities employ the gray oil (6 injections weekly with one month between each series, in average doses of 7 to 8 centigrams of mercury). Duhot has carried the dosage to 0.12 to 0.14 gm. without accident. Calomel (0.05 to 0.10 gm. each week) has also been advocated.

At the end of the first six months of this treatment is commenced the continuing or sustaining treatment. Those favoring the continuation of the soluble salts recommend the continuation of twenty to twenty-five injections (benzoate or biniodide), increasing the free intervals from one month to six weeks and two months (four cures per year for the second and third years), practicing ten injections each month at first, then over a period of six weeks, and then two months.

The insoluble injections, chiefly gray oil, are advocated by a great number of practitioners for the supporting treatment; four cures of six injections for the second and third years, three for the fourth, and two for the fifth year. This practice is not prudent in the albuminuric and diabetic. The injections of calomel have generally been reserved for the active treatment of the rebellious cases and those exhibiting the graver accidents of the nervous system and for the lingual lesions (tertiary glossitis and leucoplakia).

The iodide of potassium has always been used in association with mercury in those cases presenting syphilomatous infiltrations and phagedenic chancre; in the secondary period, cephalgia, painful osteocopes, periostitis, arthralgia, myalgia; later of eruptions with infiltration into the tissues, gumma and gummatous ulcerations, visceral accidents at all stages, cerebral syphilis, tabes. In general paralysis it has been well shown that iodide of potassium not only has little or no effect, but that often it is harmful. The fallacy of administering iodides to the syphilitic as a spring and fall medicine for the remainder of their lives has also been abandoned.

The hygienic recommendations remain the same as ever: Abstention from alcohol and tobacco, provokers of mucous plaques, prolonging the contagiousness of the subject for years from a relapsing buccal condition slowly leading to sclerous glossitis, leucoplakia, and finally cancer, which is a too frequent complication, favoring the development of aortitis, hepatic cirrhosis, etc.

Syphilis of the nervous system is subject to a special hygiene: Avoidance of excess of either work or pleasure, ignoring which leads to tabes, general paralysis and the grave tertiary accidents.

As adjuncts to the mercurial treatment the mineral spring cures are always useful (and I am frank to say I am a great believer in water cures for many conditions). The sulphur springs (Luchon, Uriage, Allevard), in which conjunction mercury is remarkably well tolerated, and the water cures are particularly indicated in the cases of cerebral and medullary syphilis. For the tabetic the water of Lamalon, and for leukoplakia those of Saint Christian (douche filiforme of copper).

Following the initiatife of my former master and present friend, Professor Albert Robin, there has recently come into practice an intensive treatment by the benzoate of mercury in large doses. He has injected 0.05 gm. of this salt daily. Dufour has injected without accident 0.08 to 0.12 gm. twice a week. M. Bory[3] has employed a concentrated solution of 2 to 3 centigrams per c.c. of water, prepared at the moment of using, or still better, the preceding day. He injects daily intravenously or intramuscularly 0.04 to 0.05 gm. The intensive early cure of a syphilitic comprehends a series of twenty-five injections, being 1 gm. of the salt (equaling 0.44 gm. of mercury). The supporting treatment consists in making every fourth to fifth day injections in progressive doses of 0.07 to 0.08 gm. by series of six injections (a total of 0.32 gm. of benzoate of mercury). The first year a series of one month with two of rest; the second year, a series of one month with three of rest; the third year, a series of one month with four of rest. These large doses of mercury are well borne, provided the teeth have been put into a safe condition by proper dentistry. The patients exhibiting albuminuria have not been adversely affected. Bory claims that under this treatment the chancre cicitrizes as rapidly as under the treatment by arsenic. Whatever the future of this intensive treatment may be, it is certain that in the hands of those masters above noted it has given excellent results, and it deserves

to be more widely and thoroughly experimented with.

The advantages which Fournier claimed for the mercurial treatment, and for which he for so many years eloquently pleaded, are incontestably true, and the reader would find it a profitable expenditure of time to read his splendid exposition of the merits of mercury in his book, "Traitement de la Syphilis." Put under treatment upon the appearance of the chancre, and followed up vigorously and intensively, the majority of cases pass through the secondary period without the roseola or mucous patch. If they have been treated regularly and methodically during a series of years, the greater number, once they are "blanchis," present no accidents, the Wassermann tests remain negative, and their cerebrospinal fluid continues to be normal. When they marry they propagate healthy children who are born at term.

As against the advantages of the mercurial course, what are the accidents and disadvantages most frequently met with? The most frequent is stomatitis attendant upon the administration of the protoiodide, cyanide and inunction. Usually this complication is benign, and can almost always be avoided by putting the teeth into perfect condition before commencing the treatment. Diarrhea from the same cause can oftentimes be prevented and almost always controlled by tinctura opii camphorata.

More serious than these are the eruptions (mercurial), not the local forms occurring at the sites of the inunctions, but the general exfoliative erythroderma, happily infrequent, but sometimes provoked in certain subjects, no matter in what form the mercury may be administered.

Fatal results have been imputed to the mercurial treatment, but they are extremely rare, and usually follow treatment by calomel or gray oil injections, showing various complications—pulmonary embolism, toxic nephritis, stomatitis with extensive ulcerations, accompanied by intense salivation and loss of the teeth, necrosis of the maxillary, ulceration of the tongue, hemorrhage from the lingual artery (stomatite préhistorique de Fournier). The chief reproach made by the adversaries of the mercurial treatment is that in a proportion of cases which it has been impossible to determine, after five, ten or fifteen years the patient shows visceral symptoms of the tertiary period. But with the advent of the Wassermann test the oftentimes obscure origin of these serious symptoms has been clarified, and greatly multiplied the cases that can be directly attributed to syphilis as the causative agent. And since they have thus been determined, we have multiplied the number that have been relieved by a renewal of the treatment. Many have been the cases of aortitis, or heart lesions, or grave symptoms of the central nervous system that have been arrested or cured clinically and radioscopically. By means of injections of benzoate or biniodide, or intravenous injection of the cyanide combined with the iodide of potassium, oftentimes most excellent results have been secured. Since tabes has been recognized as being of specific origin and persistently treated as such, it is incontestable that its progress has been arrested and fixed, and we see now much less frequently than formerly this disease progressing to a condition of locomotor ataxia or general paralysis. Recently the experiment has been made of introducing the mercurial solution directly into the spinal canal (Sicard, Ravaut) in a maximum dose of a milligram. Edwards injected 0.0009 to 0.0013 gm. of sublimate once every two weeks, and secured in a number of cases the relief of the agonizing pains. Some authors have advised the intraspinal injection of the serum of the patient after the intravenous injection of mercury (mercurialized serum of Swift).

The tentatives made thus to introduce medication to the central nervous system in those suffering from general paralysis have given but little encouragement (Marchant, Duhot, Sicard). The psychiatrists believe this treatment not only useless but oftentimes harmful. Nevertheless, in the hands of certain authorities, good results have recently been obtained. Gaucher[5] has published two cases in one of which the history went back twenty years nearly cured by a prolonged mercurial treatment consisting of the injection of the benzoate, 0.02 gm., repeated for ten days with one month interval, followed by ten days of iodide in 2 gram doses.

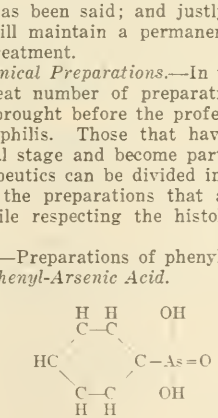
Recently Loeper, Bergeron and Wahram[6] have associated colloidal sulphur with mercury, injecting alternately the biniodide or cyanide and colloidal sulphur, and later mixing the two in the same ampoule. These authors obtained remarkable results in rebellious mucous cases, in cases of lesions of the cornea, arteries and kidneys, and also in cases of leucoplakia.

We can conclude that the mercurial cure, intelligently and faithfully applied, has an undoubtedly powerful influence in the arrest and control of syphilis, and this treatment is far from being abandoned, as has been said; and justly, mercury has won and will maintain a permanent place in the syphilitic treatment.

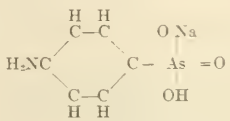
The Arsenical Preparations.—In the past fifteen years a great number of preparations of arsenic have been brought before the profession as a specific for syphilis. Those that have survived the experimental stage and become part of our recognized therapeutics can be divided into two groups, comprising the preparations that attack the treponema while respecting the histological cells of the patient.

Group A.—Preparations of phenyl-arsenic.

First.—*Phenyl-Arsenic Acid.*

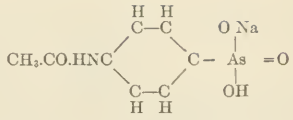


Second.—*Atoxyl.*



Sodium salts of para-amino-phenyl-arsenic acid, a preparation in which NH_2 replaces an H atom of the phenyl-arsenic acid.

Third.—*Arsacetine.*



a radical acetyl, $CO.CH_3$, replacing an H atom of the NH_2 in the preceding.

Fourth.—*Hectine.* Sodium salts of benzo-sulpho-paramino-phenyl-arsenic acid. Here are found two molecules of benzoate (the commencement of the arsenobenzol products), one molecule of sulphur, SO_2, replacing an H atom of NH_2 of one of the molecules of benzoate.

Among these diverse combinations, made chiefly of derivatives one from the other, two have been seriously tested in actual practice—atoxyl and hectine.

Atoxyl was experimented with largely by Salmon in 1902. It is a white salt which can be employed in pill form and by intramuscular and intravenous injection. The average dose (after Duhot) was 0.50 gm. per day for fifteen days. Salmon employed 0.50 gm. every second day during three weeks, followed by 0.75 gm. once with two days' interval, then 0.75 gm. once with three days' interval, and finally 0.40 repeated four times with intervals of three days between each dose.

It has an undoubted action upon the skin manifestations, chiefly the ulcerations; much less upon the mucous patches. Levy, Bing, A. Renault, Vedel and Duhot claim that it possesses no preventive action. It is far from being inoffensive. It is eliminated very slowly after a few days' injections, and the toxic effect of the accumulated drug has been frequently remarked (gastrointestinal troubles, vertigo). Following the treatment with this remedy late but definite blindness has been noted. At the present day it has fallen into disuse and is abandoned.

Hectine, discovered by Mouneyrat, is an excellent salt and but little toxic, although Balzer noted some passing trouble of vision following its administration, and also records some observations of increased sexual activity.

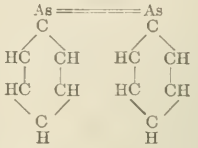
Hectine can be given in the form of a pill, 0.10 gm., once or twice per day during ten days; in the form of drops, twenty drops containing 0.05 gm. of the remedy, and from twenty to one hundred drops per day for ten days; by hypodermic injection, the hectine A. dosed at 0.10 and hectine B. at 0.20 gm. per ampoule of 1 c. c.; one injection every two days, then every day until twelve to twenty doses have been administered.

Each series of the remedy is followed by an interval of eight to ten days, and each cure comprehends 0.20 to 3 gm. of hectine. Certain authors have administered without accident as much as 4, 5, 6 or 7 grams.

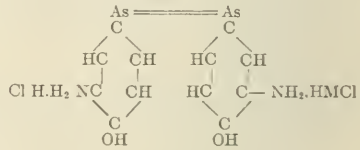
During the first six months of the syphilis a course of treatment is made each month. Following the indications of the case the intervals are lengthened, while the series of cures extend over four years.

Hectine has shown itself to be a benign remedy of moderate activity, comparable to gray oil. It seems to be particularly useful in the first stages of tabes, and I have known it to relieve promptly the agonizing pains which at times mark the invasion of the nervous centers.

Group B.—The Arsenobenzol Group. Arsenobenzol of Michaelis (1881).



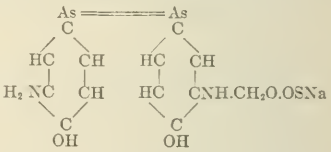
First.—*Salvarsan* or 606



(Ehrlich) (d'Hochst and Creil).

The French *Arsenobenzol* dioxy-diamino-arsenobenzol (employing the chlorohydrate).

Second.—*Neosalvarsan* or 914



(Ehrlich) (d'Hochst and Creil). The French Novarsenobenzol, or the Monomethylene-sulphoxylate of sodium.

Third.—*Luargol* or 102 of Danysz. Sulphate of dioxy-diamino-arsenobenzolate of bromide of silver and of antimony.

Fourth.—*Galyl* or 1116 of Mouneyrat. Tetraoxy-diphospho-amino-diarsenobenzene.

The discovery and employment of the arsenical group of anti-syphilitic remedies, some of which have not yet passed the experimental stage, promise to revolutionize the treatment of this disease, and have divided the authorities into two violently opposed camps. The clinical results attending the introduction of arsenic into our treatment have been of such a favorable character that their consideration and study are deserving of most careful review and comparison, of which the limits of this paper do not properly permit, and I defer their details to a later paper.

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THE MEANING OF THE TERM "CRIPPLED"

By DOUGLAS C. McMURTRIE.

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IN a recent bulletin appearing in the daily press and emanating from a government department there occurs the following statement:

> There exists a great deal of misapprehension in the public mind regarding the disabled soldiers. There are frequent allusions to the "crippled" soldier. There have been movements on behalf of various undertakings to "help educate the crippled soldier." They are all misnomers. The word "cripples" means those who have lost an arm or a leg or a hand. They comprise hardly 4 per cent. of the disabled.

Inasmuch as the terms "crippled soldier" and "war cripple" were widely used in some of the pioneer publications through which the earliest information on the subject was transmitted to the American public, the use of the designation "crippled" calls for some defence. There may also be taken vigorous scientific issue with the accuracy of the statement that the adjective properly is applied to amputation cases only.

The dictionary definitions which, after all, are of relatively slight importance as compared with usage and understanding, indicate that the cripple is one who is disabled (either from birth, or by accident or injury) from the use of his limbs; a lame person.[1] Another definition of the cripple is "a maimed or lame person or animal; one lacking the natural use of a limb or limbs."[2]

The definitions imply first the presence of limbs, with injury such as to limit their full and effective utilization. Amputation cases have by common use been included in the classification of the "crippled" but comprise a part rather than the whole.

The King James version of the New Testament, which is commonly regarded as being accurate in its use of English, does not refer to the cripple as an amputation case only, as witnessed by the following passage: "And there sat a certain man at Lystra, impotent in his feet, being a cripple from his mother's womb, who never had walked."[3]

There have been various scientific definitions of the term. At the German Orthopedic Congress in 1908 there was proposed by Dr. Konrad Biesalski and accepted the following:[4] "A cripple . . . . is a patient who, in result of congenital or acquired disease of nerves, bones, or joints, is handicapped in use of his trunk or limbs." Later, in 1915 the same authority defined[5] the cripple as "a person who has suffered permanent and serious impairment in freedom of movement of limbs, or in carriage."

According to the only official census of crippled children, which was made in Germany in 1906, there were shown to be 75,183 cripples under sixteen years of age, of whom approximately 93.5 per cent. were not amputation cases.

In Birmingham, England, a census of cripples, both adults and children, was taken in 1911. The definition of cripple adopted for the purpose of this study was "a person whose (muscular) movements are so far restricted by accident or diseases as to affect his capacity for self-support."

In the city of New York there are seventeen organizations which have the word cripple as part of their name. Not one of these deals exclusively or even largely with amputation cases. The majority of the cripples under their care suffer from tubercular bones or joints, hunchbacks, infantile paralysis, spastic paralysis, congenital deformity, rickets, malunited fractures, arthritis, and so forth.

In a survey of cripples in Cleveland, Ohio, one of the most careful pieces of scientific work in this field yet carried out in the United States, cripples were defined as those[6] "who are handicapped because they lack the normal use of skeleton or skeletal muscles." Of the cripples enumerated, well over three quarters of the total number were not amputation cases.

From another angle the classification of cripple is almost coincident with the scope of orthopedic surgery. The great majority of orthopedic cases are in common parlance termed cripples, and the range of orthopedics has widened rather than diminished during the present war. At the initiative of Sir Robert Jones, one of the world's leading surgeons, a large proportion of injured British soldiers were assigned for treatment to the division of "military orthopedic surgery." According to army instructions there fall to this division all surgery of the extremities, ankylosis of joints, deformities and disabilities of the feet, malunited and ununited fractures, injuries to the peripheral nerves, and conditions requiring the transplantation of tendons.

According to Sir Robert Jones, this specialty comprises a very large proportion of the injuries of war. Surely this authority knows the meaning of the terms used in his particular field. How does he designate the men under orthopedic care? In a recent statement, in speaking of orthopedic surgery he says: "Arising out of principles adopted for the treatment of *crippled* children, it has expanded into a huge organization of extreme military importance—first, with the object of receiving the serving soldier and sending him back to the fighting line; and, second, to reconstruct and restore the functions of those so badly *crippled* as to be useless as fighting units but who, if properly treated, may take their places as useful workers and efficient members of organized society."[7]

It is quite clear, therefore, that by dictionary meaning, by scientific definition, and by popular usage and conception, the term "crippled" could never be said to include the amputated only, and that a claim to this effect is inaccurate in the extreme.

It would not be claimed, however, that the term "crippled" covered with exactitude the condition of all the men discharged for invalidity, though it would be claimed that the designation of "crippled soldier" typifies to the public mind the permanent injuries incurred at the front. It is a term at once graphic and familiar and requires no long-winded explanation. As in the economic rehabilitation of invalided soldiers, en-

listment of the interest and support of the public is essential to the success of any national program, it is necessary to speak to the public regarding the subject, and speak in terms that will immediately be comprehended.

Is there any precedent for using the term "crippled" or some word similar to it in reference to the broader field of rehabilitating invalided soldiers in general?

In France, where re-educational provision for permanently injured soldiers had its first practical start, the movement has been popularly designated as for *mutilés*, which translates as "maimed" and denotes in particular the amputated soldier. But the term was a vivid one, which registered on the public imagination, and by usage has come to include practically all invalided soldiers. The state authority in France created to deal with the after-care of invalided soldiers is named the *Office National des Mutilés et Reformés de la Guerre.* Yet "mutilés" is of much more limited scope than "crippled," the equivalent of which in French is *"cstropié."*

The official description[1] of the splendid institution for invalided Belgian soldiers, located at Port-Villez, France, speaks of re-education for soldiers "maimed and crippled."

In Germany the work was designated from the first month of the war as *"Kriegskrüppelfürsorge,"* or the care of the war cripple. The public education documents which were circulated by the thousands in the early months of the war carried titles including the word *"krüppel."* Other terms have been used, but the early one sticks in the memory. And the leading journal which has published material on the work is one of *"Krüppelfürsorge."*

In Italy the first organization of national scope interested in the after-care of invalided soldiers was entitled the "Federation for Blind, Lame, and Maimed Soldiers." Blinded and orthopedic cases only were referred to, though the inclusion of other cases was of course assumed.

In the United States the first literature on the re-education of the injured made its appearance in 1911 and 1912. The term "crippled" was used in these articles being translated from the Danish *"vanfore"* and the French *"estropié."* From that time on, the usage continued. The only journal in this field was designated as being devoted to the "care of cripples." And finally the first articles to be published in America describing the reconstruction of invalided soldiers abroad appeared in 1915, and for the most part used the term "war cripple" in approximate translation from the French and German. The earliest official and public reference to the subject was an article from the Office of the Surgeon-General, U. S. Army, and entitled "The Passing of the Cripple."

So much for the matter of precedent. Another objection which has been raised to the use of the term "crippled" is that it is objected to by the men, and if applied will cast upon them an implication of opprobrium. There is room for wide difference of personal opinion on this point. The invalided French soldiers evidently do not feel this objection to be valid for they have named their own organization by a still narrower term, the *Association Générale des Mutilés de la Guerre.* In our own receiving hospital at Ellis Island men refer jocularly to a fellow invalid as "you confounded cripple." At the military orthopedic hospital at Toronto there is evident no special aversion to the word.

But from a broad point of view we should not shrink from using the word "crippled" where it accurately describes a case or class. There have been cripples always with us, there exist a great number at the present time, and there will be still more in the future. Name or rename as we may, the man who is lame, paralyzed, amputated, or hunchbacked will continue to be known in the public mind as crippled. Are we to pass the matter by, granting the crippled condition as half shameful, or are we, by a vigorous campaign of public education, to dignify it—to teach the people that to be crippled is not necessarily to be helpless, and that to be crippled and capable and useful is something to be proud of rather than ashamed? We owe it to the cripple to dispel the present illusions on the part of some people regarding his condition.

With the varying character of war injuries, however, the term crippled, while satisfactorily denoting the rehabilitation work to the general public, is not exact since it does not accurately apply to lung diseases, deafness, blindness, kidney troubles, mental disturbances, and the like. To cover these cases as well as the crippled many different terms have been proposed. By all odds the most successful and apt from the lexicographical point of view is "invalided," represented for example in the name of the lately re-christened "Invalided Soldiers' Commission" of Canada, which was previously the Military Hospitals Commission. In France the only school under national auspices is titled the "Institut National des Invalides de la Guerre." In Italy the new government department to look out for the interests of returned soldiers is called the "Opera Nazionale per la Protezione ed Assistenza degli Invalidi della Guerra," and in like wise the association of Italian invalided soldiers has taken the name of "Associazione Nazionale degli Invalidi della Guerra."

In Germany the term "Kriegsinvalidenfürsorge" has been used to a limited extent. In Austria it has been applied to a much greater degree, and in Hungary the designation is almost universal, the national authority being known as the "Office for Invalids."

The word "invalided," however, while familiar in England and the British dominions, is not in the least American and, by reason of its euphonic drawbacks, will in all probability not be adopted here.

The term other than *"Kriegskrüppel"* which is finding considerable adoption in Germany is *"Kriegsbeschädigten,"* or war injured. It is an all-inclusive designation which meets all requirements. Represented in the title of the imperial committee concerned in co-ordinating local work for invalided soldiers, the "Reichsausschuss der Kriegsbeschädigtenfürsorge," it also appears in the name adopted by the war invalided them-

selves for their association: "Verband der Kriegsbeschädigten."

The next term to be proposed and to meet with considerable acceptance is "disabled." It has been used principally in Great Britain where the Ministry of Pensions always refers to the "treatment and training of disabled soldiers." It has been used further in the practice of the Canadian authorities, and it is now being adopted by the various official and semi-official agencies concerned in the restoration of the invalided American soldier to civilian life. "Carry On," a magazine published for the Surgeon-General of the Army by the American Red Cross is stated as dealing with the "reconstruction of disabled soldiers and sailors." The Federal Board for Vocational Education refers to its responsibility as the "re-education of disabled soldiers and sailors." A recent manual of the Red Cross is entitled "After-Care of the Disabled Soldier and Sailor."

In one sense the term may be regarded as of similar significance to "Invalided." Accurately, however, disabled has an economic and practical implication. A man may be taken in by a re-education school "crippled and disabled" or "invalided and disabled" but he should be turned out "crippled and able" or "invalided and able." In the strict sense a writer who returns with a paralyzed left arm is crippled but he is certainly not disabled for he can return unhandicapped to the pursuit of his vocation.

In view of present circumstances and influences the term "disabled soldier" may wisely be standardized in the usage of those concerned in rehabilitation work. But the term "crippled" has much to justify its use, and should certainly not be confused by inaccurate definition.

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A CASE OF ABDUCENS PARALYSIS COMPLICATING MASTOIDITIS: BRIEF DISCUSSION OF THIS COMPLICATION AS AN INDICATION FOR SURGICAL TREATMENT.*

By PHILIP D. KERRISON, M.D.,
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Miss P. S., a girl of 11 years, was referred to me June 6, 1917, with the following history: Two years previously she had been operated upon for mastoidectomy, left, and had made a satisfactory recovery. Some five weeks previously she had developed acute purulent otitis media of the right ear for which she had been under treatment by an out-of-town aurist. While the acute symptoms had subsided, the aural discharge had persisted. The drum membrane also had fared badly, the membrana tensa having undergone rather extensive disintegration. Some ten days before she came under my care, she had suddenly developed distressing diplopia. Dr. John M. Wheeler, to whom she was referred on account of this symptom, made a diagnosis of abducens paralysis with resulting incompetence of the external rectus muscle.

When she first came to my office the patient wore a cover over her right eye to relieve the discomfort incident to double vision. On removal of this, it was found that objects, *e. g.*, one's finger, held in front of her were seen double when moved from the median plane of vision to the right. Moving one's finger in front of her to the right and asking her to follow it with her eyes, the left eye did so normally, the right stopping in the median position.

Examination of the right drum membrane showed a large oval perforation, comprising rather more than a half of the posterior segment of the membrana tensa. The tympanic cavity was filled with a thick, transparent fluid, which was exceedingly difficult to remove either by irrigation or by cotton on applicators. There was no appreciable mastoid tenderness.

On June 13, no improvement having occurred either in the tympanic or ocular symptoms, an operation on the right mastoid was decided upon.

Operation.—The right mastoid was opened by the usual method and revealed a mastoid of pneumatic type the cells of which contained some fluid pus; but there were no evidences of extensive bone disease. Some granulations clogged the aditus and tympanic vault. A careful mastoidectomy was performed, and this operation was extended in the following directions: the dura in the middle fossa of the skull was exposed by removal of the tegmen antri; it appeared perfectly normal. Exposure of the sigmoid sinus showed a perfectly normal dural covering. The dura over the cerebellum was next exposed by removal of the inner plate in front of the sinus. Careful inspection of these various regions did not reveal any gross pathological changes which would throw light on the ocular symptom.

Two days after the operation, the function of the right external rectus muscle was greatly improved. On the following day (third after the operation) Dr. Harmon Smith examined the patient with me, and we could find no abnormality in the movement of the eyes. From this time her eyes have seemed perfectly "straight" in whatever direction she looked. I regret that Dr. Wheeler did not see the patient until December 10, when he reported that the movement of the right eye was quite normal.

While it is an easy matter to theorize as to the various pathways by which an extension of disease from an infected mastoid may involve the 6th nerve, to find in actual practice a convincing hypothesis to fit the particular case may be difficult or impossible. Thus is said, partly on theoretic grounds, that the nerve may be compressed within that vessel in cavernous sinus thrombosis or disease; that it may be subjected to pressure in the posterior fossa by a thrombosed and inflamed inferior petrosal sinus (Page's case); that it may be involved in disease of the apex of the petrous bone (Gradenigo); or that the nerve sheath may be involved in a meningitis originating in a focus of infection over the mastoid roof (tegmen antri) and extending inward along the floor of the mid-cranial fossa; or that the nerve may suffer indirectly through a suppurative labyrinthitis, this giving rise to infection or inflammatory changes in the meninges in the posterior fossa.

These various hypotheses are theoretically sound and interesting, but in actual practice throw little

*Read in part before the Otological Section of the New York Academy of Medicine on March 8, 1918

or no light on the pathologic aspects of a given case. It may even be said that in the great majority of cases successfully operated upon, the exact mode of involvement of the 6th nerve is never determined. Gradenigo's symptom complex (severe frontal headache with eye pains or facial neuralgia, and with homolateral middle-ear or mastoid infection and 6th nerve paralysis) is said to point strongly to necrosis or at least disease of the apex of the petrous bone. But it must not be forgotten that middle-ear suppuration with abducens paralysis may coincide with ethmoid or other accessory sinus disease which might easily supply the sensory components of this syndrome.

In places where anterior poliomyelitis is epidemic or endemic (as in most large cities) it must be remembered that paralysis of the 6th nerve may occur as the single manifestation of this disease. I am told by Dr. Gover, assistant resident physician of the Willard Parker Hospital, that in recent epidemics several such cases have been observed there. A most thorough and interesting review of the literature of this subject up to that time was published by Dr. C. E. Perkins in 1910. Among cases analyzed were four (Perkins', Kopetsky's, Mann's, Alt's) in which complete disappearance of the paralysis occurred within 2 to 9 days after the mastoid operation. In the other cases reported the time of recovery was either not given or longer. In the case here reported the eye was functionally normal in 3 days.

Perkins collected from the literature 29 cases of mastoiditis with abducens paralysis in which the mastoid was operated upon, and 31 similar cases which were not operated upon. Of the former group, there were 1 death, 1 failure (*i. e.* of recovery from the paralysis) and 27 complete recoveries. Of the 31 cases not operated upon, there were 4 deaths, 3 failures, and 25 (sic) recoveries. From these figures, the logical deduction would seem to be as follows: In mastoiditis associated with abducens paralysis, the mortality is much greater and the percentage of 6th nerve recoveries is much less in cases not operated upon than in those in which the mastoid is operated upon. Therefore the occurrence with suppurative mastoiditis of paralysis of the external rectus occuli of the same side should be regarded as a positive indication for the mastoid operation.

Should the 6th nerve lesion be merely coincident and unrelated, the mastoid operation will serve only in eliminating the middle ear or mastoid disease. On the other hand, should the abducens involvement be the result of a spreading infection from the mastoid, a mastoid operation may be absolutely necessary not only to bring about restoration of the nerve function, but also to save the patient's life.

58 West Fifty-sixth Street.

Health of Brazil.—The famous saying "Brazil is a vast hospital" is in a fair way of being outlawed. Yellow fever is stamped out and the Government has made an immense appropriation for supplying prophylactic quinine to the entire community. To these achievements must be added the labors of the Oswaldo Cruz Institute in the realms of scientific prophylaxis of communicable diseases of all kinds.—*Brazil-Médico.*

OBSERVATIONS ON GAS POISONING.*

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Without having kept any accurate record of the gas cases which I have had under care in this hospital, I should say, there were about 60 in all. They were of two types, the "mustard gas" and those of the chlorine group. The former were more numerous and presented the following symptoms: extreme irritation of the eyes, a conjunctivitis with intense photophobia and lacrymation, both of which in their intensity seemed out of proportion to the degree of local inflammation. Other promnient symptoms were staining of the skin and burns. The skin in certain localities of the body was stained a sort of brown or khaki color. It seemed as if it were seared, later the epidermis would peel off in fine scales leaving a lighter similar stain which I believe gradually faded in time. This searing of the skin was not general but was confined to certain areas of the body, notably the back, abdomen, chest, and sometimes the legs. It appears to have been on parts which were moist.

As to the burns they were superficial as a rule, but sometimes involved the entire skin; they were observed on the back, legs and especially the scrotum, the axilla was seldom burned, doubtless because of its being almost closed to atmospheric influences. Parts that were moist or wet seemed to be those involved in the burning.

In many instances there was severe irritation of the pharynx and larynx causing a sensation of soreness and hoarseness and in the latter instance complete loss of voice. The lungs appeared to have suffered to a comparatively mild degree in most instances, occasionally however bronchopneumonia developed.

The face in some cases partook of the staining or searing—in one case now under my care it is quite severely burned. In some instances the nasal mucous membrane was also involved, causing a decided coryza with soreness and ulceration of the nares.

Gastric, precordial, and myalgic pains in various portions of the body were also present. The most persistent symptoms, however, and the last to disappear were the irritation of the eyes and the photophobia.

In regard to the chlorine gas group of poisoning, the chief organs to suffer were the lungs. There was a sense of oppression with dyspnea, soreness of the chest, and asthmatic breathing.

The physical signs were those chiefly observable on auscultation, and were mucous râles, also sibilant, together with much wheezing such as characterizes bronchitis and asthma. The expiratory murmur was prolonged, suggesting pulmonary emphysema, the percussion note, however, seemed negative and the characteristic barrel-shaped chest was absent for obvious reasons. Severer types resulted in decided broncho-pneu-

*Report to Col. A. P. Swanson, Chief Officer of the Medical Division, General Military Hospital, Colchester, England.

monia, but most cases we have had here have been those which were comparatively mild and which had been gassed from one to three weeks previously. There was a persistent irritating cough with scanty expectoration, which was a source of considerable distress to the patient.

The heart action in some cases seemed to have been impaired, there being decided increase of the pulse rate; gastric irritation was also present in some, also again precordial and myalgic pains in various parts of the body, which were often of a very persistent character. The ultimate result in the more decided types appeared to have been pulmonary emphysema with the usual asthmatic symptoms which persisted and resulted in permanent invalidism, unfitting for active service.

The treatment of the mustard gas cases was boric acid and borax solution for the eyes, followed by adrenalin chloride. For the burns, picric acid solutions, hydrogen peroxide, and dusting powders according to conditions. For the cough and laryngeal symptoms, heroin; for the throat, solutions of potassium permanganate. The myalgic pains received the salicylates and asperin.

In the chlorine gas cases heroin per os appeared to have been the most successful; the same line of treatment mentioned above was followed for the various myalgic pains.

Medicolegal Notes.

Revocation of License—Sufficiency of Complaint—Testimony of Accomplices in Unprofessional Conduct Case.—Appeal was taken from a judgment affirming the proceedings and determination of the California board of medical examiners revoking the license of the defendant (petitioner in the Appellate Court) to practise medicine on account of a violation of California St. 1915, p. 158, § 12, subd. 1, by attempting a criminal abortion. The district court of appeal held, over the defendant's objection, that the act is constitutional. The particular ground of the objection was that powers are conferred which belong strictly under the Constitution to the judicial department. Acts of the nature here under consideration have been repeatedly sustained as a proper exercise of the legislative grant. Various boards performing legislative and ministerial functions have the incidental and necessary power, sometimes referred to as quasi judicial, to determine facts and enter their judgment thereon; such as boards of supervisors, boards of equalization, boards of police commissioners, and many others unnecessary to name. Referring specially to medical acts, it is said in Hewitt v. Board of Medical Examiners, 148 Cal. 590, 84 Pac. 39, 3 L. R. A. (U. S.) 896, 113 Am. St. Rep. 315, 7 Am. Cas. 750: "Legislation of the character embraced within the general scope of the act in question in so far as it provides for the revocation of the certificate of a physician * * * is sustained upon the ground that the Legislature has authority under its general police power to provide all reasonable regulations that may be necessary affecting the public health, safety, or morals, and with this object in view to provide for the dismissal from the medical profession of all persons whose principles, practices, and character render them unfit to remain in it. As the duty of determining whether such professional or moral unfitness exists must necessarily be vested in somebody other than the Legislature, it is usually committed by appropriate legislation to boards composed of men learned in their profession."

The principal contention made, however, was that the complaint filed before the board of medical examiners was insufficient in its statement of facts to sustain the determination based thereon. The complaint read that the defendant did "aid and abet and attempt, agree and offer to procure a criminal abortion upon a pregnant woman, to wit," etc. The court held that this charge was phrased exactly in the language of that portion of the act defining the particular unprofessional conduct of which it was charged the defendant had been guilty. Counsel for the defendant argued that because the statute refers to a "criminal abortion," and that because in order to determine what a criminal abortion is one must look to the State Penal Code, the charge would be insufficiently laid unless the acts defined in the Penal Code as constituting the crime of abortion are set forth. The court said that the defendant was not charged with a crime, nor was he subject, upon the adverse determination made, to any penalty except the revocation of his license to practise medicine and surgery. The contention of counsel would have been entitled to more serious consideration had a criminal offense been under consideration with its attendant penalties, as that is understood under any of the penal laws of the State. Where an indictment or information is drawn under the Penal Code, it must, of course, comply with the provisions of section 950 of that Code, in that it must contain "a statement of the acts constituting the offense, in ordinary and concise language." No similar provision appears in the medical act. The court considered the language of the statute sufficiently explicit to advise a person charged thereunder of the particular kind of unprofessional conduct which it is proposed to prove against him and that was all that is required. The defendant cited a case where the Supreme Court of Oregon held a complaint before the medical board to be insufficient, because not alleging sufficient facts (Board of Medical Examiners v. Eisen, 61 Or. 492, 123 Pac. 52). There a case was presented under a law different from the California statute. In the decision it is recited that: "Before a license can be revoked by said board for unprofessional or dishonorable conduct under the provisions of this act a complaint of some person under oath must be filed in the office of the secretary of said board, charging the acts of unprofessional or dishonorable conduct and facts complained of against the licentiate accused, in ordinary and concise language." That provision which finds place in the Oregon law is practically identical with the provision of section 950 of the California Penal Code.

Another contention was that there was no legal or sufficient evidence authorizing the medical board to make the order complained of. The force of that objection rested chiefly upon the assertion that all the material testimony furnished against the defendant was that given by accomplices. The action not being criminal in its nature, the court held that the statutory mandate that a person may not be convicted upon the uncorroborated testimony of an accomplice had no application. Any witness whose testimony as to competent facts was convincing to the board engaged in the hearing of the charge would be legally sufficient. The evidence was held to warrant the revocation of the defendant's license.—Lauterman v. Anderson (Cal.), 172 Pac. 625.

Supersensitiveness of Patient's Skin to X-Rays.—In an action for damages for personal injuries alleged to have been inflicted upon the plaintiff by the negligent application of x-rays to his body the facts were that the plaintiff was severely burned while being treated professionally by the defendant, who was a practising physician and an expert in treating skin diseases with the x-ray. The controlling issue of fact made by the evidence was whether the injury was caused by one or more of the acts of negligence alleged by the plaintiff or whether the injuries were suffered because the plaintiff's skin was supersensitive to the x-ray current. On appeal from a judgment for the plaintiff it was held that a physician is not required to take precaution against a peculiar temperament or abnormal idiosyncrasy of which he had no knowledge and for detecting which there is no means. The evidence showed that the defendant did not know of the plantiff's supersensitiveness, and that there is no way to ascertain such a peculiarity prior to the treatment. It was held that the jury should have been told in appropriate language that, if they believed the proximate cause of the injuries to the plaintiff was his abnormal hypersensitiveness, but for which the injury would not have occurred, a verdict should be returned for the defendant; and the judgment was reversed.—Hamilton v. Harris, Texas Court of Civil Appeals, 204 S.W. 450.

Military Medicine.

The "Barbed Wire Disease" in War Prisoners.—Under the names "Stacheldrahtkrankheit" and "psychose de fil de fer" a peculiar psychosis of war prisoners has been described which is international in type, as shown by its identity in all races represented in the prison camps. A Swiss medical man, Vischer, has described it in an article reviewed in the *Correspondenz-Blatt* for Sept. 28. The psychoses of prisoners have been frequently described and the general motivation as well as the types are analogous, but in these war prisoners the barbed wire fences act as a red flag to a bull. Prisoners themselves have coined the terms above stated. There is a period of latency before the barbed wire disease develops. At first after internment there are peculiar reactions due to shutting off the outside world and mingling in close communion. The phase is one of stimulation. Men argue, become quarrelsome and envious, egoism is fostered. There is a rage for games. Gradually the picture changes to one of depression. Especially among the more finely organized a state of apathy develops. One is no longer able to concentrate on anything. Even music becomes undesirable. The mental state resembles in some ways the so-called cafardism which was first noted before the war in the French foreign legionaries, and thus perhaps light is thrown on the motivation of that mysterious affection. Sleep is disturbed by dreams and there is an abnormal sensitiveness to sounds. Only a small percentage remains quite immune. The barbed wire acts throughout as the badge and symbol of servitude. Even after release and internment in Switzerland the psychosis shows its presence. The part played by the wire appears to be shown by the fact that prisoners who work in small squads in the open under guard do not develop the disease. The well read author sees analogies of the "barbed wire disease" in Napoleon's life in St. Helena, in Stanley's prison experience, in Dostoyewsky's Siberian convicts, and especially in the polar explorer's mental state, as recorded in many diaries.

Urinary Spirochetosis in the Army.—In 1914 Japanese pathologists found a spirochete to be the cause of infectious icterus and late in 1916 the first cases of this malady were observed in France. Among the clinical expressions is a spirochetosuria, for the condition being a sepsis the organisms in the blood are eliminated in the urine. However, just as typhoid fever, which resembles it in many ways, may be localised in the kidneys, so in this affection the clinical expression may be a nephritis. In the *Journal de médecine de Bordeaux* for September, 1918, Charles describes six cases of this type. An analysis of these conjoined with cases seen by others shows that more than one type of nephritis is in evidence. The first resembles an ordinary acute nephritis and it was in following up one of this type that the authors discovered after the subsidence of the acute symptoms the presence of the spirochete in the urine. In five such cases there were edema, albuminuria, hematuria, and uremia, while icterus was absent. These symptoms, even when present in aggravated form, may suddenly subside with few or no consequences. Such behavior is not encountered in ordinary nephritis from exposure. It is still an open question what part has been played in alleged war nephritis by this spirochete. In a second type of case, represented by three patients, the disease expressed itself as a hematuria. Finally, and purely by chance, a simple spirochetosuria was encountered. Two patients presented this type. While all of the patients recovered irrespective of type there was generally remarked a prolonged subsequent period of debility. The one constant symptom in the nephritis was hematuria. In the spirochetosuric cases there was even a microscopic hematuria. This point is of practical significance, for every hematuria should be a signal for a search for the spirochete.

Injection of Alcohol for the Relief of Causalgia from Gunshot Wounds.—It was the late Weir Mitchell who gave the name "causalgia" to the acute and distressing suffering caused by injury to the median nerve in the upper extremity, on the internal popliteal nerve of the leg. According to Capt. E. Farquhar Buzzard, in a paper published some time ago in the *West London Medical Journal*, patients suffering from median or internal popliteal causalgia may be counted among those who suffer the most distressing results of modern warfare. Moreover, men with such injuries are apt frequently to gain little sympathy, for by nurses and even by medical men, they are regarded as highly neurotic subjects who are too greatly inclined to make the most of their injuries. However, as Buzzard points out, when a large sensory nerve is injured, stimuli of all kinds, physical, psychical, auditory, and visual, can give rise to spasms of intolerable pain. This being so, it is obvious that a main object of treatment is to give relief, permanent if possible, at any rate relief from such excruciating agony. The first principle is rest, mental and physical, and isolation or partial isolation, when this procedure can be carried out.

The resort to drugs is extraordinarily unsuccessful and is also to be strongly deprecated because of the risk of destroying what little morale the patient may have preserved.

Accordingly Buzzard adopted the following line of treatment. He explains to the patient that the pain is due to a partial injury of a nerve, and that he has some cause for thankfulness that the injury was not worse. Palliative measures, the application of heat or cold or of liniments containing camphor, menthol, chloral hydrate, etc., are used during the day, and at night a sufficient amount of sleep can be secured generally by the use of bromides or other mild hypnotics. But there remains a minority of patients whose suffering is so great and so prolonged that further steps must be taken. With such patients Buzzard has had the most gratifying results from the injection of alcohol into the injured nerve on the proximal side of the injury. A few drops of 80 per cent alcohol in acute cases of causalgia of the median or popliteal nerves will often altogether relieve the pain. Of course, there is the risk of destroying or greatly impairing nervous function, but in some cases in which this mode

of dealing with the situation was adopted function improved. Also the fact must be taken into consideration that median injuries of any degree of severity are followed rarely by complete recovery of function, and especially when the patient has endured a long period of intense suffering.

Carbon Tetrachloride Vapor as a Delousing Agent.—Now that it has been practically proven that at least one disease is conveyed directly or indirectly by body lice, it is a public health measure of the utmost importance to prevent these insects from gaining access to the body. With this end in view several methods of delousing have been given a trial, some of which have shown themselves effective. For example, dry and moist heat and hydrocyanic gas fulfill the purpose of destroying body lice on clothing excellently. At the same time the apparatus by which these methods are used is cumbrous and complicated and thus not always available for troops in actual warfare. Moreover, the need sometimes arrives of cleaning lousy clothing in jails, small hospitals, asylums, camps, and even in the home. Therefore, a simple means of accomplishing this object is desirable.

Dr. M. H. Foster, Surgeon, U. S. Public Health Service, in the search for some practical method of exterminating lice which would require only a simple apparatus, has been investigating the effects of carbon tetrachloride vapor and has described the results in Public Health Reports, October 25, 1918. Carbon tetrachloride is a heavy, colorless fluid, is extensively used in fire extinguishers and so on, and is also the chief constituent of certain proprietary cleansing fluids on account of its great power to dissolve fats. The vapor is heavy and instantly extinguishes combustion. Up to the present time it has not attracted much attention as an insecticide, but appears to be very toxic for flies, ants, potato bugs, and lice. The effect of this vapor was contrasted by Foster with that of gasoline and chloroform with respect to its effect on flies. It was found to be much more toxic than either of the other two. The effect of the combination of gasoline and carbon tetrachloride vapor was determined, the proportion being 1 part of gasoline to 2 parts of carbon tetrachloride. The vapor from this combination was not inflammable, but the mixture was by no means so efficient as the same amount of carbon tetrachloride.

Having in view the delousing of soldiers' clothing in places where complicated apparatus could not be obtained, the following method was thoroughly tested: A 10-gallon can, such as is used for shipping liquid disinfectants, was obtained. This can was 12 inches in diameter, 19 inches high, sheathed with a light wool covering, and weighed 6½ pounds. The top was cut out so that clothing could be introduced and removed readily. In making the tests the complete clothing of a United States Army private was placed in the can, each article being firmly rolled up. A soiled shirt, badly infested with lice, was cut into four pieces. Each piece of the shirt was rolled fairly tightly and then further wrapped in two thicknesses of ordinary sheeting; one piece of this material containing 90 live lice was lightly wrapped in the breeches and placed near the bottom of the container, another holding 98 live lice was tightly wrapped in the middle of the blouse and packed near the top of the contents. The complete outfit of wearing apparel was placed in the tin and pressed down rather firmly, occupying a little more than one-half of the total space. Several layers of filter paper were laid on top of the clothing, and on this paper 25 c.c. of carbon tetrachloride was poured. The top of the can was covered by several thicknesses of toweling and a loose cover placed over this, the idea being to protect the can from the effects of drafts, but not to seal it hermetically so as to permit some of the air to escape at the top when it was displaced at the bottom by the heavy vapor. At the end of two hours the can was opened, the package containing the lice infested shirt was aired and examined. All the lice were found to be dead and they did not revive when examined at various periods up to 24 hours afterward. It was ascertained that exposure under similar conditions to the same strength of carbon tetrachloride for an hour and a half was not sufficient to kill all the lice, about 25 per cent. surviving. It is essential that the container should be airtight, that it be only two-thirds full of clothing, and that it should be about twice as high as it is broad, as the vapor appears to be easily disseminated from shallow or broad receptacles. It is a cheap method, as at the present price of carbon tetrachloride the expense of delousing the entire outfit of a soldier would be about 5 cents per man. The tests were made at temperatures ranging from 68° to 72° F. It is to be inferred that the results would not be so good at lower temperatures and Foster suggests that further work along this line is desirable. However, the temperatures prevailing at the time the tests were performed were approximately those of artificially warmed living habitations even in winter. Certain experiments made to determine the power of carbon tetrachloride vapor to kill the ova of the body louse have not been completed. It was definitely determined though, that the nits are not killed by treatment with 30.5 c.c. of carbon tetrachloride to the cubic foot of space, with two hours' exposure. Foster draws attention to the fact that carbon tetrachloride is somewhat more poisonous than chloroform and this must be considered when dealing with its applicability as a delousing agent.

Slain in the War.—The British War Office has announced to the House of Commons that the British losses on all fronts during the war were 667,665. Of these, 37,836 were officers and 629,829 were men. The British wounded totaled 2,932,122, while the missing, including prisoners, were 359,145. The total casualties were 3,949,991. A despatch from Copenhagen states that the *Vorwärts* of Berlin says it learns on reliable authority that up to October 31 1,580,000 German soldiers were killed, and 4,000,000 wounded, some several times. There are said to be 490,000 German prisoners in other countries. The American casualties in the war number 236,117. There were 36,154 killed or died of wounds; 14,811 died from disease, and 2,204 deaths are unclassified.

The wounded number 179,625, prisoners 2,163 and missing 1,160.

War Department Stops Hospital Construction.—Among the construction projects recently cancelled by the War Department was a contract for a large hospital at Fort Omaha, Nebraska.

Work of City Club's Ambulance Unit.—The ambulance unit sent abroad by the City Club of New York has transported more than 50,000 wounded men from the front lines to dressing stations and hospitals in France. Fourteen of the drivers serving with the unit have been decorated with the French War Cross; and, in addition, as a result of the club's war activities, funds have been supplied for the support of 1,600 fatherless children of France.

Wounded Soldiers Arriving.—A transport from France landed 426 wounded and convalescent soldiers and 24 officers at Hoboken on November 23, all of whom were transferred by Red Cross ambulances to the New Army Hospital at Eighteenth Street and Sixth Avenue, formerly the Greenhut Building. These were the first patients received by this hospital, which opened for their reception with a staff of 400 enlisted men, 45 physicians, and some 70 regular army nurses, headed by Major W. J. Monaghan. This hospital is prepared to care for 4,000 men.

Red Cross Announces New Enrollment.—The American Red Cross will hold a Christmas roll call during the week of December 16 to 23. During this week every chapter in the country will conduct a campaign to reenlist all the present members and to enroll new ones at the annual fee of one dollar.

Maj.-Gen. William C. Gorgas will soon, it is announced, resume his work for the eradication of yellow fever in South American countries that he abandoned temporarily when the United States entered the world war. He will leave shortly for Central and South America, having been preceded to Guayaquil, Ecuador, by Dr. M. E. Connor, who will assist him in putting into effect the program of the International Health Board of the Rockefeller Foundation. In a recent statement, Dr. Vincent, president of the Rockefeller Foundation, pointed out that the survey of the situation by the Rockefeller experts had led to the opinion that the total eradication of yellow fever was feasible through the extermination of the stegomyia mosquito.

Deaths in the Service.—Captain Frank Henry Knight, M.C., U. S. Army, of Brooklyn, N. Y., attached to Base Hospital No. 23, at Portsmouth, England, died there of pneumonia on October 28, aged 42 years. He was a graduate of the College of Physicians and Surgeons, New York, in 1899, a member of the American Medical Association, and a Fellow of the American College of Surgeons. Prior to his entrance into the service, Dr. Knight was chief gynecologist at the Methodist Episcopal and Swedish Hospitals, assistant visiting surgeon to the Kings County and St. John's Hospitals, and visiting surgeon to the Episcopal Orphan Asylum and the Home for the Aged.

Lieutenant August Adrian Strasser, M. C., U. S. Army, of Arlington, N. J., died of paralysis in Newark on November 19, aged 44 years. He was a graduate of the College of Physicians and Surgeons, New York, in 1896, and a former president of the New Jersey Academy of Medicine. He was until recently stationed at Fort Oglethorpe, Georgia.

Lieutenant-Colonel Alexander Watson Williams, M. C., U. S. Army, a graduate of Johns Hopkins University, Baltimore, in 1912, an honor graduate and medalist of the Army Medical School in 1913, died from illness, in France, on October 5, aged 34 years. Colonel Williams served in Manila from March, 1916, to November, 1917, and on his return to the United States organized and equipped for overseas service Hospital Train No. 29, at Fort Benjamin Harrison, Ind., and was on duty at Camp Sherman and Camp Lee before he went to France.

Assistant-Surgeon William Henry Buffum, Lieutenant, U. S. Navy, of Providence, R. I., died in a hospital in Liverpool, England, on October 13, from pneumonia, aged 41 years. He was a graduate of Harvard University Medical School in 1902 and one of the officers of the Rhode Island Naval Hospital Unit which started overseas a few weeks ago.

Captain Alfred Glascock, M. C., U. S. Army, of Washington, D. C., died from pneumonia on October 10 in France, where he was serving as psychiatrist at a base hospital. He was a graduate of George Washington University, Washington, D. C., in 1902, and formerly a member of the staff of St. Elizabeth's Hospital, Washington. He was 37 years of age.

Lieutenant Thomas Purley Johnston, M. C., U. S. Army, of Mount Gilead, Ohio, a graduate of the Ohio State University, Columbus, in 1910, died from pneumonia in an American Base Hospital in France, on October 7, aged 36 years.

Captain Claude Melville Campbell, M. C., U. S. Army, of Decorah, Iowa, a graduate of the North Western University Medical School, Chicago, in 1910, on duty at Fort Riley, Kan., died at Glencoe, Minn., October 23, from pneumonia following influenza, aged 33 years.

Lieutenant Grover Carter, M. C., U. S. Army, of Memphis, Tenn., a graduate of the University of Tennessee, Nashville, in 1917, was killed by a shell, on October 16, while attending a wounded officer. He went overseas in October, 1917, serving first at a base hospital in England and later assigned to duty with the British Army in Flanders, and attached to the One Hundred and Twenty-First Brigade, Royal Flanders Artillery.

Lieutenant Winfield Scott Faulds, M. C., U. S. Army, of Roy, Montana, a graduate of Dearborn Medical College, Chicago, in 1906, commanding Camp Hospital No. 7, Thirty-Third Division, in France, died recently of pneumonia, at the age of 45 years.

Lieutenant Burton Robert Carpenter, M. C., U. S. Army, of Clifton, Texas, a graduate of the Fort Worth, Texas, School of Medicine, in 1912, ordered for duty at Fort Riley, Kans., died from pneumonia at Clifton, on October 28, aged 29 years.

Lieutenant Louis Robert Kratze, M. C., U. S. Army, of Chicago, a graduate of the University of Chicago in 1912, died recently from influenza at Camp Crane, Allentown, Pa., aged 35 years.

Lieutenant Franklin Marshall Hawley, M. C., U. S. Army, of Bayfield, Wis., a graduate of Drake University, Des Moines, Iowa, in 1883, died from spinal meningitis while on duty in a hospital in France on October 2, aged 55 years.

MEDICAL RECORD.

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THE SYMPTOMATOLOGY OF NEOPLASMS OF VATER'S AMPULLA.

THE commencement of a neoplastic process in the ampulla of Vater differs from one case to another, but in a general way there are premonitory phenomena of dyspepsia, pain, or symptoms of a general nature. In some instances the appetite may be increased, while in others it is diminished and in the latter circumstance distaste for meat is common. Digestion may become slow, with a sensation of epigastric fullness after eating. Occasionally, but less frequently severe paroxysms of pain with vomiting take place. Alternatives of diarrhea and constipation may arise. If, regardless of normal alimentation, marked emaciation occurs along with these digestive symptoms a neoplasm will naturally be suspected although its site remains obscure. The appearance of icterus, which is the important symptom, and opens the scene in about 50 per cent. of the cases, will draw the practitioner's attention to the biliary tract.

Icterus is a constant and valuable symptom. It may occur suddenly in an otherwise healthy person, while in other cases its appearance is preceded by a general malaise or even digestive disturbances with colic. It is a slowly progressive icterus which finally culminates in melanodermic jaundice. It should be remarked that, in the early stage, the icterus may be intermittent, a fact insisted upon by Hanot, Rendu, and other observers. Hanot explains this phenomenon by a spasmodic contraction of the orifice of the choledochus, while Rendu considers that the cause resides in the variability of the vascularization of the neoplasms from which arises their turgescence at certain times, resulting in the occlusion of the choledochus. Stokes suspects that the growth may act as a valve in some cases. The icterus has the characters of a retention jaundice, that is to say, that the feces are decolorized and the urine very deeply stained at the same time. The decolorization of the feces may undergo certain variations, a fact explained by the permeability of the choledochus at the level of the ampulla. The urine is loaded with bile pigment and both Gmelin's and Grimbert's reactions are positive. Glycosuria has been met with in only one case.

Pruritus is very common and so severe that it alone may necessitate operative interference for the patient's relief. Xanthelasma has been noted occasionally. The digestive disturbances are vague. At one time it was thought that diarrhea was an important diagnostic element but it is absent in about 50 per cent. of the cases, so that its value is not great. Microscopical examination of the feces shows large numbers of fat drops after the ingestion of fat. The fats are not split up, owing to the absence of the pancreatic fluid, hence diarrhea. If the patient be given potassium iodide enveloped in gelatin, the envelop is not dissolved so that no iodine will be found in the urine. Search for elastic and muscle fibres after a meal of meat reveals their presence in the stools. The ingestion of salol is not followed by the elimination of salicylic acid in the urine. Intestinal hemorrhage in the form of melena is rare. Occult hemorrhage, to which Boas has called attention, is certainly not frequent.

Among the subjective signs pain has little diagnostic value. It is often absent and when it does exist, it is not intense. It occurs before or at the time that icterus appears. Fever was noted by Courvoisier in 25 per cent. of cases of biliary lithiasis and in 10 per cent. of cases of neoplasms of the biliary tract. Cerebral disturbances may supervene toward the end of the process with or without delirium, or coma with convulsions may end the drama. Blood analysis shows a great decrease of hemoglobin, even as much as 50 per cent., while the red blood corpuscles are greatly reduced.

To complete the clinical picture a word should be said concerning the local examination of the biliary tract. Exploration of the tumor is often difficult but an attentive examination will show that the liver is enlarged, smooth, and hard. In the region of the gall-bladder a mobile, resistant, and painful mass can be made out, the gall-bladder being, according to Courvoisier, increased in size in 92 per cent. of the cases. Retention icterus, with decolorization of the feces and dilatation of the gall-bladder constitute the Courvoisier-Terrier syndrome, which is opposed to the lithiasis syndrome with intermittent icterus and retraction of the gall-bladder. The former syndrome is of the highest value in the diagnosis of neoplasms of Vater's ampulla and in its absence a diagnosis becomes impossible.

THE POLYCYSTIC KIDNEY IN THE ADULT.

THE evolution of the polycystic kidney in the adult is far from being uniform and the duration of the morbid process varies in considerable proportions. It is a matter of some difficulty to estimate the limits of the evolution because some cases progress with astonishing rapidity, the patient dying in his first attack of uremia, before which he had offered no symptom, while nevertheless necropsy revealed very large polycystic kidneys. In other instances the evolution is less rapid and from the time the initial symptoms are observed the patient may live for two or three years and frequently more than a decade.

The commencement of the process is likewise extremely variable, the first symptomatic phenomenon being either the clinical evidence of nephritis, neoplasm, pain, or hematuria. Uremia is the most common cause of death, being observed in one hundred and twenty clinical histories collected by Zelniker (Thesis, Paris, 1915).

Albarran and Imbert have described three clinical forms of this morbid process, the first being the uremic, characterized by the sudden development of uremic accidents in an apparently healthy subject. Death usually takes place in eight or ten days. The Brightic form is slow in evolution and offers the classic picture of chronic nephritis, ending more or less rapidly in uremia. The renal form is characterized by evident renal symptoms such as abdominal or lumbar pain and hematuria.

This last form was looked upon by Pousson as the surgical type of the process, under the misnomer of polycystic kidney. He opposes to the true polycystic kidney—a bilateral affection of unknown etiology—the pseudo-polycystic kidney which has a nephritic, lithiasic, hydronephritic, or tuberculous origin and which is often unilateral.

On examination, the unilaterality of the process does not appear to be more frequent than in essential cystic degeneration, since out of a total of twelve autopsies the lesions were bilateral in eleven. If the symptomatology be considered, it will be found to differ little from that of true polycystic kidneys. Tumor, pain, hematuria, and symptoms of chronic nephritis are encountered and to these symptoms of lithiasis are added and radiography will reveal renal calculi. The complexity and variability of the symptoms of polycystic kidneys explain why the diagnosis is often wrong, but in all cases in which it has been made, a bilateral renal tumor could be felt. Ureteral catheterism and radiography will greatly help.

Renal lithiasis, which may coincide with polycystic degeneration, can be eliminated by the *x*-ray and ureteral catheterism will settle the diagnosis when bilateral enlarged kidneys are the result of tuberculosis. In renal cancer the kidney may be greatly enlarged and give rise to hematuria or the urine may be absolutely normal. Hydronephrosis is diagnosed by the ureteral catheter.

Generally speaking, no surgical interference is required during the progress of a polycystic kidney undergoing a normal evolution, and an early diagnosis is essential in order not to interfere. The only surgical interference will be that for complications such as suppuration, hematuria, and anuria. Before resorting to operation the functional activity of both kidneys must be ascertained and if found insufficient on the supposedly normal side, nephrectomy is contraindicated. If, on the contrary, the opposite kidney is judged functionally sufficient, nephrectomy is indicated in cases of suppuration of the cysts, while in anuria nephrotomy is the only proper operation. In the uremic and, therefore, nephritic form, the only proper therapeutic measures are those of interstitial nephritis.

WARBURG'S TINCTURE IN THE TREATMENT OF INFLUENZA.

THE treatment of influenza naturally has given rise to a good deal of discussion during the past few weeks. It is perhaps a question if drugs other than alkalies are needed to any great extent in a mild attack of influenza, rest and careful nursing being possibly the most important factors making for recovery. But in severe cases the fever and other evidences of profound intoxication call for medicinal therapy—the salicylates, one of the synthetic antipyretics, or quinine. Regarding the latter, Warburg's tincture has long held a reputation in tropical countries as a remedy of undoubted and indeed unequalled power in the treatment of malignant malarial fevers and cholera. Testimony to this effect is unassailable. Now the chief component of this preparation is quinine, each ounce containing nine and a half to ten grains of the alkaloid. One might, therefore, be inclined to say, and some have said, that the main if not the only virtue of Warburg's tincture lies in its quinine content. But many of those who have had experience in treating the remittent fevers contracted in the jungles and swamps of the tropics have stated definitely that quinine when given alone does not exert the beneficial effect of the tincture. Professor McLean, writing in the *Medical Times and Gazette* so long ago as 1875, said that he had never seen a single dose of quinine given alone, to the extent of nine grains and a half, suffice to arrest an exacerbation of remittent fever or prevent its recurrence, while nothing is more common than to see the same quantity of the alkaloid in Warburg's tincture bring about these results.

The late Sir William Broadbent was enthusiastic regarding the therapeutic merits of Warburg's tincture, and, moreover, analyzed and explained in *The Practitioner*, February, 1877, why the preparation was superior to quinine by itself. The great principle of its action is the combination of quinine with powerful aromatics. It is likewise aperient from the aloes, rhubarb, etc., contained in it, and this may also contribute to its usefulness. Again, a large dose of quinine sometimes not only gives rise to the usual symptoms of cinchonism, but produces a good deal of prostration. This result may be counteracted by aromatic stimulants. In the opinion of Broadbent there is a second therapeutic principle involved in the employment of Warburg's tincture, namely, concentration. And it must be pointed out that there is a therapeutic administration of drugs to which physiological experiment affords no clue, and for which the condition of the patient is the indication. The effects are largely due, according to Broadbent, to the powerful impression made in consequence of this concentration upon the nervous system. The instructions given for the use of Warburg's tincture are that the bowels shall have been freely open, that no food

shall have been given recently, and that two doses shall be administered without dilution at an interval of two or three hours. The remedy thus enters the empty stomach in a highly concentrated state, and is no doubt rapidly absorbed. If Warburg's tincture does produce the remarkable effects in remittent fevers and in other acute infections, which it is stated to produce, why might it not be used in place of pure quinine or of the coal tar drugs in the treatment of influenza? It matters little if its action cannot be clearly explained from the physiological standpoint, for we have not yet wholly emerged from the empirical stage in therapeutics, if we ever shall.

AEROPHAGY.

AFTER aerophagy had been distinguished in the clinic from flatulent dyspepsia a large literature came into existence with many refinements in classification. It was grouped by causes, location, symptoms, syndromes. When fluoroscopy was introduced an objective study corroborated the earlier finds. Air could be seen to collect in the stomach and cause pressure and reflex symptoms which vanished when the air was expelled. Despite all its varieties of expression aerophagy is the most simple of affections *per se* although associated with the most varied conditions. An air swallower is always a dyspeptic, always suffers from gastric atony or hyperesthesia, is always neuropathic. The act of swallowing saliva (sialophagia) which plays so important a role in aerophagy may amount to a habit spasm, a form of obsession, and is always associated with hyperchlorhydria.

The foregoing represents the conception of aerophagy by Lyon, who regards the treatment of the affection as relatively simple. The dyspepsia is usually of a mild, benign type and the atony, whether this is a primary or secondary manifestation, yields to a combination of massage, gymnastics and hydrotherapy. One should lie recumbent for a long time after meals and should wear a swaddling band if the screen shows a state of gastric elongation. The diet should be balanced, the food taken dry and well chewed. Hot drinks long after meals are advised. About the only drugs indicated are sodium salts in the form of carbonate, chloride, phosphate, and sulphate (the author suggests a number of combinations). Exceptionally sedatives may be necessary—belladonna, codeine, valerianates, bromides, chloroform water. Lyon would probably begin treatment with vibratory massage, hot local hydrotherapy, a bromide enema at night, meals taken recumbent, perhaps followed by belladonna or chloroform water. Marked hyperchlorhydria, suggesting ulcer, would call for other measures.

Diagnosis in the Influenza Pandemic.

DUBOIS in the *Archives Médicales Belges* for September contributes a review of this subject from many sources, from which we extract certain points of general interest. The various accounts by different writers from many different countries by no means are superposable over one another. Common to all are the brusque début, the throat pains which serve to exclude ordinary feverish colds, with a peculiar retrosternal pain, the notable prostration, the anorexia, the burdensome convalescence, etc. Contagiosity is marked, with incubation brief. There are very many abortive or, if one prefer, mild cases. If we consider the subject globally, diagnosis has lain chiefly between three affections—ordinary influenza, pappataci fever, and a new malady. In regard to pappataci fever, this has been considered a possibility only in those localities where the latter flourishes. The affection, however, is one and the same in all countries, and the presence of the usual complications of pandemic influenza in Italy, such as bronchopneumonia, should exclude the pappataci theory. The latter disease is noted for its monomorphism, as distinguished from the polymorphism of influenza. Especially is the pappataci fever free from pulmonary complications, a result perhaps due in part to its summer incidence. Our association of influenza with cold weather is evidently largely fortuitous. But a question arises which has not yet been answered—may virulent influenza be transmitted by insects? We recall in this connection that the question was asked by certain Spanish writers, although the majority scouted the idea. In some Italian episodes men on shipboard were infected under such circumstances that only an insect borne infection seemed rational. Such a possibility would constitute a connecting link between these diseases, but while in pappataci fever it is the chief or sole method of communication, in influenza it must be a very unusual one in comparison with mouth to mouth infection.

Myocarditis from Mumps.

FROM an abstract in the columns of the *Journal de médecine et de chirurgie pratiques* for October 10, we learn that Pujol, who is in charge of a cardiological center, has been seeing cases of this rare complication or sequel of parotitis. In Hudelo's monograph on mumps the existence of such a complication is denied outright; hence cases which do develop are presumably latent. During the war many things have been learned of this disease (mumps) in adults and among complications and sequelæ newly listed are the following: prolonged asthenia, meningitis, nephritis, pseudorheumatism of infectious character, all of which are fairly common. Pujol has seen 12 cases of myocarditis in 450 cases of mumps in soldiers. The complication appears under different guises. It may announce itself spontaneously by symptoms pointing directly to the heart, but in the majority it does not become evident until the heart is subjected to a sudden unwonted strain. For example the patient mounts a ladder and at once becomes dyspneic. Again, while marching he falls behind his comrades. But examination of the heart, the patient being in repose, reveals nothing wrong. If now he is subjected to tests for efficiency under strain the shortcomings of the organ are manifest. The usual tests are some

form of mild exertion maintained for a full minute, after which tachycardia will be apparent requiring at least four minutes to regain equilibrium. The ultimate prognosis is probably good, but the subject will have to change his calling if the latter is active to a less violent one. Thus a farmer will have to limit himself to work of a light class, after his release; a farrier will have to give up his calling altogether, etc.

Public Health in Cuba.

Sumptuous reports are issued monthly (in Spanish, French and English text) entitled *Sanidad y Beneficiencia*, which cover the sanitary and hygienic activities of Cuba; and from the May-June number we extract the following information. Four pestilential diseases—lepra, tuberculosis, rabies, and typhoid—are considered from the viewpoint either of prevention or cure. The adverse report on the Garcia plan for the treatment of leprosy has already been mentioned in the columns of the Medical Record. Contributions on Cuban tuberculosis deal only with isolated aspects of the malady, as there is no general crusade in progress at the present time. The results of antityphoid inoculation as tried out in certain districts appear to be very encouraging. The report on rabies will be of the greatest interest to the United States citizen, for it is not generally known that a Pasteur institute for the prevention of rabies was established in Cuba as far back as 1887. Last year, therefore, a report covering thirty years' activities could be analyzed. During this period 5,188 individuals received the preventive treatment. The number of bitten people who nevertheless developed rabies was 36, a percentage of failure of 0.065. From 1900 to 1909 there was a notable falling off in the number requiring inoculation; but at that juncture this number jumped from 19 to 465. From 1898 to 1908 there was not a single death recorded from the disease, but since the latter year 15 deaths have occurred from this cause. The report does not give any reason for this falling off and subsequent rise. It is known that since the statistics went into effect, 77 deaths from hydrophobia have occurred in unvaccinated subjects.

The "Hole in the Hand" Experiment and Binocular Vision.

In parlor physics an illusion is sometimes demonstrated as follows: A sheet of newspaper is rolled up to make a tube three feet long which is held in the right hand in front of the right eye which is focused through the tube upon some distant object. The left eye is directed upon the palm of the left hand which is held by its ulnar side against the tube and near its peripheral end. The two eye pictures are fused in the brain so that the right eye appears to see its objective through a hole in the left hand. Dr. Cantonnet, a French oculist, was apparently the first to introduce this experiment into ophthalmology and in a recent monograph by Remy on the diploscope receives credit for the same. While this instrument is indispensable to the specialist the general practitioner by the use of Cantonnet's test can obtain satisfactory evidence of binocular vision. Cantonnet says that the hole in the hand test possesses therapeutic virtues as well in diplopia, but he does not insist upon this, since treatment of this condition is reserved for the ophthalmologist. If the hole is seen in the middle of the hand binocular vision is perfect. If seen on the right side there is exaggerated convergence; if on the left side divergence. There may also be a vertical deviation.

News of the Week.

Jerusalem Freed of Mosquito Plague.—The Zionist Organization of America, through the efforts of Louis Cantor of Rochester, N. Y., who is a member of the American Zionist Medical Unit, has freed Jerusalem of the mosquito pest. It is said that the city is now practically free of these carriers of malaria. During Mr. Cantor's campaign 350 cisterns were petrolized and put in sanitary condition. Mr. Cantor was formerly connected with the Goethals Commission at the Panama Canal.

Optical Industry Must Conserve.—There is a world wide shortage in spectacle lenses, frames and mountings, in consequence of which the War Service Committee of the Optical Industry announces that the conservation policy adopted by the trade for the war will be continued during the reconstruction period. All manufacturers have discarded the dozen system and will sell in the future by the decimal system.

Dr. William G. Bissell of Buffalo has been chosen president of the New York State Board of Medical Examiners.

Dr. John A. Moore of Westport, Conn., has been appointed health officer of Weston, Conn.

Dr. Samuel B. Woodward has been chosen president of the Worcester (Mass.) Society for the Prevention of Cruelty to Children.

Dr. Earl J. Mathewson has been elected City Physician of Pawtucket, R. I., to fill the unexpired term of the late Dr. Walter A. Watts.

Dr. Beverley Robinson of New York has been elected corresponding member of the Société Médicale des Hôpitaux of Paris. Dr. Robinson is an ex-interne of the Paris hospitals.

Court Restores Doctor's License.—The decision of the courts of San Francisco has restored Dr. Marion Thrasher's license to practise medicine, which was revoked some months ago by the State Board of Medical Examiners for alleged unprofessional conduct.

Dr. Charles E. Donlan has been reinstated as superintendent of the Long Island Hospital of East Boston, Mass.

The American Public Health Association will hold its annual meeting in Chicago, December 9 to 12. The headquarters will be at Hotel Morrison. Inquiries may be addressed to the secretary at 989 Boylston Street, Boston, Mass. The program is designed to bring out all available information concerning the management of epidemic influenza, though other aspects of public health will not be neglected. Among the papers to be read are the following: "Etiology of Influenza," by Major William H. Welch; "Mobilization of Medical and Nursing Forces," by Assistant Surgeon General J. W. Schereschewsky; "Influenza and Pneumonia Vaccines," by Dr. E. C. Rosenow;

"The Use of Sera in Influenza," by Drs. McGuire and Redden; "The Face Mask," by Colonel Charles Lynch and Dr. George Weaver; "Organization of State and Federal Forces in Epidemics," by Assistant Surgeon General A. W. McLaughlin and Dr. E. R. Kelley; "History and Statistics of the Epidemic," by Assistant Surgeon General B. S. Warren.

Obituary Notes.—Dr. THOMAS H. WERICH, a graduate of the University of Michigan College of Medicine in 1873, died of pneumonia at his home in Wellsburg, W. Va., on November 6, aged 73 years.

Dr. HINTON G. FUSSELL, a graduate of the Atlanta (Ga.) School of Medicine in 1912, died at his home in Camilla, Ga., on October 29, aged 29 years.

Dr. ANTONIO RUBINO of Paterson, N. J., a graduate of the Royal University of Modena, Italy, in 1910, died in a local hospital from illness brought on by overwork during the influenza epidemic, on November 22.

Dr. JOHN S. MELTZER, a graduate of the University and Bellevue Hospital Medical College in 1912, died of pneumonia at his home in New York City on November 16, aged 31 years.

Dr. CHARLES EMORY PAINE, a graduate of the New York Homeopathic Medical College in 1903, died at his home in Brooklyn on November 18, aged 31 years. He was a consulting physician to the Jamaica and Cumberland Street Hospitals and on the advisory board of the Peck Memorial Hospital. He was a member of the New York Homeopathic Society and the Pathological Society.

Dr. EDWARD D. PECK of Caldwell, N. J., died of apoplexy on November 22, at the age of 64 years. He had been to see a patient, and was stricken in the garage on his return. He was a graduate of the Bellevue Hospital Medical College, New York, in the class of 1879. Dr. Peck was mayor of Caldwell, and had recently been reelected to a second term without opposition.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

INFLUENZA IN LONDON—DEATH OF MR. R. BRUDENELL CARTER—COMMISSION ON PUBLIC HEALTH IN EGYPT—ADDITIONAL FUEL IN CASES OF CHILDBIRTH.

LONDON, October 30, 1918.

THE influenza epidemic reached what is presumed by those experienced in urban epidemiology to be its height, in the closing week of October; and the last week of the month, though the incidence of cases was larger found the mortality rate lower. There were 1250 deaths in London in the week ending October 26. A declining mortality is not in accordance with the views that have been expressed by some authorities upon the probable behavior of influenza, for the epidemic has in many instances been noted to grow severer in type even while it is growing lighter in numbers. The members of the medical profession in London and the suburbs have been sorely tried by the outburst, and the time of strain remains while I write. Doctors have been working night and day in the endeavor to attend adequately to their patients, and the circumstances of the fourth year of the war have not made their task any lighter. Undoubtedly a large proportion of the population who have suffered from influenza have been over-worked owing to the shortage of man power, and over-anxious owing to the harrassing conditions of domestic life under rationing systems. Absence of light and difficulties in traveling by motor car, train, or omnibus, have also aggravated the difficulties of doctors and the anxieties of patients. On the other hand, the high wages enjoyed by the greater part of the industrial and operative classes, regardless to some extent of sex or age, have made it possible for most families to obtain the special nutriment required in spite of prices and scarcity. The mortality would certainly have been far greater had not the population possessed the means to secure the necessary warmth and nutriment and had not rationing schedules been found unexpectedly elastic.

The urgency of the situation has been realized in official ways. Sir Auckland Geddes, the Minister of National Service, and himself a medical man, has issued an official order cancelling the calling-up notices for medical examination of recruits. The meaning of this is that for the time being all the medical officers who were engaged upon the anxious and difficult work of inspecting, passing or rejecting recruits are set free from the recruiting boards. Where these doctors have private practices they have already returned to them, and where they have not been in practice, their services have been requisitioned for the country's need, and they have been drafted to localities where their services were particularly required. There is for the time being no lull in the demand for medical men with the Navy and Army as was hoped. There is full work for medical men to do in both services. For the immediate present, health at home is held to be the first consideration, so long as the wounded men in the active zones are duly cared for, so that the Recruiting Boards have been depleted. The lay newspapers have been abounding with regulations which should be observed by the public in regard to the epidemic, and for the most part these regulations have been of no value whatever to the population. Nothing recommended by the newspapers has been additional to the routine medical advice widely disseminated by the medical profession, nor have any of these lucubrations added anything whatever to the general counsels laid down by Sir Arthur Newsholme, Principal Medical Officer to the Local Government Board. The daily newspapers have in fact been a source of considerable danger to the community by magnifying the risks of the disease and thereby in the opinion of many people increasing the susceptibility of the population. For example, Mr. E. W. Morris, House Governor of the London Hospital, has circulated for the advice of the populations in the East End of the metropolis, where his hospital is situated, a leaflet containing simple and admirable rules to be observed in regard to the epidemic. Among the rules is the following: "Do not talk about influenza. It is wearing itself out and will go all the sooner if you do not talk about it. Influenza is a disease

that likes to be noticed." This advice is extremely sound, and to publish a leaflet containing it need not defeat the advice, if the advised persons do not talk. This is an obvious point which apparently has been missed by the daily papers, who have selected that particular one of Mr. Morris's rules for disquisition and advertisement. It is of course a disquieting fact for the public as well as for the medical profession that the nature of the epidemic should be confessedly mysterious. Some authorities think that it is conforming to the ordinary pattern of influenza, notably to the pattern which prevailed 28 years ago all over England. Others find it an entirely new disease, quoting in particular the fulminating nature of the attacks and the frequent occurrence of hyperpyrexia. The pathology is obviously complicated, three separate germs being recognizable. Lastly, there is an absolute difference of opinion as to whether associated symptoms of encephalitis or of poliomyelitis are part of an influenza syndrome or are intercurrent attacks in debilitated subjects of separate diseases. There is no doubt about it that the pathology of influenza requires still a great deal of investigation.

The death has just occurred in his 90th year of Mr. Brudenell Carter, consulting ophthalmic surgeon to St. George's Hospital, an ex-president of the Medical Society of London, and for 50 years a leading writer in the columns of the *Lancet* and the *Times*. A good linguist, and a beautifully clear and learned writer, he brought his gift into full play also as an orator, and for twenty years, as representative of the London Society of Apothecaries, he was an influential member of the General Medical Council. He wrote an admirable text-book of diseases of the eye, which, however, was not kept up to date and is now superseded by more recent manuals; he also furnished the ophthalmological sections to the two great "Systems of Medicine" in the seventies, namely, "Holmes's System of Surgery" and "Quain's Dictionary of Medicine."

In June, 1917, Sir Reginald Wingate the Egyptian High Commissioner took the prescient step of appointing an official inquiry into the future organization and work of the Public Health Department of Egypt. It was not however until June of this year that preliminary arrangements were completed, and the Commission was duly appointed, with the following constitution: President, Lieut.-Col. Andrew Balfour, lately Director of the Welcome Research Laboratories; members, Lieut.-Col. G. E. F. Stammers, Mr. E. S. Crispin and Dr. Charles Todd. Mr. Crispin is the Director of the Medical Department of the London Government, and Dr. Todd is the Director of Laboratories to the Egyptian Public Health Department. I refer a little at length to the Balfour report in a London letter because the disposition of reforms in accordance with its recommendations will certainly call for central influence, and will not depend alone upon Egyptian activities.

The Commission on getting to work instituted a series of inspections in Cairo, Alexandria, and the provinces, thus familiarizing themselves with the different aspects of the work controlled by the Public Health Department of Egypt. It met on 76 occasions and the result is the return to the Egyptian Prime Minister of a very outspoken series of findings. The report begins by recording an impression that the general scheme was devised by the Public Health Department in Egypt for dealing with the many and difficult health problems of Egypt—such as checking the spread of cholera, plague, typhus, and relapsing fever. In those important respects the Commission found that the future needs of the country had received great attention, while from the general health point of view much foresight had been exercised and well directed labor expended. The report singles out for special and favorable mention the worth of the late assistant director of the Department Dr. Cyril Goodman, whose experience was obviously of great value to the Commission in many directions. But the Egyptian Public Health Department suffers from having no proper official status, being not an entity but merely a branch of the Ministry of the Interior; it has therefore no direct official access to the High Commissioner, and all the recommendations run the usual risk of being blocked by stress of other business.

Upon the outbreak of war the efficiency of the Public Health Department was unduly affected. says the Report, by the fact that its officials were allowed to be seconded for duty with the troops at the very moment that the personnel of the Department should have been strengthened instead of weakened. Effective organization managed to avert any disaster, but the unnecessary trouble that was caused in this country by a too precipitate utilization of all available military assistance, was coincident in Egypt. The Report outlines the present day conditions in Egypt so far as they have a bearing on Public Health work, is hopeful concerning the effect of education in modifying the outlook of the Egyptian now, while rendering the future of sanitation more hopeful. "It is obvious," says the Report, "that the signs are propitious and though owing to the war the time may not yet be actually ripe for extensive modifications in health organization, yet it is clear that the present period of change and advance offers special facilities for the consideration of a scheme of reform." After such hopeful words the Commissioners speak in almost unmeasured language of the plague of filth in Egypt and the first or general section of the Report concludes by unanimous agreement that a Ministry of Health is essential for securing proper sanitary reform in Egypt. The time has gone by, the Commissioners think, when the public health of this vast and developing country, with numerous gradual and particular sanitary problems to face, can be rendered and kept healthy by the work of a sub-bureau.

The scheme for a central health organization follows, and commences with the statement that the Ministry of Health must be a separate bureau and that the directing head should be an Under Secretary of State. Immediately below him it is suggested there should be a Director General of Health, who is intended to be the main driving force in the Ministry, as his duties will require

him to coordinate the work of important subordinates having specialized functions as well as to prepare the Annual Budget. The President of the Ministry will also have the advantages of a Technical Advisor who, under the alternative title of Director of Medical Intelligence, will conduct a bureau of information, keep himself in touch with scientific developments in other countries, and control, also, an educational museum. The President will preside over a Central Board of Health which, it is suggested, will be completed by 7 officers appointed as directors of Sanitary, Epidemic and Medical Services, Lunacy, Medical Education, Public Health Laboratories, and Sanitary Engineering. A Secretary General will be added not only to keep the records, but to deal with all questions relating to subordinate personnel, and to sift the work of the Director General who might otherwise become overburdened with details.

Passing into the consideration of the provincial organization of public health in Egypt the Commission finds that this has been less satisfactory than the central administration, owing to the paucity of inspectors. The Commission think that a good type of such man would be an officer of the Royal Army Medical Corps because of his special training in hygiene and appreciation of discipline. They add that the post should be filled by a man of about 25 years of age, but in that case his experience as an officer of the R. A. M. C. would necessarily have been of the shortest. The further details concerning provincial medical administration are very interesting, as showing how thoroughly and conscientiously the Commission interpreted their mandate, but the essential question of the moment is—will the Ministry of Health for Egypt be established? Now is the psychological time for such a reform in Egypt as in England; but in England the new legislation still tarries, owing presumably to lack of time on the part of those who would bear the burden of reconstruction. Alas, there is reason to suppose that the same difficulty exists, perhaps in exaggerated form, among those in charge of Egyptian affairs.

With obvious wisdom Sir Guy Calthrop, the Controller of Coal Mines, has admitted the validity of claims for an additional fuel allowance in respect of cases of child-birth. The maximum quantity of additional fuel granted in response to such claims will be 5 tons, a liberal allowance in face of the known fact that a speedy peace cannot be followed by a speedy relief in the coal situation.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

DISCUSSION ON INFLUENZA AT THE ACADEMY OF MEDICINE—SAVING PARIS BABIES—TEACHING THE SOLDIERS TO BOX.

PARIS, October 21, 1918.

DR. NETTAR, in a new communication to the Academy, pronounces the present form of malignant grippe which has made its appearance in several parts of Europe, as identical with the epidemic of 1889-90. He recognizes the characters of the two epidemics as the same: capillary bronchitis, bronchopneumonia, massive pneumonia, purulent pleurisy, general asthenia, serious invasion of the nerve centers, and in some instances serious heart complications. M. Nettar attributes the cause to the coccobacilli of Pfeiffer which are found in the products of the expectoration and frequently in blood cultures; these bacilli are generally associated with pneumococci and streptococci, which were found in the influenza of 1889. There is no similarity with the so-called three-day fever of the Orient, which is caused by the bite of a variety of very small gnat, and subjects suffering with grippe never complain of insect bites. The epidemic of 1889 had its origin in Russia, and went by the name of Russian influenza, and there was no justification for the term Spanish grippe for the present invasion, it being a recurrence of the first-named complaint.

The communication gave rise to a lively debate. Drs. Wurtz and Besançon made a report upon their observations of cases which by reason of their sudden and brutal onset caused them in some instances to be mistaken for cholera; at the death of these the surface became violet, almost even black. They regard the cases of severe dysentery which were numerous in Paris in the summer as a variety of the same causative agents.

Dr. Patein called attention to the enormous dosage of urea found in the urine of some of the cases which largely explained the state of asthenia that presented, and he considered these conditions as indicating a regime of nourishment by milk during the severe part of the attack.

Dr. Ravaut stated that in the region of Marseilles many cases were early seized with difficulty of breathing, asphyxia and edema of the lungs. He proposed as treatment for these cases first phlebotomy, withdrawing from 500 to 700 grammes of blood, giving at the same time hexamethylenamine as a diuretic.

Dr. Raphael Dubois stated he had achieved success in his cases by administering a teaspoonful of powdered yellow calasaya bark three or four times per day in black coffee.

Dr. E. Roux, director of the Pasteur Institute, presented a report made by Mlle. Chaptal regarding the assistance to mothers and infants made by the Department of Health in the fourteenth arrondissement. In 1901 this arrondissement possessed a population of 79,000 and no help of the character described was rendered. The infantile mortality surpassed 20 per cent. Mlle. Chaptal attributed this high mortality chiefly to the fact that babies were not nursed by their mothers, and her first work was directed to the instruction of mothers in the importance of this; she instituted lectures upon hygiene and alimentation, and gave gratuitously orders for special food to the mothers who followed her request and advice to nurse their babies; she also established means of keeping track of the children after they were weaned. The results of her work were not long in being manifest. In 1901, no more than 50 mothers in this district were nursing their children; in 1918 there were 86 per cent. of the mothers nursing their babies, and the infantile mortality had fallen to 2½ per cent. Naturally, the money expended had steadily increased with progressive usefulness of the work. In 1901 the expenditure totaled 1,000 francs, whereas in 1917 there

was expended 45,740 francs, but the saving of human life to the State was of inestimable value.

A celebrated boxer, now a soldier, has been teaching the doughboys the manly art, and here is what he says about training: The training and condition of the boxer for the square arena is a matter of primary importance. The days have passed in which men were required to go to extremes in training. The era of half-cooked beefsteak is no more. In fact, the boxer in proper training requires no more restrictions, so far as diet is concerned, than any one who desires to be a possessor of good health and a normal body. The boxer rises about seven in the morning and goes through ten minutes' breathing exercises. He stands out in the open air, or at a window, and fills his lungs to their capacity by inhaling through the nose slowly, then opening the mouth and exhaling slowly. This operation should take from five to ten seconds, and will be found greatly to improve the lung power and chest measurement. Breakfast is next on the schedule, and after two hours' rest comes "road work," which should not exceed five miles. It is advisable to cover some hilly course, both to develop your leg muscles and to deepen your chest and wind. The varying nature of the ground covered assists enormously in building up one's physique, and brings into play every individual group of muscles. Following "road work" come the bath and massage. Start your bath with warm water and finish with cold. The muscles should be thoroughly massaged to keep them from becoming tied, so to spak. This completes the morning work-out. An hour's rest, and dinner is ready, which should consist of good, wholesome food. After a rest of three hours comes the gymnasium work, which is the real training of the day. A lively four-round bout with the striking bag is first on the program. This will develop hitting power and speed. Then comes four rounds of shadow boxing. This exercise develops speed, keeps the boxer brisk and "springy" on his toes, and teaches him to maintain a perfect balance as well as the correct way to hit. Rope skipping comes next. It develops the abdominal muscles, endurance, wind, and in fact brings into play all groups of muscles. Boxing practice follows. Six rounds of fast milling is a good day's "work-out" with the gloves. Wind up the day's training by taking exercise to strengthen the stomach muscles, such as lying on the back and raising the legs to a right angle with the body, then sitting up by muscular exertion only. Throwing the medicine ball is also excellent exercise to strengthen the back and arms. Baseball, handball, "soccer" and tennis are dandy sports to help condition the boxer. A shower bath and massage follow the day's training. The muscles should be kneaded carefully to keep them pliable. They should never be allowed to grow hard and knotty, for if they do one will be slow in getting into action.

146 Avenue des Champs Elysées.

Infantile Kala-Azar in France.—Labbé has seen two cases of this exotic disease in French children. The leading symptoms were fever with wide oscillations, hypertrophy of the liver and spleen and marked anemia. The leishmania was found in the blood.—*Le Progrès Médical.*

CANADIAN LETTER.

(From an Occasional Correspondent.)

INFLUENZA IN CANADA—FEDERAL BOARD OF HEALTH FOR CANADA—VENEREAL DISEASE IN CANADA—FOOD CONTROL—ORTHOPEDIC HOSPITAL IN TORONTO—MEMORIAL TO McGILL STUDENTS WHO FELL IN THE WAR—OBITUARY.

Montreal, November 21, 1918.

Influenza has practically burned itself out in Canada. This result, no doubt, to a large extent, has been due to the careful and elaborate precautions taken to curtail its activity. In some of the large cities the disease seems to have wholly departed, while in all the centers of population the number of cases reported have fallen to very small figures. In Montreal, where the epidemic has been especially widespread and virulent, there are now only a few cases. The number of cases reported to the Montreal City Health Department since October 1, totals 18,318 and the deaths 3,124. Now that, to all intents and purposes, influenza in epidemic form has left Canada it may not be out of place to discuss briefly some of its salient features and particularly of those which have been provocative of a good deal of argument. It has been asserted that the pandemic of influenza which has swept the world during the past few months is unlike other pandemics or epidemics, in that certain distinctive characteristics have been present which have been absent in former outbreaks. In the first place its bacteriology has been of a confusing nature. Up to the time of this pandemic, although it was generally allowed that its causation was somewhat obscure, probably most medical men were inclined to attribute it to Pfeiffer's bacillus. However, it must be also borne in mind that during many years, well known bacteriologists have recognized more than one type of influenza, designating a true influenza that in which the Pfeiffer bacillus was isolated. Finkler in "Twentieth Century Practice of Medicine," years ago said that he was of the opinion that there existed a pandemic influenza caused by Pfeiffer's bacillus, and also an epidemic endemic influenza of identical nature which developed after the pandemic infection had run its course, being caused by germs left by the latter. The occurrence of various forms of catarrhal fever, which were often called grippe or influenza by physicians and laymen, was something different. *Inter alia,* it is interesting to note that the first authoritative statement made in America in regard to Pfeiffer's discovery was published in the Medical Record of January 30, 1892. It appears, therefore, so far as the bacteriology of the disease is concerned, at any rate in Eastern Canada, that in the pandemic just dying most of the cases are mixed infections, the pneumococcus, in one strain and another being that recovered, perhaps most frequently. A considerable number of cases have exhibited the influenza bacillus. Also various forms of streptococci have been found. From the clinical, as well as from the bacteriological standpoint, the disease presents many complications, or rather it may be said complexities. According to European re-

ports, on the whole, the 1918 pandemic in its bacteriological and clinical aspects, is similar to that of 1889. In Europe, as on this continent, one great difference has been observed, and that is the age of those affected. In the 1889 outbreak, it is reported that older persons were chiefly attacked, whereas in this present year it was the young who were most prone to infection. Nevertheless, in reading the accounts of pandemics and epidemics of influenza from the year 1510 to this period it would seem that the young have had no immunity or only comparative immunity to infection in days gone by. Indeed, in the Annals of Influenza edited by Theophilus Thomson and published by the Sydenham Society in 1851, Dr. Clendinning writing on the epidemic in England in 1837 commented on the fact that in previous epidemics, it had been the aged who appeared to be comparatively immune. In 1837 he said that the mortality with us in the wards of St. Marylebone Infirmary and elsewhere, amongst populations embracing indifferently individuals of all ages, sound and unsound, was very considerable. He went on to say that few if any cases were lost from influenza unaided by previous disease or subsequent complication. He further specified that pleuropneumonia was excited and proved fatal in a very large proportion of cases. Thomson himself in his concluding remarks stated that the most frequent and important complications were inflammation of the bronchial tubes, lungs, pleura, or of the brain and its membranes; acute articular rheumatism; neuralgia, and cutaneous eruptions; the nature of the complication depending on constitutional peculiarities or on exposure to the exciting causes of the associated disease action about the time of the onset of the attack of influenza. He recorded his opinion that the symptoms have been similar during several centuries, and under very different degrees of civilization.

Another point to which attention has been drawn is the influence a general change of diet may have had on predisposition to infection and on the course of the disease. It has been argued that deranged metabolism due to change of diet, and mainly perhaps to lack of sugar, may have been responsible for the susceptibility exhibited by the young or relatively young at this pandemic. The theory that maladjustment of the diet may be a factor in rendering the individual more susceptible to infection by influenza is ingenious and worthy of consideration. But seeing that the conditions with regard to food and sugar, in particular, have been worse by far in Great Britain than on this side of the Atlantic and that influenza does not seem to have been either so prevalent or virulent in the United Kingdom as in 1889, this argument appears to lose much of its force.

Among other reforms that the war may emphasize the need of and bring about is the establishment of a National Board of Health in Canada. The epidemic of influenza through which Canada has just passed has demonstrated the inability of the machinery now in existence for coping with such a situation and its ineffectiveness for conserving the health and lives of the people. The toll of preventable diseases in Canada is appalling. The war has shown the results that can be obtained from preventive medicine intelligently applied and the medical profession and the public of Canada alike demand that the principles of preventive medicine shall be brought into play throughout the Dominion. The scope of preventive medicine is vast, in fact embraces all projects designed to save human life and improve health generally. The idea appears now to have taken root in the Canadian mind that a Federal Health Department is essential for devising and carrying out schemes calculated to conserve life and to maintain health at a high standard. It appears to be fully recognized by the medical profession here that the existing agencies for saving life and promoting the health of the population are wofully inadequate and it is realized that the problem can be successfully solved only by the creation of a national department of health. At the same time, it is felt that in the preliminaries of this new departure and in the management of the scheme when consummated the doctor must not be left out in the cold. He must be consulted with regard to the drafting of a plan for a board of this kind and must hold a position of authority when the plan has come into being. It is too much the custom here for politicians not only to have a finger in every pie but if possible to allow no one else to get a finger in it. A successful board of health is impossible without the cooperation of the medical profession, but its members must take care that they do not become the puppets of self seeking politicians.

The ravages of venereal disease are arousing apprehension in all parts of the world. In Europe the question of combating its spread is a burning one. No longer is the matter discussed with bated breath and in secret but it is proclaimed from the very house-tops. Some Americans, notably Mr. Bok, have arraigned London as the headquarters of prostitution and have seemed to desire to convey the impression that vice and venereal diseases are in the nature of things more or less restricted to the old world and that on this continent if virtue does not reign supreme, at any rate vicious conditions are more conspicuous by their absence than their presence. This may be so, to some extent, but on the other hand, it would be like the ostrich hiding its head in the sand when pursued by the hunter to aver that venereal disease is not prevalent in Canada and in the United States. If it were not prevalent why should a drastic law be enacted to prevent in some measure the spread of venereal disease in Ontario, and why should a report have been issued recently showing that vice and consequently venereal disease are too frequent in Montreal? The report referred to, according to the Montreal *Star*, November 16, 1918, shows that houses of prostitution are numerous in Montreal and further the charge is flatly made that as the laws now stand and are administered by the courts, there is practically a recognition of such places. The truth then appears to be that prostitution and venereal disease are common in North America and that it is incumbent upon Canada to set its house in order in this respect.

Much dissatisfaction has been expressed from time to time with regard to the manner in which food control is exercised over the restaurants in Canada. The Controllers have ordered that food should be economized, some kinds of food especially, and the general public has willingly and cheerfully acknowledged the necessity for the restrictions and submitted to the curtailment of their food supply. The people have endured the extravagant charges of the retailers but they have entered most emphatic protests against the obviously unjustifiable cost of food in the restaurants. It has been stated on good authority that as much as 500 per cent. profit has been made by the proprietors of these establishments.

It is said that there will be accommodation for more than one thousand soldier patients in the building in Toronto occupied formerly by the National Cash Register Company. It is intended that it should be the central military orthopedic hospital for Canada. McGill University, Montreal, has undertaken to erect on the college campus a convocation hall as a memorial to the large number of McGill students who fell in the war.

Dr. Thomas Cullen who died on September 14, at Baltimore, was a silver medalist of Toronto University in 1890, and from 1892 to 1896 was associate professor of gynecology at Johns Hopkins University.

Progress of Medical Science.

New York Medical Journal.

November 16, 1918.

1. Operation for Senile Cataract. Frank Allport.
2. Spanish Influenza. R. Garfield Snyder.
3. The Treatment of Influenzal Pneumonitis. J. Madison Taylor.
4. The Need for Medical Supervision During Pregnancy. Amand Routh.
5. Orificial Lues. William P. Cunningham.
6. The Prophylaxis of Hay Fever. Harold C. Lane.
7. The Ingrown Toenail and the Coup d'Hache. Douglas H. Stewart.
8. In Memoriam: Dr. Frank Baker (1841-1918). Fielding H. Garrison.
9. The Carrel-Dakin Treatment of Infected Wounds. William Fuller.

7. The Ingrown Toenail and the Coup d'Hache.—Douglas H. Stewart suggests a method of dealing with the ingrown toenail which may be regarded as an adaptation of the hatchet technique. Two wooden tongue depressors are fixed firmly with adhesive strips in such a manner that the proximal piece of plaster compresses the blood vessels by surrounding the proximal phalanx of the great toe, thus ensuring a stationary, bloodless operative field that mitigates the dangers of cocaine absorption by furnishing a free exit through the open incision, with a blocked entry through the compression. The distal ends of the two depressors should have their binding plaster strip free of the toe, *i.e.* beyond the outer end. If the wooden depressors are properly placed, a line drawn with a pencil using their edges as a ruler and guide should pass one-eighth of an inch to the mesial side of the hook of the offending nail. Whatever projects beyond that guiding line or protrudes between the guiding edges of the tongue depressors should be sawn off, and this from a point a full quarter of an inch proximal to the lunula to the distal end of the portion to be removed. Thus germ nest, uncus, sound and unsound tissue are removed. Stitching is not necessary, ligation should be avoided if possible, and the scar will not touch the sole of the shoe when walking. Healing is expedited by nonsticking dressings and the absence of tearing off scabs, with employment of a properly cut shoe. The operation is one of extreme simplicity and the patient should walk well in a week; seventy-two hours in bed helps to promote rapid healing.

Journal of the American Medical Association.

November 16, 1918.

1. The Rôle of Instinct, Emotion and Personality in Disorders of the Heart, with Suggestions for a Clinical Record. C. Macfie Campbell.
2. The Management of Certain Intractable Lid Conditions. Melville Black.
3. A Registration Fee for Physicians. Francis W. Shepardson.
4. Intestinal Obstruction: Continued Studies. H. B. Eisberg and J. W. Draper.
5. The Silent Prostate. James A. Gardner.
6. Acute Colon Bacillus Infection of the Urinary Tract. J. Dellinger Barney.
7. Histology and Pathology of the Superstructures of the Lid in Trachoma and Treatment. E. H. Cary.
8. Relative Digestibility of Maize Oil (Corn Oil), Cottonseed Oil and Lard. Elbert W. Rockwood.
9. Unusual Case of Umbilical Hernia: Rupture of Skin. W. J. McGrath.
10. Bacterial Toxin as a Cause of Retinal Hemorrhage. Arthur S. Tenner.
11. Ludwig's Angina: Report of a Case. H. T. Miller.
12. Method for Preparing the Eosinate of Methylene Blue and Method for Staining. Foster A. Beck.
13. Apparatus for Administering Arsphenamin at Temperature of Blood. S. R. Thompson.
14. The Epidemic of Influenza at Camp Sherman, Ohio. Alfred Friedlander, Carey P. McCord, Frank J. Sladen, and George W. Wheeler.
15. Scabies in Military and Civil Life: Its Differentiation, Complications and Treatment. Frank Crozer Knowles.
16. New Methods for Blood Transfusion and Serum Therapy. Frank W. Hartman.

1. The Rôle of Instinct, Emotion, and Personality in Disorders of the Heart, with Suggestions for a Clinical Record.—C. Macfie Campbell discusses the relation of personality, instinct, and emotion to disease, and especially to disorders of the heart. In disorders which consist of a maladaptation of the patient to his life situation questions arise as to why in one case the symptoms are cardiac, in another respiratory, and in a third gastrointestinal; and whether the patient with cardiac symptoms has a special type of inferiority of the cardiovascular system or the symptoms are dependent on an unsatisfactory instinctive or emotional life, or in most cases are both factors involved. Since, for example, the effect of a terrifying experience varies in different types, the result cannot be explained by a mere reference to the situation but must be considered in relation to the individual. It may well be that the persistence of cardiac symptoms in such cases may be due to a constitutional idiosyncrasy or acquired inferiority. It is important to recognize, moreover, that every experience tends to modify the later reaction of the organism; the patient may be left with an increased immunity or an acquired sensitiveness. (The soldier, unnerved by his experiences with high explosives, may react with extreme sensitiveness to abrupt noises, and in this reaction cardiac symptoms may predominate.) In considering the relation of heart cases to cases of war neuroses, two factors must be studied: (1) The intimate mechanism of the cardiac inferiority; (2) the emotional and situational factors that precipitate and foster the symptoms. The relationship of the cardiac symptoms to other manifestations of inferiority must also be considered; thus a lack of virility and efficiency may be secondary to an inferior cardiovascular apparatus, or, cardiac discomfort and irregularity may be explained by the undue demands made on the heart by an unstable or oversensitive emotional life or by a sexual life which, owing to the constitutional inferiority of the patient, is not subjected to control. This author has examined thirty-three patients and found that their constitutional inferiority could be referred to three types: (a) An inferiority manifested in prolonged physical invalidism, with little or no definite intelligence defect; (b) an inferiority in which defective intelligence is a prominent factor; (c) an inferiority in which the instinctive and emotional life is of poor quality, while the intelligence is fair. In addition to the clinical aspect of these cases, the military and reconstructive aspect must be considered, and it is advisable, therefore, to include in the clinical record a summary statement as to the personality of the patient, and as to any experiences and situations that seem to have a direct bearing on his disorder. The constitution, or innate equipment of the individual, can be estimated by a study of the stock from which he has sprung, with special attention to the presence of epilepsy, insanity, alcoholism, etc., and his early reactions to the test of

life before training and experience commenced to play a predominant rôle. In addition to the nervous efficiency of the patient, his general efficiency as evidenced by his school record and wage-earning capacity should be taken into account; also his behavior to his comrades, his steadiness at work, and responsiveness to standards of honesty, truth, and decency. In estimating the degree of disability caused by cardiovascular symptoms the whole situation must be considered. Obviously, the military situation is an important factor, for restoration to health leads to the trenches and the toil of war, for which the patient has a deep-seated repugnance, however loyal to duty his conscious, official self may be. In civilian life this applies with equal force where the various causes of nervous invalidism are covered up by the conventional explanation of overwork.

The Lancet.

October 26, 1918.

1. The Harveian Oration on the Doctrine of Consumption in Harvey's Time and To-day. Delivered Before the Royal College of Physicians of London on October 18, 1918. Percy Kidd.
2. The Standardization of the Wassermann Reaction. Captain W. d'Este Emery.
3. A New Technique of Heart Massage, with a Case of Resuscitation. Captain T. C. Bost, with Remarks by Major A. Neve.
4. A Modification of Webster's Test for the Presence of T.N.T. in Urine. Frank Tutin.
5. A Note on "Acute Yellow Atrophy" (?) in a Munition Worker with a Pseudo T.N.T. Urine Reaction Due to Rhubarb. Captain Ernest Glynn.
6. Dispensary Supervision in Pulmonary Tuberculosis. George Jessel.
7. A Case of Intrapelvic Osteoma Necessitating Cesarean Section. Violet I. Russell.
8. Pneumococcus Arthritis; Vaccine Therapy; Recovery. C. E. Campbell.

3. A New Technique of Heart Massage, With a Case of Resuscitation.—Captain T. C. Bost describes a new technique of heart massage which was carried out in a case of suspended heart action following an anesthetic. Patient, a soldier, had been severely wounded in October, 1917, both knee joints being involved. There was prolonged treatment and several operations and, in March, 1917, as the patient was losing ground, laparotomy was decided upon to determine the presence of any abdominal abscess and the condition of the kidneys. After a preliminary hypodermic of atropine and morphia, chloroform was carefully administered by the open method. Within a few minutes respiration ceased and patient became pulseless. Artificial respiration was commenced immediately but without effect. As the case appeared hopeless, Captain Bost inserted his hand into the thorax, passed it up under the sternum to the base of the heart and began slow pressure. At first the organ was completely flaccid; in about 12 seconds a muscular twitch was felt, and was followed by a feeble contraction, which became strong and regular. Pulse was felt, color returned; massage was stopped, pituitrin injected, and artificial respiration continued. A rapid exploration of the abdomen was made. Patient lay comatose and death occurred 77 hours later. The technique of procedure followed was: An abdominal incision was made four inches long in the median line, extending from above the umbilicus well up into the xipho-sternal notch. The left costal cartilages were well retracted, bringing the anterior diaphragmatic insertion well into view. (There should be a pillow under the waist.) By a two-inch incision beginning one inch to the left of the median line, carried outwards behind the costal margin, the fibers of the diaphragm were cut near their insertion. A blunt instrument was pushed in to open the pleural cavity, and the opening rapidly dilated with two or three fingers of the right hand. The hand was then passed into the thoracic cavity anterior to the pericardium, and upward, the thumb behind the sternum and the fingers embracing the entire organ in the pericardium. The right auricle and ventricle were compressed by the thumb and the heart effectively massaged. In this incision no vessels are injured, the liver and stomach offer no obstruction and the pericardium is in no risk of being opened. During the massage the parts can be pressed round the wrist of the operator so that air is not sucked in, and there is no tendency to collapse of the lung. The incision is easily closed and made air-tight. In the case in question, it is pointed out by Major Neve that had the method been adopted a few minutes earlier, or if the kidneys and lungs had been healthy, the patient might well have recovered. The author concludes: (1) That this case illustrates the unique value of heart massage, and that the human heart can be resuscitated after a variable length of time—in this instance after 25 minutes. Nothing else could have restarted the cardiac action. (2) That all cases of suspended heart action following an anesthetic, regardless of theoretical etiological factors, after a certain interval, should be given heart massage, and that cases of asphyxia should also fall within this group. (3) The length of interval should probably vary with individual cases, but direct massage should rarely be done under five minutes (unless the abdomen be already open); it should certainly be done after eight minutes though a longer interval need not bar the operation. Simpler methods of resuscitation should begin in the first minute, but should not be uselessly persevered in to the neglect of more efficient measures. (4) Subdiaphragmatic massage may suffice, especially in children, if promptly undertaken. But if only the apex is reached and the heart remains unresponsive the diaphragm should be incised and the base of the heart be massaged without further delay. (5) That no surgeon, even if relatively unskilled, should be content to abandon a case without giving his patient the benefit of direct cardiac massage. (6) The author claims that this new technique offers a simpler method of approach and is a decided improvement upon all other ways of doing direct heart massage, as it involves less risk of hemorrhage, trauma, and shock, and can subsequently be more quickly and satisfactorily closed.

British Medical Journal.

October 26, 1918.

1. The Harveian Oration on the Doctrine of Consumption in Harvey's Time and To-day. Percy Kidd.
2. The Advantages of Intramuscular Injections of Soluble Cinchonine Salts in Severe Malarial Infections. Sir Leonard Rogers, Kt.
3. Epidemic Encephalitis. Arthur J. Hall.
4. Quinine Prophylaxis in Malaria. G. Waugh Scott.
5. The Unreliability of Sulphur for the Destruction of Lice in Clothing. A. Bacot.
6. The Treatment of Pneumonia. E. W. Martland.
7. Defluvium Capillorum After Influenza. Robert Gibson.
8. The Use of Salicin in Influenza. Reginald Pollard.
9. Exophthalmic Goiter in a Girl. C. Wyndham Gittens.

3. Epidemic Encephalitis.—Arthur J. Sall discusses the epidemic of encephalitis which appeared in England in March of the present year. He asks is this or is it not an epidemic of poliomyelitis? If it is not, it may be either an entirely new disease, or one that until recent times has not been observed in epidemic form. Clinical resemblances between these cases and poliomyelitis were recognized from the first, but there was absence of localized limb paralysis commonly seen in acute poliomyelitis. The clinical differences have been clearly stated by Kinnear Wilson; severe and prolonged lethargy and asthenia which occurred in most of the cases of encephalitis are not recorded as occurring in typical cases of poliomyelitis, sporadic or epidemic. "Sleeping Sickness" would not be an inappropriate name for the epidemic, but this could hardly be said of poliomyelitis; in fact, if the palsies were taken away from these cases of encephalitis, little would remain that was common to the two conditions. Even the palsies presented striking differences in these two diseases in their mode of onset, situation, and results. In poliomyelitis the onset is rapid and maximal, the regions affected being those innervated from the spinal cord, and the distribution is often unilateral; moreover, permanent residual effects are often left in the area first attached. In the epidemic under consideration, the paralyses were typically of gradual ingravescent onset and the regions affected were those innervated by cranial nerves; moreover, distribution was bilateral, and as far as is known no permanent residual effects were left. A selective action appeared to be at work, as is seen in many nerve poisons. The argument that poliomyelitis in its epidemic form is characterized by the multiplicity of the sites affected rather accentuates the clinical difference between the two diseases, as the cases during the March epidemic were notable for the uniformity of the sites

affected. The author states that he has no proofs to bring forward as regards the possibility of this being an old disease only recently recorded in epidemic form, but that such a line of inquiry seems worth consideration. In any case the disease cannot be spoken of as a new disease until these alternatives have been set aside, and the final decision must rest with the pathologist.

Berliner klinische Wochenschrift.

September 16, 1918.

Observation of a Serious Case of Colospasm and Its Premonitory Stage on a Radioscopic Screen During an Enteric Ataxic Paroxysm.—E. Schlesinger refers to radioscopic observations recorded by other writers during the gastric crises of locomotor ataxia, in which spasmodic contraction of the middle portion of the stomach, with pushing of its contents toward the cardia, was seen. The writer describes an absolutely similar spasmodic paroxysm occurring in the descending colon. The article is illustrated by three radiographs taken before, during, and after the paroxysm. This was characterized by the formation of an intense contracture along the entire extent of the descending colon. The opaque mass was reduced to an extremely narrow shadow, from which numerous lateral diverticuli, likewise very narrow, shot off and overlapped each other. Schlesinger interprets this picture as a spasmodic contraction of the colon, involving both the circular and longitudinal fibers. The image also shows that the opaque mass ebbing back from the descending colon becomes lodged in the transverse colon and not in the sigmoid flexure. There is, consequently, a sort of antiperistaltic movement at the commencement of the paroxysm. Besides this, the colon and sigmoid flexure become straightened out. The writer recalls, from this point of view, that electrization of the vagus nerve in cats from whom the brain has been removed produces the same picture as that of a gastric crisis of tabes dorsalis, such as has been observed by Lüdin in subjects afflicted with tabetic crises of this organ.

Treatment of Cutaneous Affections by Injections of Oil of Turpentine.—F. M. Meyer has tested Klingmüller's procedure, which consists of a 20 per cent. solution of turpentine injected in the gluteal region every third or fourth day at the dose of from one-half to two cubic centimeters. The effect of this treatment appears to be very favorable in the dermatoses in which suppuration plays an important part, viz., furunculoses, trichophytides, etc. This treatment should be combined with the usual therapeutic measures employed in these cases, especially radiotherapy.

Münchener medizinische Wochenschrift.

September 10, 1918.

The Necessity of Albumin in Metabolism.—C. Röse and R. Berg start from the following fundamental datum, namely, when food offers an excess of acids, a decomposition of the somatic albumins into varied nitrogenous molecules takes place, among which ammonia serves for saturing the acid in excess. The other nitrogenous substances are in the greater part eliminated by the urine. Food rich in acids, therefore, appears more wasteful as far as albumin is concerned than a diet more largely composed of basic matter. The researches of the writers carried out on the ingesta and excreta of two subjects placed in very strict conditions of observation entirely support these conceptions. After promising to treat of the subject more at length in a future publication, they offer conclusions relating more especially to the diet of the population during penury of food. The need of albumin attains its minimum when the diet offers a basic surplus; this surplus should be calculated for a man of 70 kilograms, working moderately, at 25 milligrams in equivalents. The ignorance of this fact has been the means of overestimating up to the present time the number of calories absolutely necessary. It is for this reason that the war diet of the year 1916-17, with 1421.7 daily calories, did not result in those disastrous results which might have been anticipated. On the other hand, certain periods, such as April to July, 1917, were characterized by a very serious aggravation in the state of nutrition of the people. These periods coincided precisely with a relative acidification of the diet from a lack of potatoes. When this tuber reappeared in the markets the general health of the population improved at once, although the daily amount of albuminoids or the total number of calories was not increased.

A New Method of Forming a Cutaneous Sulcus in the Preparation of Stumps in Sauerbruch's Method.—P. Erlacher describes an operative procedure which gives a sulcus entirely covered by skin and is submitted to muscular action. The muscle is raised out of its bed and laid in the cutaneous sulcus and then is fixed in place and covered by the latter.

Deutsche medizinische Wochenschrift.

September 12, 1918.

The Hemorrhagic Diatheses.—W. Stepp gives a summary of present-day views on these diatheses, among which he also includes certain affections which have nothing diathetic about them, such as scurvy and the infectious purpuras. As far as hemophilia is concerned, Stepp recalls the curious hereditary transmission of the process (he might have taken some of the ruling Hun families as typical examples) and points out that hemeralopia and Daltonism offer a similar hereditary transmission. Scurvy should be included among diseases of the nutrition according to the writer, who excludes an infectious origin from this process. This fact has been proven, on the one band, by the experiments of Holst and Fröhlich (of Norway) on guineapigs fed upon a single kind of cereal and, on the other hand, from the data derived from the present war, during which scurvy has developed among the crews of ships making long cruises, as well as among Austrian troops fed upon bread and canned goods. Stepp attributes an undoubted infectious etiology to rheumatoid purpura without offering any reason for this opinion. He merely insists upon the frequent coexistence of purpuric states and lesions of pulmonary tuberculosis. However, tuberculosis only favors the production of purpura which would not otherwise develop than from the effect of food factors similar to those which enter into the etiology of scurvy. Certain physiological considerations on blood coagulation bring the writer to the question of some modern medications: coagulene of Kocher and Fonio, a tissue juice containing a large amount of thrombokinase; claudene, an extract of pulmonary tissue, possessing a marked power of coagulation. The lipoids play a preponderant part in the action of both these products.

Injections of Turpentine in Some Cutaneous Affections.—I. Sellei has obtained tangible results in impetiginous eruptions with turpentine injections. In the pyodermatitides and furunculoses the effect of the injections is less certain and does not compensate for the fever and pain resulting from their use. In chronic prurigo and simple pruritus this treatment seems to have given splendid results. The writer, who has also experimented with injections of sterile milk in cutaneous affections, believes that the latter treatment has given better results than injections of oil of turpentine.

La Presse Médicale.

August 22, 1918.

Scarlatinous Endocarditis.—Nobécourt considers this affection in its double incidence in civilian children and soldier adults. The percentage in the former was computed by Broadbent to be about one-half of 1 per cent. —of more than 22,000 cases of the infection that was the percentage of endocarditis encountered. No such material is available for troops, but the same percentage for these subjects appears to average around 2.5, the limits in individual epidemics ranging from very high to zero. These figures could doubtless be much increased if murmurs of all kinds were included, but extracardiac murmurs occur in all high fevers and possess no special significance for scarlatina. Two well marked types of this lesion occur in scarlet fever, one simple and of early appearance and the other infectious, ulcerating, and vegetating, of relatively late supervention. The author regards them as both strepto-

coccic complications, in the great majority of cases. When endocarditis develops there is usually a general rheumatic syndrome of angina or other local manifestation and joint lesions. An entire syndrome may therefore be superadded to the original infection. In some cases the arthropathies may be minimal. The rheumatic character is well shown by the prompt response to aspirin, although it must be borne in mind that spontaneous disappearance also occurs. In the soldier scarlatinous endocarditis supervenes late rather than early. In a small number of cases studied for the purpose permanent damage to the heart resulted in 28.5 per cent, the victims presenting mitral lesions. This percentage is lower than that of children, in whom more contract permanent damage than escape scot free. In a minority of cases pericarditis or myocarditis is present as a complication.

Malarial Mastitis.—De Brunn reports a number of cases seen in a military hospital and believes that this lesion is by no means rare. The cases quoted, personal and other, appear to have been all in males, although one of the reporters is a woman physician. This mastitis is a complication of secondary malaria, no primary or tertiary cases being on record. The affection is unilateral or bilateral. The chief symptoms mentioned are pain and extreme tenderness, which are resistant to treatment. Pain may be radiated over a wide extent. In some cases it is difficult to support the weight of the bed clothes. If the patient stand up, he experiences relief. The degree of tumefaction may be very slight, or it may be considerable, and the gland proper is apparently much less involved than the cellular tissue. In some subjects a little colostrum may be squeezed out.

Finska Läkaresällskapets Handlingar.

March, 1918.

Case of Pylorospasm.—Mellin describes a case of pylorospasm due apparently to a powerful external shock. The patient was a female infant four weeks of age. At birth she had weighed 3650 gms. The father was healthy, mother nervous. The infant had had both the breast and cow's milk from the start, had thrived well and had gained 545 gms. The stools were normal and there was seldom vomiting. Restlessness was but little in evidence. In the fourth week the patient was exposed to a shock, the dwelling having been struck by a shell from a war vessel which tore loose a portion of the granite wall and shattered all the windows. From this moment the pyloric disturbance began. The child became very sensitive to external irritation, and the slightest noise caused it to wince violently. When for the first time after the event it was offered nourishment it drank greedily for a few seconds, but then suddenly expelled the nourishment in violent efforts at vomiting. This sequence occurred at every subsequent attempt to feed the patient. At first vomiting occurred as soon as 20 or 30 gm. had been swallowed, but later—after a few weeks—the patient could ingest 40 or 50 gm. before rejection. It was noted eventually that if the child at once was offered the same quantity of food that it had just rejected, it could retain it. Further it became evident that at night, when the room was perfectly quiet, the child could retain the original portion. As soon as daybreak, however, even the least noise was enough to provoke vomiting of the first dose of nutriment. By the third week the child could retain from 60 to 70 gms., in the fourth week 70 to 80 gms. and in the fifth week 100 gms. of food, and began to thrive. It became so tranquil that even the loudest noises did not bother it. Vomiting decreased in frequency until in the fifth week it occurred but once or twice in twenty-four hours. In the sixth week nearly all symptoms had disappeared. Treatment with valerian, bromides, and chloral had not exerted any noticeable influence upon the disease. The case was, in brief, a traumatic neurosis.

Correspondenz-Blatt für Schweizer Aerzte.

July 27, 1918.

Diagnostic Significance of the Leucocyte Blood Count in Infectious Diseases.—Stäubli mentions three phases of this problem which require sharp differentiation. First comes the purely local infection. Second, either the microorganism or toxin enters the blood stream. Third, the infectious principle penetrates into some locality in which white corpuscles are generated and stimulates their production. Whenever a chemotrope substance reaches a given tissue—or is formed therein—the leucocytes leave the capillaries and collect in a local accumulation. The resulting shortage in the blood is at once made good from the bone marrow. At first there may be a distinct leucopenia with especial reference to eosinophiles. The chemotrope substance eventually reaches the marrow and other tissues which produce leucocytes and stimulates production in excess. The katabolic products of the leucocytes, however, can exert a paralyzing action on the genesis of new cells, which keeps production down. If we plot curves side by side of the total leucocyte and eosinophile counts we may distinguish between various infectious diseases. Thus in measles we see a general leucopenia plus diminution or absence of eosinophiles. In scarlatina the conditions are reversed—there is hyperleucocytosis with increased eosinophiles. Scarlatina is the only bacterial disease to show this behavior, and this fact lends weight to the belief that this disease is not of bacterial origin. The same blood count is found in trichinosis, a non-bacterial affection. Interesting is the fact that every known streptococcus infection exhibits lowered eosinophile count, so that scarlatina should not be in any sense a streptococcus disease. The blood count easily excludes streptococcus angina and the septic sore throat of streptococcus origin. In variola we see hyperleucocytosis with eosinophiles normal or but slightly varied. The leucocytosis consists very largely of mononuclears, large and small. This count will promptly exclude varicella, for in the latter the leucocytosis may be slight or even absent. Care must be used in differentiation, but it is safe to depend on these axioms: leucopenia at once excludes variola; strong leucocytosis makes variola very probable.

Hygeia.

June 30, 1918.

Case of Error of Sex.—Lundén reports a case of pseudohermaphroditismus masculinus externus in which the general appearance was exquisitely feminine, resulting in error of sex. Three days before consultation the patient had complained of a tender swelling in the left groin, which caused a visit to the author. Examination showed the existence of bilateral inguinal hernia. Bimanual exploration showed absence of uterus and ovaries, while the vagina was represented by a short cul-de-sac. Operation was performed for incarcerated inguinal hernia of the left side. The sac contained what was apparently an ovary. The right side was operated upon with the same find, and the organ was replaced in the abdominal cavity. These bodies, however, were recognized as testicles; and on the left side there was purulent epididymitis, as a result of which orchidectomy was performed. Should the testis of the right side have been extirpated because of possible malignant degeneration? It might better perhaps have been allowed to remain in the groin, where it would have been readily accessible. By leaving the organ behind, the patient had legal evidence of the sex, in so far as it showed that this was not feminine. Marriage as a woman was, of course, out of the question in any case, as vagina and uterus were nonexistent. It is worthy of mention that a "sister" of the patient was evidently an hermaphrodite of the same type, while an "aunt" probably showed the same malformation. Examination was refused by the two individuals, so that the cases cannot be placed on record.

Typhus in Paris Ragpickers.—Netter and Blaizot have recently seen a small number of cases of typhus in subjects living under wretched hygienic conditions, notably ragpickers infested with lice. Diagnosis was very difficult save for the expert and the cases would have passed for typhoid or paratyphoid. We know now that the spread of typhus may be easily checked. The authors compare conditions with those in New York, where Brill's disease is not subjected to quarantine.—*Bulletin de l'Académie de Médicine.*

Book Reviews.

THE PROTEOMORPHIC THEORY AND THE NEW MEDICINE. An Introduction to Proteal Therapy. By HENRY SMITH WILLIAMS, B.Sc., M.D., LL.D., Member of the National Committee for Mental Hygiene and of the Hygiene Reference Board of the Life Extension Institute; successively Pathologist to the Iowa State Hospital at Independence; Assistant Physician to the Blackwell's Island and Bloomingdale Asylums, and Medical Superintendent of the New York Infant Asylum and the Randall's Island Hospitals, New York City. New York: The Goodhue Company, 1918.

THE modern employment of vaccines and sera in the prophylaxis and treatment of various diseases has revealed the fact that, in addition to their specific action, they often exert also a non-specific effect in stimulating the production of antibodies which have a curative action in the case of many and diverse affections. The antityphoid vaccine, for example, seems to have a therapeutic action which, if not actually curative, is at least ameliorative in the case of various skin diseases, "rheumatic" affections, malignant growths, etc. In explanation of this the theory has been evoked that the parenteral absorption of any foreign protein excites the defensive mechanism to the formation of antibodies capable of hydrolyzing not only that special protein but other foreign proteins as well. The amplification of this theory and its application in therapeutics form the subject matter of this very interesting book. Connected with this theory is also that of the mechanism of the hydrolysis so initiated, viz., that "the mononuclear leucocytes are the agents vitally concerned in beginning hydrolysis, and the red corpuscles the agents concerned with the completion of decompounding of foreign proteins in the parenteral system." This is what the author calls the proteomorphic theory.

In the therapeutic application of the theory of antibody formation under the stimulus of a foreign protein, Dr. Williams uses, not specific vaccines or serums, but nonbacterial vegetable proteins, which he calls proteals; the method of treatment therefore is known as proteal therapy.

Space forbids more than this very incomplete statement of the theories and the practical applications of the same, recounted at length and most interestingly in Dr. Williams' book. Whether one accepts the theories or not, he will enjoy the author's clear presentation of them; he is also at liberty to doubt the results obtained from "proteal therapy," but his scepticism will be ingrained if it refuses to give any credence whatever to the facts presented in this book and in the periodical literature of the past few years.

THE INTERNATIONAL MEDICAL ANNUAL. A year book of Treatment and Practitioners' Index. 1918. Thirty-sixth year. Price, $4. New York: William Wood and Company.

A WORK of this kind is a necessity to the library of every physician and every student. Some prefer to take their "new material" in monthly doses, some quarterly, and some once a year. For the last, the present volume will prove particularly attractive. The reader will find within the pages of this work an account of the relation of the great war to medicine and surgery; also a description of the newest methods in the treatment of wounds, shell shock, trench throat, gas gangrene, etc. In addition to this, there will be found a résumé of the latest work in Tropical diseases, Respiratory diseases, Diseases of the digestive system, Gynecology, Syphilis and gonorrhea, Fevers, Skin diseases, Constitutional diseases, Radiotherapy and electrotherapeutics, and Mental diseases. The material contained within the volume has been well selected and judiciously condensed and prepared for the busy searcher after knowledge. The arrangement is alphabetical, and the volume closes with a good index.

PRÉCIS DE DERMATOLOGIE. Par J. DARIER. Médecin de l'Hôpital Saint-Louis. 2me édition revue et augmentée. Prix 18 francs. Paris: Masson et Cie., 1918.

THE first edition of this work appeared 9 years ago and inevitably the supervention of the great war has delayed the publication of the second edition. Hence the disparity is more marked than usual between a first and second edition. The number of pages of text have increased nearly 25 per cent. and the number of illustrations over 50 per cent. The number of chapters is increased by one only, devoted to the dermatoses of leukemia. Among the subjects requiring complete revision are anaphylaxis, phagedenism, sarcoids, gangrene, dermatomycoses, xanthoma, dyskeratoses, diphtheritis cutis, leishmanioses, cutaneous leucemia, tophi, heredo-syphilis and tuberculosis. We are informed that the volume is being translated into English. The first edition was translated into German. These statements need no comment.

NURSING ETHICS. A Lecture by T. PERCY C. KIRKPATRICK, M.D. Fellow and Registrar of the Royal College of Physicians of Ireland. Price 35 cents. Dublin: University Press, 1917.

THIS booklet was first published in 1915 and is decidedly novel in scope, although there seems no good reason why this should be so. The nurses have more obligations than the physicians, for in addition to their duties to patients and to one another they have additional ethical obligations to the medical profession. The author's conception of the nurse, however, is based largely on the idea of one who nurses the poor and humble rather than the well to do and who is sent out by the hospitals, to which she is therefore responsible. However, he gives space to the private nurse, whose ethical obligations are, he states, of quite another order. This effort might form a nucleus for a much more pretentious one, with a suggestion of a codification of nursing ethics.

THE EVOLUTION OF NATIONAL SYSTEMS OF VOCATIONAL RE-EDUCATION FOR DISABLED SOLDIERS AND SAILORS. By DOUGLAS C. MCMURTRIE. Prepared at the Red Cross Institute for Crippled and Disabled Men Issued by the Federal Board for Vocational Education, May, 1918. Washington: Government Printing Office.

THE Federal Board was organized in the summer of 1917 so that the present volume is the outcome of less than one year's activities. The latter include a Research Division which has investigated all of the movements and institutions of kindred scope throughout the world. The countries thus covered are France, Belgium, Great Britain, Italy, Germany, Austria-Hungary, Canada, Australia, New Zealand, India and South Africa. Nearly all of the national movements for the rehabilitation of cripples had their inception in the present war, but after the Boer and Russo-Japanese wars limited movements of the same sort were begun in Petrograd and South Africa. The present Bulletin is only one of three which deal with this subject and deals only with the evolution of the movement. The others will cover respectively the subjects of vocational rehabilitation and training of the teaching body.

ESSENTIALS OF DIETETICS. A Textbook for Nurses. By MAUDE A. PERRY, B.S. Formerly Dietitician and Instructor in Dietetics at Michael Reese Hospital, Chicago, etc.; Red Cross Dietetician for Base Hospital Unit No. 14. St. Louis: C. V. Mosby Company, 1918.

THIS little volume of 150 pages is divided into two parts, devoted respectively to essentials of dietetics and diet in disease. By omitting the usual pages on pages of recipes and menus the author conveys as much information as some far more bulky volumes. The work is well adapted for both teaching and self instruction, the essentials being summed up in the form of questions at the end of each of the twenty chapters.

PRINCIPLES AND PRACTICE OF FILLING TEETH. By C. N. JOHNSON, M.A., L.D.S., D.D.S., Professor of Operative Dentistry in the Chicago College of Dental Surgery. Editor of the *Dental Review*. Fourth edition. Revised and enlarged. Price, $3.00. Philadelphia: P. Blakiston's Son & Co., 1918.

THIS volume, according to the preface, has undergone a thorough revision. In comparison with the edition which appeared in 1902 it has shrunk slightly in actual bulk but the amount of text appears to be larger, as is the number of illustrations. The twenty chapters of the older edition have been increased by two, one of which is devoted to the uses of the *x*-ray and the other to silicate cements.

Society Reports.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Thirty-First Annual Meeting, Held at Detroit, September 16, 17, and 18, 1918.

THE PRESIDENT, DR. ALBERT GOLDSPOHN OF CHICAGO, IN THE CHAIR.

The Benefits of Stab-Wound Drainage in Pelvic Infections.—Dr. H. WELLINGTON YATES of Detroit drew the following conclusions: "(1) It should be our constant endeavor to close without drainage in so far as safety will permit. (2) Drainage materials should be removed earlier than the general practice now obtaining. (3) The great majority of all infected areas in the pelvis are suitable for cul-de-sac or stab-wound drainage. (4) The abdominal incision should be left free to close by primary union. (5) Stab-wounds are securely and quickly united after the drainage is withdrawn, with no fear of subsequent hernia. (6) The musculature of the areas usually chosen for stab-wound drainage is our greatest asset to a speedy closure of the drainage opening."

Dr. GORDON K. DICKINSON of Jersey City, N. J., stated that drainage was a misnomer. We did not talk accurately. He did not think that gauze drained when it was stuck in a wound. It was a local irritant and because of that property it walled off to a certain extent the local processes and made things fairly safe. But we did have wonderful drainage in the abdomen. Some ten years ago he made what he thought was the first research study of the literature and of his own work regarding the value of the omentum in abdominal drainage, and he came to the conclusion then that the omentum, properly applied, would drain more in ten minutes than any gauze would take out in a day.

Dr. J. HENRY CARSTENS of Detroit said that the late Dr. Joseph Price was a firm advocate of drainage. Some fifteen years ago the association held a meeting at Pittsburgh, and he and a number of others performed operations at the hospitals there. He had the worst kind of a case to deal with, with extensive adhesions and pus. Dr. Price was there and talked about drainage, and the speaker said we could get along without drainage in many instances. He operated on this pus case, cleaned out the abdomen thoroughly without washing it, and closed the incision without drainage. Other men who operated on patients at that time and drained lost their patients, but luckily for the speaker his patient recovered. Since then he had resorted to drainage very little.

Dr. JOHN W. KEEFE of Providence, R. I., said that drainage was a subject that we all had to contend with from time to time. Hard rubber drainage tubes in the abdomen were largely discarded to-day, so much so that when a report from a certain cantonment came to Washington of a case of appendicitis with a fecal fistula the officer to whom this report was sent wrote to know why that patient had a fecal fistula, and it was found that a drainage tube had been used. Word was sent back that that officer would be court martialed for placing a rubber drainage tube in the belly following an operation for appendicitis. Most surgeons felt that a hard rubber drainage tube should not be put next to the intestine. There was no question but that an incision into Douglas' pouch for drainage was a desirable thing in a few cases. In looking back over the literature of gynecology one could see how many patients died from placing drainage tubes in the pelvis and nurses withdrawing the serum that formed every half hour, or sometimes every three hours. As soon as surgeons began to close the belly and not interfere with nature these patients recovered.

Dr. CHARLES L. BONIFIELD of Cincinnati stated that just as soon as surgeons began to keep drainage tubes out of the abdomen, abdominal surgery progressed and better results were obtained. While this was partly true, it was not the whole truth. One of the reasons why surgeons secured better results now than formerly was because they were improving in their technique and drainage became less necessary.

Dr. HUGO O. PANTZER of Indianapolis concurred heartily in what Dr. Bonifield had said. However, there were cases in which we could not get along without some form of drainage. There were cases in which there was an accumulation of pus indicating that the peritoneum was unable to cope with it at that time, and hence some form of drainage was necessary.

Dr. YATES, in closing, stated that drainage had been made use of altogether too often in the past, and drainage tubes should be used in the future much less frequently than they had been heretofore. However, there were certain instances in which it was essential to drain, and in still others it seemed best to drain from above. His paper was written largely for the purpose of establishing when and where not to drain. He suggested that the primary incision should be left to itself and to heal without discomfort.

Pathological Conditions of the Pelvic Viscera, the Result of Induced Abortions Causing Sterilization.—Dr. FRANCIS REDER of St. Louis stated that this paper was prompted by eight cases of sterilization, the result of induced abortions. All the women were married, in good health, and none over 35 years of age. In each instance the abortion was induced soon after the first period had been missed, usually the second or third week. It was of interest to note the number of abortions induced in these women. Three women were relieved 5 times in 2 years; 2, 6 times in 2½ years; 1, 9 times in 3 years; 1 11 times in 3 years, and 1, 14 times in 5 years. As years passed and the thoughts of these women by some noble principle were being directed into channels which led to the lofty ideals of life, they became obsessed with the wish to have a child. The recall of former experiences, when it seemed so easy to become pregnant, only made darker the pages of remorse in their lives, and now, when willingness and eagerness were uppermost in their hearts, they found themselves sterile. The chapter of their lives that followed teemed with consultations in the office of the gynecologist. They cheerfully submitted to treatments which buoyed them with hopes from month to month, only to find that at the end of their course of treatment they were just as sterile as they were before they consulted the gynecologist. The treatment was generally of a routine nature and consisted in dilatations, curettements, the introduction of intrauterine wire pessaries, tampons, and the so-called uterine tonics. Most of these cases were under treatment for many months. The physical examination in cases of this character revealed nothing definite relative to an intrapelvic condition which might be present. During the last six years he had operated on eight women in the hope of relieving their sterility. The operation, an exploratory abdominal section, was in each case performed after these women had been subjected to therapeutic and minor gynecological measures for a time which seemed sufficiently long to give convincing evidence that without any further intervention the sterile state bade fair to remain permanent. Summing up the operative findings in these cases, in all except one the ostium abdominale of both tubes was closed. This was the positive factor in rendering the women sterile. In five of the cases there was a bilateral hydrosalpinx. In two there was a unilateral hydrosalpinx. The opposite tube in those cases was collapsed and presented a sacculated appearance, the lumen giving evidence of a number of strictures. In one case no hydrops of the oviducts was present; they, however, were sacculated and the uterine ends were stenosed. In each case the tubes were dislocated into Douglas' pouch and usually bound down with firm bands of adhesions and false membranes. On the left side the tube was buried under the sigmoid, while the tube on the right side was attached by side adhesions to the cecum and appendix. Examination of the ovaries revealed that pathological processes had invaded these organs. No ovary was found in its normal position, all were more or less prolapsed and adherent to the tubes. In several instances there was a matting together of ovary, tube, uterus, and rectum. Some of the ovaries were twice their normal size and all gave evidence of cystic disease, *i.e.* a cystic degenerative process. As a result of these operative measures, two of the women conceived and went to full term within 20 months after the operation. They were the youngest

of the series and were respectively 26 and 30 years of age. The remaining six women, operated on within the last four years, were still in a state of sterilization.

Cesarean Section Under Local Anesthesia.—Dr. William Mortimer Brown of Rochester, N. Y., said that in doing this operation under a local anesthetic there were two important elements that were necessary for success. The first was to get the confidence and cooperation of the patient and the other was a thorough infiltration of the operative area and an exquisite delicacy of manipulation. No matter how careful one might be in the preparation one could not hope to block all of the underlying nerves and it was very easy to pass from easily borne discomfort to unbearable pain. It was not difficult to anesthetize the abdominal wall so completely that the peritoneum might be opened without appreciable pain. The fundus was without sensation and was readily incised without the knowledge of the patient. The pain was attendant on the dragging or manipulation of the organs, either uterus or intestines. The ideal operation must be done without soiling the peritoneum, without lifting and pulling on the uterus. With these requisites in mind, he had found a method which he had employed for several years, of peculiar advantage. It was his custom, after the abdomen was opened and the uterine incision partly made, to fasten the uterine out to the abdominal incision with four or five ordinary towel clamps. These clamps held the uterus to the abdominal wall and prevented the blood or amniotic fluid from getting into the peritoneal cavity. They were left in place until the uterine wound was largely closed and did away with most of the traction on the uterus, and made it unnecessary to pack gauze into the abdomen.

Gall-Bladder Disease and Its Differential Diagnosis.—Dr. John F. Erdmann of New York City said that the sex preponderance was in the female and, as Deaver aptly put it, beware of the female, fair, fat, and forty or past, who belched wind. Nevertheless, in the great proportion of his case records, the year of onset or early visitation of symptoms was between 25 and 27, a few as early as 18, and one, a common-duct case in which he had operated, gave a history of jaundice (following colic) at 14, the operation being done by him when the patient was seventeen. The colic or cramp was described as being in the upper right quadrant, either without extension or with extension into the back, lumbar zone; up the back, under the shoulder blade—in the space between the shoulder blades; in the left shoulder and occasionally in the left and right neck. Frequently and usually when the stone was in the cystic duct, the colic was said to travel across the midline upwards—under the left nipple and breast (pseudoangina). The attacks were very prone to occur between 7 P.M. and 1 A.M.—thusly markedly differing from the pain in ulcer of the duodenum. Jaundice was a sign made much of years ago but now accepted only as a confirmatory evidence of some obstruction to the outflow of bile, or some destructive blood condition, as in hemolytic jaundice, etc. Frequently a greater loss of weight was seen in a given short period of time in gall-bladder involvement than in many cases of malignancy. This loss was to be assigned to several sources—the limiting of diet; improper metabolism due to impaired bile, and also to pancreatic associations. Pruritus, this disagreeable sleep and peace destroyer, was in early evidence in all patients with jaundice and frequently with those in whom the pancreas was involved. In examining these patients evidences of pruritus presented themselves as long scratches or small petechial spots all due to both conscious and unconscious scratching.

On straining stools stones might be found, but the infrequency of finding stones and the definiteness of symptomatology led the practitioner of the present day to forego the procedure. The preponderance of ulcer of the duodenum was in the male. The physical make-up, as far as his cases presented themselves, was in those of slender wiry variety and frequently classed as neurasthenics, usually between 25 and 35 years of age, and non-alcoholics in habit. When obstruction was well advanced, the patient lost weight and was very prone to have a chain of mental symptoms, equal to those of starvation. In addition to these subjective symptoms the analyses of stomach contents might show blood and usually did show hyperacidity both in combined and free HCl, with the other undigested contents, etc. Acute perforation of the ulcer might take place without any preceding symptoms of moment. The onset was a pain of intense character, requiring morphine in liberal quantity; shock, board-like rigidity in the upper right quadrant; thoracic breathing and later pain in the right lower quadrant simulating appendicitis. This pain was due to irritation of the peritoneum by escaping contents of the stomach and duodenum. Operative interference in the early stages might be followed by overlooking the ulcer because of its not being calloused or indurated. Lues, with its abdominal crises, must always be considered as a confusional factor of great weight in upper abdominal disease. Recently in a definite ulcer history and so diagnosticated a very markedly chronic appendix was removed from under the gall-bladder and directly over a duodenal ulcer the size of a 25 cent piece. In acute hemorrhagic pancreatitis we had a disease that was so acute in its onset and so overpowering in its symptomatology that frequently the patient was seen in shock or collapse. In these instances it was with great difficulty that a history was to be obtained. Nevertheless, the intensity of onset, pain, shock, collapse, and a peculiar abdominal lividity all pointed to pancreatitis. Should the patient survive, he would say that he had had a most severe abdominal pain and mayhap backache, that he might have had a previous mild attack, or gallstone attack, etc.

Dr. Herman E. Hayd of Buffalo, N. Y., said that perhaps the most important of all signs and symptoms of gall-bladder disease and ulcer was the anamnesis. If men would spend more time in getting a careful history of their patients they would make fewer mistakes. He did not believe that so many of the mistakes that were made were the result of ignorance but of carelessness. One of the strong points the essayist brought out was that a patient never got an acute pain in ulcer of the stomach or duodenum until the ulcer had encroached upon the peritoneal wall. Just as soon as there was a tendency to erosion of the peritoneum and a possible perforation did we get an acute agonizing pain such as was characteristic of gallstone colic.

Dr. Hugo O. Pantzer of Indianapolis said he had been delighted with the excellent digest of symptoms and signs presented by the essayist in these cases of gall-bladder disease. With the present acceptance of bacteriemic disease, the exanthemata and what not, we were too restricted in our clinical conceptions. Take the matter of smallpox or any of the exanthematous diseases, we were content with knowing the eruption, making the diagnosis, giving routine treatment, and passing away. If in these cases physicians were to look more thoroughly for the localized effect of bacteriemic disease they would find early symptoms pointing to these cases. Having bacteriemic disease of severity, the physician would at once think that these patients might have gall-bladder disease.

The Prevention of the Recurrence of Symptoms Following Operations for Gallstones.—Dr. Julius H. Jacobson of Toledo, Ohio, formulated the following conclusions: "(1) Recurrence of symptoms following gallstone operations are more frequent than is generally supposed to be the case. (2) Reformation of stones after cholecystotomy occurs from retention of infected contents, rather than from leaving gallstones behind at the primary operation. (3) Routine gallstone operations should be made more thorough and complete by the use of adequate incision, by cholecystectomy and by accurate exploration of the ducts. (4) When the common duct shows marked dilatation it should be opened and explored and special attention should be given to the terminal portion of the duct for the detection of calculi and constrictions. (5) The detached gall-bladder from its bed on the liver, acts as an efficient tractor, and greatly aids in making the exploration of the ducts complete."

Cesarean Section.—Dr. Abraham J. Rongy of New York City said that his experience with this operation consisted of 109 cases, 8 of which ended fatally. That he had always been very conservative in choosing the abdominal route for the delivery of a living child could be judged by the fact that during a period of 12 years he had seen approximately 1,500 cases in labor, in consultation with other physicians, all of them presenting some form of dystocia which made the attending phy-

sician anxious, and that out of this great number he only resorted to cesarean section 82 times. Cesarean section had no place in eclampsia when nature had already commenced to do its work, that is, when labor had already set in. In such cases large doses of morphine were the best form of treatment. He still held that cesarean section had no place in the pre-eclamptic stage. In such cases one always had time to induce labor, and the results were usually very satisfactory. The indications and contraindications for cesarean section must be carefully considered. Only one who was well trained in obstetrics had a right to decide upon this operation.

A Study of Various Cases of Pregnancy Toxemia.—Dr. GEORGE CLARK MOSHER of Kansas City, Mo., described the following technique which involved least shock: (1) Preliminary dilatation gradually by Hegar's dilators up to No. 20. (2) Voorhees' bag No. 4, if at term, introduced by Reed's method—cigarette roll held by Péan's forceps. Lavage of sodium bicarbonate, 2 per cent. after uterus was emptied. Cases of the fulminating type—long hard cervix (in which no vaginal examination had been done) were best treated by classical cesarean section. When after contamination by frequent digital examination, infection was almost surely to be expected, a Porro or other hysterectomy should be done in the interest of the mother. A woman without a uterus was better than an anatomical specimen. The results in the series of cases from which these conclusions were drawn showing 95 per cent. recoveries of mothers, 85 per cent. of the children at term—at least warranted the belief that, since Tweedy's tables showed maternal mortality of 18; DeLee, 20; Williams, 25; Cragin, 28; N. Y. Lying-In, 30; the average American, 38; the Royal Maternity of Edinburgh, 66 (these figures being from DeLee's Year Book, 1918), his results were far above the average or else his cases had been less toxic than those encountered elsewhere, which was not likely to have been the case. From his own experience and from that of other observers, including a most interesting report just received from Dr. Ben Meyers, who did a large obstetric work in Alaska, and who found that in the last year, an unusually cold wet season, 12 per cent. of his cases suffered from toxemia—the conclusion was drawn that the weather did at least aggravate the tendency to this condition. As there was such a close relation between the toxemia and the nervous system, was it not also fair to ascribe to the war an incidental effect as a causative factor?

Accidental Removal of Intestines Through the Vaginal Vault.—Dr. EDWARD J. ILL of Newark, N. J., thought as a result of this study and observation, the following points seemed important: (1) Any portion of the bowel could be pulled away by traction with a forceps through a rent in the uterus or vagina. (2) The point of separation would be the junction of the bowel with the mesentery. (3) In some subjects the separation would be extraperitoneal in a large measure. (4) The mesentery could not be pulled away from its origin at the spine or elsewhere. He had reported this because of the medicolegal aspect and that it might form a guide for others. This sort of case would naturally come under observation.

Report of a Case of Pancreatic Cyst in Association with Tuberculous Kidney and Intestinal Complications.—Dr. J. E. SADLIER of Poughkeepsie, N. Y., said that his object in reporting this case was largely for the purpose of demonstrating the number of varied and serious conditions that might exist in one who had considered herself in good health. It was true that pancreatic cysts were rare—this being the very first one it had been his privilege to see—but in this case: (1) he had a patient with acute intestinal obstructive symptoms, which, unquestionably, resulted in a natural anastomosis between the ileum and the transverse colon, thereby overcoming the obstructive symptoms. (2) He had a condition of tuberculous nephritis, with extensive perinephritic infection—operation for which resulted in recovery from tuberculous condition—and also the unfortunate establishment of a colonic fistula in the lumbar region. (3) He had the discovery (and treatment) of the pancreatic cyst—a complex condition which required a great deal of careful thought, study, and work, in order, finally, to bring the patient to her present condition of good health.

Recognition and Management of Labor Injuries.—Dr. ARTHUR J. SKEEL of Cleveland, Ohio, said that the use of gas had done much to make possible more careful work. The production of gas analgesia, or of anesthesia if needed, involved very little discomfort to the patient, and rendered the whole procedure simple. The author wished to emphasize four points: (1) Limiting or entirely avoiding vaginal examinations during labor was a routine preliminary part of the technique of primary repair of labor injuries. (2) Immediate inspection of the cervix, with primary repair of its injuries, reduced the risk of subinvolution and of uterine displacement. (3) The routine use of buried sutures in the perineum for the repair of second degree lacerations permitted accurate coaptation and restoration of the parts. (4) Perineal lacerations were more surely repaired than was subpubic damage. Therefore, slow delivery and skill in directing the small diameters of the head through the vulvar ring should be sought. Forcing the head against the pubic arch produced more damage than it prevented.

Vertigo of the Menopause.—Dr. K. I. SANES of Pittsburgh said that in most of his patients the vertigo was of the objective type, *i.e.* they experienced a sense of rotation around them of the visible or palpable environments. In some of them the vertigo was of a subjective type, *i.e.* a sensation of motion of the body itself. A few of his patients described the vertigo as a sort of swimming movement, a feeling of being intoxicated, an extremely embarrassing condition (the pseudo-narcotism of Tilt). Vertigo was seldom the only prominent menopause symptom; it was almost always accompanied by such disturbances as hot and cold flashes, cold perspiration, palpitation, blurred vision, flickering before the eyes, headache, nausea, tinnitus, etc. The relation of vertigo to climacteric functional hypertension was of interest, and it was claimed by some that it was responsible for the menopause vertigo. Excluding as far as possible the cases of organic hypertension (cardiovascular and renal) he found 102 cases with vertigo that had their blood pressure specified on their records, and of them only 45 or 46 per cent. had their blood pressure above 150 and only 20, or 30 per cent above 160. The severity of vertigo, of course, varied. In most of his cases the vertigo was only slight, just a mild dizziness, in others again so severe that they feared walking by themselves on streets on account of the frequent falls and even loss of consciousness during the attacks of vertigo. What was the treatment for the climacteric vertigo? Before treatment was decided upon one must make sure that he dealt with a case of climacteric vertigo. Such pathological conditions as lesions of the internal ear or of any other part of the balance mechanism, such diseases as cardiovascular renal and ocular, especially muscular imbalance of eyes, must be excluded. If the case could definitely be diagnosed as one of climacteric vertigo, the treatment to be outlined must be that of the menopause in general. As the metabolism was always below par at the menopause, the nutrition and elimination of the patient must be looked after and, as the insufficiency or absence of the ovarian internal secretion was the underlying cause of the symptoms, ovarian organotherapy was logically indicated. In the treatment of his menopause cases he had been using a preparation, each grain of which represented a grain of the fresh ovarian substance, in doses of 5 grains, 2 to 4 times a day. He rarely found any particular advantage in using larger doses. When this dose failed, he only occasionally obtained better results from larger doses. The results that he obtained from the ovarian substance in the menopause, as shown in his records, were about 37 per cent. improvement, and about 25 per cent. complete control. In some cases relief from vertigo preceded, in others followed, and in others again accompanied the relief from the rest of the menopause symptoms. The length of time the ovarian substance was used by the patients was variable, some used it just a month or so, others for many months, and one patient had used it for three years before the final cessation of the annoying symptoms.

Sarcoma of the Left Ovary in a Child Twenty-three Months Old.—Dr. HERMAN E. HAYD of Buffalo said he had removed a small round cell sarcoma of the right ovary, about the size of a goose egg, from a baby

twenty-three months old. The child was running a temperature of 101°, was peevish and irritable, and had lost considerable flesh; it had been sick about ten days, was cutting its eye teeth, and had some bronchitic sounds in the chest and with areas of bronchopneumonia in both lungs. The liver dullness was much increased. The bowels and kidneys were functioning satisfactorily. In the lower right quadrant could be felt a large movable smooth tumor, not painful to the touch. The child was taking milk and liquid nourishment freely, so it seemed best to treat the symptoms, irrespective of the abdominal condition. In the course of four or five days the temperature became normal and the child's condition improved so much that the mother was told to take the child into the country and to return in a few weeks or earlier, if its condition did not continue to improve. When the child returned, she had a temperature of 100°, looked sick, and was again fretful and irritable. She was prepared immediately for an operation, was given ether and through a central incision, this tumor, which was free in the abdomen was removed, with the right tube attached to it. The appendix was long and curled upon itself and it was also removed. The uterus and the left tube and ovary were normal. Quite a little bloody fluid ran away when the abdomen was opened. The liver was very much enlarged and filled with nodular masses. The child suffered but little shock and made an uneventful surgical recovery and left the hospital on the thirteenth day. She died, however, at the end of the fifth week, no doubt, from exhaustion with acute liver and perhaps general sarcomatosis.

The Heart of a Pregnant Woman.—Dr. LOUIS BURCKHARDT of Indianapolis said that the menstrual disturbances, the aversion to physical exercise, and the vasomotor symptoms would help us greatly to single out suspicious cases of this nature, but to depend on marked objective changes in the heart and the general system would cause us to lose valuable time. If a heart affection had progressed to a point where drastic measures were unavoidable, irreparable damage had been inflicted on mother and fetus. Under drastic measures, he included prolonged and absolute rest in bed, the use of opiates and of large doses of digitalis; they all must interfere with a normal metabolism, so essential in this condition. The pregnancy in all but the severest cases must be carried to term, for the interruption of pregnancy offered as many chances of a cardiac breakdown as a normal well conducted delivery—excepting an abortion induced before the formation of the placenta had begun. If a patient with a well compensated heart lesion presented herself for our prenatal care we must impress upon her mind the necessity of preservation of energy. Saving alone did not suffice, but working up of new vital forces was needed —not rest alone, but rest and exercise. He demanded regular exercises and careful attention to elimination in every normal case; we must control both of them most minutely in heart cases. The blood pressure readings would assist us greatly in controlling our patient's work. Between the 34th and 35th week of pregnancy daily observations would be necessary in order to determine the proper time of interference. During this period such patients were best strictly confined to bed. As soon as settling had occurred a considerable amelioration of symptoms was frequently observed and the patient might be given more liberty of action.

Do Not Sterilize Women When Operating for Tuberculous Peritonitis.—Dr. J. HENRY CARSTENS of Detroit stated that there were thousands of tuberculous nodules left in the abdomen after operation for tuberculous peritonitis which were absorbed and disappeared; hence physicians had a right to believe that the few nodules that were left on the tubes and ovaries would also disappear after the abdomen was opened with or without irrigation or drainage. His conclusions were: The thousands of tubercles on the peritoneum were, as a rule, absorbed and disappeared after laparotomy; there was no use in removing the tubes if they were only affected by tubercles; and finally many of the women were young and unmarried, and should not be needlessly sterilized.

Problems of Ureteral Surgery in Gynecology.—Dr. GEORGE VAN AMBER BROWN of Detroit drew the following conclusions: (1) The problem of transplantation of the ureter is often puzzling. (2) In hysterectomy for malignancy of the cervix, one should always isolate the ureters early. (3) In closure of the ureter one can never tell the destiny of the kidney. (4) *X*-ray and urinary findings are probably the greatest source of error. (5) In urology the solution of choice, opaque to the roentgen ray, is one either of sodium or potassium iodide. (6) The destiny of a kidney whose ureter has been tied cannot be easily foretold. (7) No form of operation is ever done until as complete an investigation as possible of both sides has been made."

Intestinal Actinomycosis.—Dr. JOHN W. KEEFE of Providence, R. I., said that actinomycosis of the digestive tract practically never occurred in the stomach or small intestine, possibly because of the acid contents of the stomach and the fluid secretions found in the small intestine being less irritating to its mucous lining. An acute or chronic inflammation of the appendix might open the door for the entrance of the actinomycotic organism. In general, it might be stated that actinomycosis was practically never carried by the lymphatics and but rarely by the blood stream. The method of extension was by continuity of tissue. Thus it was that general actinomycosis, unlike tuberculosis and blastomycosis, was extremely rare. Many of the abdominal organs might become involved with the disease, as extension of the process usually took place through retroperitoneal tissues, sometimes destroying muscular and even body structures. The early stages of actinomycosis were generally overlooked. A firm swelling, painless on pressure, occupying either the right or left inguinal regions, usually the right, was the sign most frequently found in cases of intestinal actinomycosis. The surgical measures to combat the disease consisted of, in some cases, excision, in others, incision and curetting of diseased tissues together with the use of antiseptics and the maintenance of free drainage. Injections of four per cent. formalin solution had been employed with success. Vaccines and serums had been found of value only in a few reported cases. The *x*-ray had not shown any marked beneficial effect. In a few instances radium had been given with marked immediate results. Large doses of potassium iodide, 90 grains three times a day, had been given with success in many cases. Some authors had been so favorably impressed as to assert that it was a specific in this disease. The marked efficacy claimed for this drug was readily explained by the fact that it promoted the absorption of granulation tissue, acting in very much the same manner as in the case of granulomata of tertiary syphilis.

The Rôle of Congenital Colonic Membranes as a Causative Factor in Disease.—Dr. J. P. RUNYAN of Little Rock, Ark., said that colectomy was a radical operation for the relief of intestinal stasis, and in the skilled hands of Lane might be fairly safe, but it had always appeared to him unjustifiable, provided a simpler and a safer operation could be devised. No matter what we might think of the advisability or inadvisability of doing colectomy for its relief, we were doubtless agreed that intestinal stasis was a menace to good health, and that we should endeavor to ascertain the underlying cause and, if possible, correct it. Some patients suffered to such a slight degree that it was questionable whether they should be subjected to operation, while others were so miserable that even colectomy, with its high mortality, might be preferable if we did not have just as effective treatment without its dangers to offer. Acting upon the hypothesis that intestinal stasis was due to colonic membrane formation, the result of imperfect embryological development, which membrane caused more or less angulation of the bowel, he began dividing or removing this membrane, after the manner of Jabez N. Jackson, with most gratifying results. He submitted it as a splendid, safe, and sane substitute for colectomy in the treatment of intestinal stasis, and an operation devoid of mortality and most satisfactory in its results.

Dr. WILLIAM SEAMAN BAINBRIDGE of New York City said it would be unfortunate indeed if it should go out that stasis was not constipation, and constipation was not stasis, and colectomy was not done for the treatment of it by Sir Arbuthnot Lane. Constipation was a symptom just as diarrhea was a symptom. The worst

kind of cases of stasis were those in which the condition was accompanied frequently with diarrhea. The frequency of the number of stools did not mean that the putrifying and noxious material was not there. The retained stool was being absorbed. There was an overflow of retention in the bowel just as there was overflow of retention in the bladder. This point Lane had emphasized repeatedly, and the worst cases of stasis were of that type. When the intestinal canal was dammed, the body as a whole or in part could not take care of the added amount of poisoning with such retention involved. As to treatment, to say that Mr. Lane or any of those that followed him advocated colectomy for stasis was so radical that it did harm. Lane put himself on record in regard to this in 1901 when he said that nine-tenths of the patients with stasis ought never to see a surgeon.

Dr. JAMES E. DAVIS of Detroit said that the body in its development usually followed the law that function determined anatomical form. In cases in which there was some arrest in embryonic development, interference with normal function did not necessarily occur. He had seen instances of this over and over again. Why this was so it was impossible to determine in every instance; but there were a certain number of cases where the arrested anatomical form did interfere definitely. Within the past year he had had the opportunity of doing an autopsy which he thought illustrated this point very beautifully. A child of six weeks died apparently of symptoms of inanition. The autopsy findings revealed this very interesting condition: The right lobe of the liver appeared displaced well down into the pelvis; in fact, it could not be a true displacement; it seemed to be a development. The gall-bladder was in a right-angled position with the mid-axis of the bowel. The lower border of the right lobe of the liver was down in the lowermost part of the pelvis. Through the right hernial ring the cecum and appendix were herniated. The child gave this symptomatology: for the first four days after birth there was no trouble whatsoever, then there began a train of gastrointestinal disturbances, and a little later metabolic disturbances were found. The terminal picture was that of ordinary inanition. In his judgment this abnormality of position was the etiological factor of the gastrointestinal and metabolic disturbances.

Dr. GORDON K. DICKINSON of Jersey City said that in the *Annals of Surgery* for June, 1918, there was a very interesting article on the anatomy and embryology of this subject, and it looked as though the theory advanced by the author was correct. The observations were based on embryological researches and the literature, and the position was taken that all of these bands that were observed and called Jackson's membrane and Lane's kink were embryonal and could be traced back to a very early period of fetal life.

Dr. HUGO O. PANTZER of Indianapolis was pleased to see that surgeons were becoming more and more harmonious in their views regarding this subject. In time they would know more about the symptomatology of the disease and go more specifically after it. These conditions were often associated with a narrow costal angle, with visceroptosis, congenital defects, and so on. Dr. Runyan did not say anything about the narrow costal angle. By percussion one could tell whether the cecum was over the pelvic brim or not; indeed, one could tell by auscultation and percussion a good deal about the abdominal contents.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Annual Meeting, Held in Philadelphia, September 24, 25 and 26, 1918.

(*Concluded from page* 922.)

SECTION ON MEDICINE.

Essential Hypertension.—Dr. HERMAN O. MOSENTHAL of Baltimore in this paper referred to the importance of the recognition of this disease, which so far was characterized by the presence of only one symptom—hypertension. There was known no pathological physiology of the organism bringing about hypertension. It was said to exist in a great number of individuals and usually resulted in severe lesions of the heart, brain, or kidney, causing death. The diagnosis could be made with certainty only when the tests for renal function were available. The most intricate questions in metabolism were involved in treatment. Thus far more theory than fact had been adhered to in management. Mental and physical rest constituted the main elements in treatment. A diet regulating quantity rather than quality was of first importance in food control. The disease demonstrated the value of yearly prophylactic examinations for apparently normal individuals. Attention to hygienic instructions might often prolong life.

Dr. JAMES M. ANDERS of Philadelphia emphasized the great importance of the recognition of essential hypertension. In his opinion the condition was by no means as frequent as indicated by certain writers. Cases had not been excluded in which some cause of hypertension might have been revealed by further investigation. The tests for renal function were necessary in diagnosis. Such tests showed that many cases of apparent essential hypertension could not be so regarded. Cases of persistent hypertension in middle aged men in active business given somewhat to excess in eating, and in the use of alcohol and tobacco, he had found yield to treatment, prolonged rest, and correction of the habits of the patient. These were not instances of essential hypertension.

Dr. ROSS V. PATTERSON of Philadelphia called attention to the form of hypertension under discussion, which must be distinguished from that due to renal sclerosis, in which the hypertension was the primary change and the changes in arteries and kidney were secondary.

Dr. FRANCIS ASHLEY FAUGHT of Philadelphia regarded the renal function test as of very little value, stating that it did not differentiate between a temporary congestion of the kidney and chronic kidney disease. It was his belief that cases of essential arterial hypertension did exist, probably had a cause, that the cause was toxic, and that if such cases did not exist for too long a time they were amenable to relief and cure.

Dr. L. V. HAMMAN of Baltimore said that his reason for distinguishing between essential hypertension associated with renal disease was mainly of prognostic value. He felt that physicians often alarmed patients by telling them that their blood pressure was high. Instances could be noted of patients with a blood pressure of over 200 who had been able to do a normal amount of work for a number of years. The main difference was that the nephritic cases did not last long. Renal functional tests were of the greatest value in the differentiation of the two forms.

The Blood Pressure Question from the Standpoint of the General Practitioner.—Dr. H. A. HARE of Philadelphia emphasized the fact that the result of a blood pressure examination should be taken only as a part of the picture, of no greater importance, if as great, as other parts. A moderately high pressure with a low specific gravity of the urine and many hyaline casts was of far more importance than a very high pressure with a urine practically free of casts. Too much stress, he believed, was placed upon one blood pressure estimation. High estimations made in the office would be far above those taken with the patient at home in bed or in a chair, thus giving an erroneous view of the constant pressure. The practice of estimating the systolic pressure without the diastolic was to be condemned. A pressure above normal might be present for years without giving trouble; a pressure below normal might cause disaster in a few hours. The diastolic pressure subtracted from the systolic gave an idea of the actual cardiac power. He drew attention to the fact that as a man grew older he established what Dr. Hare had termed a "pathological norm," a rising pressure, systolic and diastolic, being essential to his normal existence. Such pressure must not be forced to the theoretically normal level for a man of thirty years. The endeavor should be to reduce the systolic and diastolic pressure sufficiently to relieve stress, and to increase the difference between the systolic and diastolic pressures. In such cases electric cabinet baths, massage, and the alteratives were, as a rule, of more value than the nitrites.

Blood Pressure as a Prognostic Factor.—Dr. R. Max Goepp of Philadelphia regarded blood pressure as more useful in long range prognosis than as an index of immediate developments. Statistics showed hypertension, regardless of cause, to have an unfavorable effect on longevity. "Simple" hypertension, so called, he said, belonged either to the group of early interstitial nephritis or to that of simple arteriosclerosis. Diastolic pressure was regarded as of more importance in prognosis of acute infections than of chronic diseases.

Dr. Francis Ashley Faught of Philadelphia was gratified with Dr. Goepp's emphasis upon the fact that the greatest value in the use of the blood pressure test was derived from the use of certain known ratios and formulas and not from the actual figures obtained by the systolic and diastolic study.

Dr. John A. Lichty of Pittsburgh believed that in ten years essential hypertensions would have ceased to be regarded as a clinical entity. This might be paralleled in the matter of hyperchlorhydria, which twenty years ago was called a disease. Very few of such conditions had been observed since the effect of gall-bladder, appendical, and other conditions upon the gastric secretion had been known. He regarded hypertension as a manifestation of disease or physiological disturbance in an organ which would sometime be understood. He asked Dr. Goepp's interpretation of a constantly low blood pressure.

Dr. Irwin J. Moyer of Pittsburgh believed that the digestive organs played an important rôle not sufficiently dwelt upon in hypertension.

Dr. Goepp, in closing, said that a blood pressure of 100 should not be considered low; large, heavy men were frequently observed with a systolic pressure below 100 and the diastolic 70. The importance of blood pressure, he felt, was tremendously exaggerated and this tendency should be combated by the physician.

The Results of Tests for Food Protein Sensitiveness in a Small Group of Asthmatics.—Dr. Alexander Sterling of Philadelphia gave a review of the clinical pathology of asthma. The reactions of twelve patients were tested with twenty-five different food proteins. There was a positive reaction in only one. In the presence of positive reactions, exclusion in diet and desensitization were indicated. Fifty per cent. of the asthmatics were benefited by subcutaneous injections of gradually increasing doses of foreign vegetable proteins.

Dr. Gordon J. Saxon of Philadelphia referred to the transmission of certain of the asthmatic stigmata from generation to generation, and cited an illustrative case in which the mother, grandmother, and great-grandmother had been victims of hay fever.

Third Day—Thursday, September 26.

Treatment of Syphilis of the Central Nervous System.—Dr. T. P. Tredway of Erie emphasized the importance of early recognition of involvement of the central nervous system and the selection of cases mentioned the following as the methods in common use in the intraspinal injection of arsphenamine and mercury: (1) Autoarsphenamized serum, (2) Arsphenamine in small quantities added to serum, (3) Mercurialized serum, (4) Arsphenamine in small quantities added directly to the fluid. The author's best results had been obtained by the last mentioned method. In paretics he believed that a prolonged remission was the best that could be accomplished. In tabes dorsalis he had seen cases in which, clinically, progression had been retarded for three years; best results followed the combination of general and intraspinal treatment.

Observations of the Intraspinal Autoarsphenamized Serum Treatment of Cerebrospinal Syphilis.—Dr. B. A. Thomas of Philadelphia in this study did not claim that arsphenamine therapy removed the possible necessity of institutional care, but believed that the accessory employment of intraspinal treatment accelerated restoration of the spinal fluid to normal. Intraspinal treatment by autoarsphenamized or arsphenamized autoarsphenamized serum injections should supplement intensive intravenous therapy when necessary. Treatment in qualified cases should be continued until the spinal fluid and the blood findings were negative, except globulins which might continue positive in many cases irrespective of the amount of treatment.

Dr. Loraine L. Schwartz of Pittsburgh believed that unless the necessity of routine lumbar puncture in all cases of syphilis was universally recognized by the medical profession there would be as many posterior sclerosis tabetics, paretics, and cerebrospinal cases in twenty years as at present. Opportunities for better work rested primarily with the physician seeing the patient during the first six months of the infection. Upon the slightest sign of central nervous involvement it was his custom to have the spinal cord explored and he believed that in this way the patient was saved many doses of salvarsan.

Dr. Jay F. Schamberg of Philadelphia emphasized the responsibility of the medical profession regarding the treatment of syphilis. Especially valuable in his opinion was the colloidal gold test in warning of impending changes in the nervous system. It was to be realized that the blood Wassermann did not indicate the changes taking place in the central nervous system. Were the early spinal fluid changes detected and persistent and scientific treatment instituted he believed that tabes and paresis could be banished. A striking instance of syphilis was cited in which marked relief was obtained in thirty-six hours after an intraspinal injection of arsphenamine.

Dr. Alfred Gordon of Philadelphia referred to his experience with several hundred cases of neurosyphilis in some of which brilliant results attended the first or second administration of autoneosalvarsanized serum. In one case the intraspinal treatment was followed by immediate relief of pain.

Dr. Paul G. Weston of Warren referred to the grouping of paretics in their hospital, each group being given a different form of treatment and one additional group receiving no anti-syphilitic treatment. Practically no difference in the average length of life between the treated and untreated was found, and at autopsy the same changes in the brains were found in these two classes. He said that ten or twenty years would be needed for the testing of the problems presented.

Dr. John A. Lichty of Pittsburgh referred to the statement appearing in the *Survey* that the annual expense to the State of New York for the syphilitic was about five million dollars. Such an outlay multiplied by the number of the other States could at the present time be advantageously applied to the building of more ships. In his opinion were the subject of syphilis managed by the State Board of Health, the Committee on Medical Education and State Licensure, and the State Board of Charities somewhat as tuberculosis is supervised, a very satisfactory degree of success would be obtained.

Dr. Thomas, in closing, agreed with Dr. Weston in his estimate of the treatment of paresis. He had obtained no good results and one case had been made worse. The gold test had been of no value in his work.

The Application of the Principles of Advanced Psychiatry.—Dr. J. Allen Jackson of Philadelphia stated that in communities with a population of over 500,000 service would best be obtained through a municipal bureau of mental hygiene under the supervision of a trained psychiatrist with subordinate district supervision. Definite psychiatric centers under the direction of an alienist assisted by a trained field worker should be established in the districts. Public education should here be encouraged. Early care and treatment with assignment to proper institutions could be thus carried out. The alienist in charge of the psychiatric center should bear the same relation to the custodial institution as the medical inspector of the Bureau of Health to the Hospital for Contagious Diseases. While the immediate effect of such a bureau would be a temporary increase of custodial patients there would ultimately be an increased recovery rate. By such measures the propagation of the mentally unfit would be checked and the cost to municipality and State would be eliminated.

Dr. John A. Lichty of Pittsburgh was in hearty accord with the method of organization suggested by Dr. Jackson. The scheme in his opinion represented economy and efficiency, the saving of lives and the bringing back to health of many now submerged.

Dr. S. Solis-Cohen of Philadelphia strongly endorsed the scheme outlined by Dr. Jackson. He wished

that the same method might supplant the present mode of dealing with the subject of tuberculosis.

Dr. Frank Woodbury of Philadelphia was in strong sympathy with the paper presented by Dr. Jackson. In the analogy of tuberculosis and insanity in the matter of management the important distinction was to be made of knowledge by the profession of the cause in the former. In a case of insanity the nature of the disease which produced the mental disorder was to be determined. It was wrong to disqualify a man for life by commitment to an insane hospital were this not necessary for his welfare and the protection of society. To diffuse among the general profession a better knowledge of mental disease was stated to be the duty of psychiatry.

Dr. E. E. Mayer of Pittsburgh would add to Dr. Jackson's diagram the suggestion that hygiene should deal with the social problems of the community as well as with the mental. Until there was in operation a plan by which social and vocational agencies cooperated with the medical profession he feared the largest good would not be accomplished.

Professor Norbert J. Melville of Philadelphia stated that the Mental Hygiene Committee of the Public Charities Association was prepared to cooperate in any community with physicians who were ready to direct such cooperation. The Committee was already working through welfare agencies to convince social workers that they should consult the specialist for direction in social psychiatry; also pointing out the desirability of their staff taking courses in the principles of social psychiatry. It was the thought of the Committee that with the organization of volunteer workers, the State might eventually take over the work.

Prognosis of Cases of Intestinal Perforation in Typhoid Fever Without Operation.—Dr. C. W. Eisenhower of York urged that the physician watch closely for complications in typhoid fever and call the surgeon immediately upon the suspicion of perforation. The experience of the general practitioner was that recoveries from intestinal perforation in typhoid fever without operation were more frequent than indicated in the textbooks. In some instances, evidence had been found of a local protective plastic peritonitis preventing escape of bowel contents, resulting in recovery. The prognosis of intestinal perforation was regarded as too grave to warrant departure from the accepted treatment of prompt surgical intervention.

Dr. S. Solis-Cohen of Philadelphia, though agreeing almost entirely with Dr. Eisenhower, referred to the teaching of J. M. Da Costa and Alonzo Clark in preoperative days, that about one case in four of typhoid perforation might be expected to recover. Their plan of treatment had been the administration of opium to the point almost of stupefaction, with the administration of minimal quantities of fluid nourishment every three or four hours. Dr. Cohen had personally had similar results. He would, however, with Dr. Eisenhower, emphasize the importance of as early an operation as possible.

Dr. David S. Funk of Harrisburg said that in a remote rural district he would give in a case of typhoid fever with perforation a prognosis barely distinguishable from crepe on the door. He had, however, seen one typical case of perforation recover in a woman too ill for operation.

Dr. George E. Holtzapple of York was inclined to believe that more cases recovered without operation than indicated by some writers of textbooks. While operation was the proper treatment for perforation, if for any reason operation could not be done there should be no relaxation of the efforts of the physician.

Dr. James I. Johnston of Pittsburgh had seen cases of typhoid perforation in which the patient had refused operation, and which had recovered. One case was cited in which, upon section, it was found that the omentum had fallen against the perforation, sealing it over. No further operative work was done, and recovery occurred.

Pellagra.—Dr. L. L. Schwartz of Pittsburgh mentioned the three theories given concerning pellagra—the deficiency, the maize, and the parasitic, the latter being the most widely accepted at present. While the usual duration of the chronic form of the disease was from five to ten years, in America death during the first or second summer was common. The cardinal symptoms, he said, were often indicated by the alliterative formula—dermatitis, diarrhea, and depression. The first essential in treatment was removal of the patient from the surroundings in which he had acquired the disease, accompanied with the institution of a liberal mixed diet. Arsenic was the one drug of apparent value, and the forms in which it seemed to be most useful were salvarsan intravenously, or sodium cacodylate given intramuscularly. One case was reported which had been referred to the author's service in the Mercy Hospital by Dr. Clement R. Jones of Pittsburgh.

Dr. James I. Johnston of Pittsburgh had seen this case, and at first it suggested to him the possibility of typhoid fever, with incidental skin eruption; syphilis was also thought of. Upon further study it was diagnosed as pellagra, and this was corroborated at autopsy.

Dr. John G. Burke of Pittsburgh referred to the profound toxemia present in the case, for which no cause could be found, and thought it a peculiar circumstance that one case should be observed without the occurrence of others.

Dr. Paul G. Weston of Warren referred to Goldberger's experiments, as yet not confirmed, which seemed to show that pellagra was a deficiency disease. He felt that an interesting parallelism existed between a low per-capita cost and the presence of pellagra in institutions for the insane. Some one had recommended that the first step in the treatment of pellagra in an institution should be replacement of those responsible for the disease by persons having a greater interest in the patients than in the per-capita cost. Following this there should be an increase in the animal proteins in the diet. He inclined to the belef that the disease was more prevalent in the Northern States than was generally known.

Dr. Schwartz, in closing, said that the diet of the man whose case had been reported was principally that of the farm life. He believed more cases of pellagra existed in the Northern States than was supposed by the profession, and thought they were often not recognized until the final stages were apparent. The case cited had been claimed by the dermatological, the neurological, and the gastrointestinal men. The three cardinal symptoms had been very prominent. The Wassermann was only faintly positive.

Serum Treatment of Epidemic Cerebrospinal Meningitis.—Dr. John A. Kolmer of Philadelphia referred to the reduced mortality of epidemic cerebrospinal meningitis with the serum treatment by the intraspinal route. The gross mortality of 70 to 90 per cent. among cases not treated with the serum had been lowered to 30 per cent. by the serum treatment. The problem was complicated by the fact that more than one type of meningococcus was capable of producing the disease, and that the microorganisms might be carried and disseminated by convalescents and healthy carriers. It was regarded as highly important to employ a potent polyvalent serum in the treatment of meningococcus infections because at the present time type diagnoses and the employment of monovalent serums were not availment as in the diagnosis and treatment of lobar pneumonia. During epidemics between 1 and 2 per cent. of persons were chronic carriers, constituting the greatest source of danger. With the least clinical suspicion of meningitis the physician should resort to spinal puncture. It was stated that Flexner regarded the microorganisms as infecting the meninges by direct extension along the lymphatics of the olfactory nerves, with their occasional presence in the blood stream. Recent studies, particularly by Herrick and Caeslack, indicated that the coccus might be present in the blood more frequently than heretofore thought, and that this "meningococcus sepsis" might produce systemic symptoms. It is Dr. Kolmer's custom to culture the blood routinely at the time of spinal puncture. If after two intraspinal injections of large doses of antiserum no improvement was shown clinically or in the analysis of the cerebrospinal fluid, the author advised that a serum of another manufacturer be substituted, with the hope that it might contain specific antibodies not present in the first. Upon the basis of his experi-

mental results with the influence of fresh normal serum alone and in combination with antimeningitis serum upon viruldent meningococci, Dr. Kolmer believed the method worthy of further trial in improving the results of the serum treatment of meningococcus-meningitis.

Election of Officers.—The annual election resulted as follows: *President,* Dr. Cyrus L. Stevens, Athens; *First Vice-President,* Dr. Wm. Duffield Robinson, Philadelphia; *Secretary,* Dr. W. F. Donaldson, Pittsburgh; *Assistant Secretary,* Dr. C. B. Longenecker, Philadelphia; *treasurer,* Dr. George W. Wagoner, Johnston.

The next place of meeting will be Harrisburg.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

ANATOMY OF THE HUMAN BODY. By HENRY GRAY, F.R.S., and WARREN H. LEWIS, B.S., M.D. Twentieth Edition. 1,396 pages. Illustrated. Price, $7.50 cloth and $9.00 leather. Published by Lea & Febiger, Philadelphia and New York.

AN INTRODUCTION TO THE MAMMALIAN DENTITION. By T. WINGATE TODD. 290 pages. Illustrated. Price, $3.00. Published by C. V. Mosby Company, St. Louis.

PROCEEDINGS OF THE MEDICAL ASSOCIATION OF THE ISTHMIAN CANAL ZONE. January, 1917, to June, 1917, Vol. X. Part I, 149 pages. Published by the Health Department, The Panama Canal.

STATISTICAL MANUAL FOR THE USE OF INSTITUTIONS FOR THE INSANE. 40 pages. Published by Bureau of Statistics, The National Committee for Mental Hygiene, N. Y. City.

THE MERCHANTS' ASSOCIATION OF NEW YORK, YEAR BOOK 1918. 288 pages. Published by The Merchants' Association, Woolworth Bldg., New York.

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COMMOTIONS ET EMOTIONS. Par ANDRÉ LERI. 196 pages. Illustrated. Price, 4 francs. Published by Masson et Cie., Paris.

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Miscellany.

Feeble-Minded Children.—In *Public Health Reports,* May 17, 1918, Dr. Walter Treadway, passed assistant surgeon, U. S. P. H. S., formulates the following conclusions based upon observations on the personality of feeble-minded children in the general population: (1) In addition to certain formal psychological tests the children who grade below certain normal limits, or who show certain unusual traits of character, should be studied by psychiatric methods. (2) Certain constitutional traits occur with sufficient frequency in the mental defectives to warrant their being recognized as types for future study. The following tentative classification is suggested: (a) Those with shut-in tendencies; (b) those with maniac-depressive-like reactions; (c) those allied to the maniac-depressive group; (d) those who show the egoistic and epileptic temperament, and (e) those who show a fatuous temperament. (3) Constitutional traits must be taken into account when making a diagnosis of mental deficiency, or feeble-mindedness as it is more often termed. Future studies in the field may show that they are of practical value in differentiating the mentally defective child from one merely retarded. (4) A knowledge of psychiatry is an important requisite in the diagnosis of feeble-mindedness. This becomes of more importance when it is realized that a close relationship exists between psychic disorders usually regarded as insanity and the higher types of mental deficiency or feeble-mindedness. (5) The recognition of these constitutional traits will permit a better understanding of impure or atypical cases in mental medicine and, furthermore, offer a means of recognizing antisocial traits in mental defectives before society has paid the penalty of their inherent antisocial tendencies. (6) The understanding of these traits permits, early in the career of the feeble-minded, the inauguration of prophylaxis, which may serve to prevent much sorrow and disgrace to their immediate families: First, by segregating certain types in institutions early in life, regardless of the financial status of the family, and second, by replacing through early training vicious tendencies which the feeble-minded child easily adopts and which are not readily overcome when once developed.

Cremation.—From the *Boletino del Departamento de Salubridad Publica* for June 30, we learn that on February 15, 1909, the cremation of human cadavers was initiated at the Dolores cemetery, Mexico City. The total number of cremations to date is now 18,160. In the year 1913 and 1914 cremation was temporarily suspended and since its resumption the average annual number has fallen notably, although the present year will doubtless equal or surpass any of the former years. When Mexico took up cremation she simply re-established a custom of the ancient Aztec population. Dr. Valenzuela, editor of the *Boletino,* gives an account of the funeral ceremonies of these people. Among Old World countries the cremation of the Greeks and Romans was abolished by Christianity and only India has kept up the custom without respite for centuries. In 1876 there occurred a revival of the old custom in Italy.

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Original Articles.

THE MILDER FORMS OF MANIC-DEPRESSIVE PSYCHOSES AND THE MANIC-DEPRESSIVE CONSTITUTION OR TEMPERAMENT.*

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THE term manic-depressive insanity was introduced by Kraepelin and has found general favor. The purpose was one of simplification and unification. Just as the concept of tuberculosis was simplified by the recognition that the various anatomical and clinical forms of manifestation of the disease, the desquamative pneumonia of Laennec, the caseous peribronchitis, miliary tuberculosis, caries of the bones, glandular tuberculosis, lupus, etc., had one main source of origin in common, the invasion of the tubercle bacillus, so Kraepelin recognized in the cases of simple mania and melancholia, recurrent mania and melancholia, periodic mania and melancholia, and circular insanity, the latter known in its milder forms as cyclothymia, common binding traits. He showed that the apparently so contrasting manic and melancholic manifestations could so to say go hand in hand, side by side.

That the same individual could show periods of mania, alternating with periods of melancholia and periods of a more or less normal state, had already been demonstrated long before by the existence of circular or cyclic insanity. It was Kraepelin's merit, however, to have shown that the blending of these two opposite conditions in the same person was much more frequent than had been believed before and that it could occur in all sorts of ways, of which the following are the most typical:

Classification of Manic-Depressive Psychoses.—1. Manic, depressive, and normal states may follow each other in regular succession in a typical cycle.—Circular or cyclic insanity, called cyclothymia in the mild form.

2. The normal state may be broken into by manic attacks and by depressive, *i.e.* melancholic attacks at irregular intervals and in irregular succession.—Periodic manic-depressive insanity.

3. Manic attacks interrupt the normal state at various intervals, but they are rarely if ever purely manic; depressive episodes of longer or shorter duration, sometimes only of hours or less, sometimes of days, occur during the manic attack, or the manic attack is ushered in by a depressive forestage.—Periodic or recurrent mania.

4. Depressive or melancholic attacks interrupt the normal state at varying intervals, being again often or usually mixed with or preceded by manic episodes.—Periodic or recurrent melancholia.

5. Only one or two actual *manic* attacks occur in a lifetime, but the manic depressive make-up to be described later is present.

6. Only one or two *depressive* attacks occur in a lifetime, but the manic-depressive make-up exists.

7. All possible other mixtures or combinations are found: A melancholic emotional attitude, for instance, may be associated with verbosity, flight of ideas; or a manic emotional attitude may be associated with a stuporous state.—Manic Stupor.

It is not the purpose of this paper to dwell on the severe forms of mania and melancholia. I shall therefore refer to these briefly, not more than is needed for a general understanding of this subject.

Description of Marked Manic Attack.—Well developed cases of mania are characterized by a feeling of exaltation, of general well-being, increasing to boisterousness, expressing itself by talking, shouting, hollering, laughing, singing, dancing, joking. There is increased sensuality, showing itself in the sexual sphere as an increased sexual desire which is exhibited in undisguised, scandalous, gross advances towards the opposite sex with the use of licentious, indecent language, swearing, etc.

There is a feeling of increased power, with intent to show it by feats of strength and daring, by a defiance to being ruled or checked. Activity is increased in a more and more disordered manner, the more the disease advances, showing itself in destructiveness, tearing up clothing, pulling down of pictures from the walls, of fixtures, of mouldings. They may show the agility of cats, climbing up trees, etc.

The increased activity shows itself also in their speech. They exhibit an increasing verbosity, at times an incessant talk, which like their actions becomes more and more disordered as the disease nears its climax. The thoughts follow each other in quick succession, apparently without any binding links—so-called flight of ideas. Close observation often shows, however, that the binding links are present but are skipped over so rapidly that one has to be very alert in detecting them. The mental associations are superficial, expressing themselves in resemblance of sound, thus giving rise to rhyming, playing on words, or superficial

*Read before the Bergen County Medical Society, June 11, 1918.

grouping and successive enumeration of things, say from color association or in a similar manner. For instance, "red and blue, I do not like you (U), V, X, Y, Z, the man went to sea, see sight, goodnight. The night is black, back, back, back."

Objects just coming into their line of vision or sounds just heard or other sense-impressions of the moment are at once drawn into their talk by a quick allusion—so-called distractibility.

The appetite is increased, and they eat voraciously unless the motor activity becomes so disordered and hurried that they do not find the time to eat. Activity of the bowels also is increased, but stools may become retarded for the same reason.

The sporadic manic attack is often ushered in by a depressive forestage of longer or lesser duration.

Description of Marked Melancholic Attack.—In a melancholic depression the conditions are the opposite of those of the manic in most respects.

In place of the exalted, elated emotional attitude there is deep gloom, discouragement, a feeling of hopelessness. The patients cannot enjoy anything. Everything appears in a distorted, pessimistic light. They are deeply convinced that they can never be happy again, that life has nothing more in store for them, that nothing can be done for them. This and the great anguish connected with it, causing anticipation of some terrible happening, of a frightful impending death, makes them wish to end life by their own hand rather than go through the anticipated ordeal. Thus they attempt and often succeed in committing suicide.

In place of the increased sexuality and cynicism of the manic we see in the melancholic a lessened sexual desire and a feeling of chastity and strict maintenance of decorum—with notable exceptions, however.

The feeling of self-satisfaction of the manic is replaced by feelings of regret, of self-reproach in the melancholic: "I ought to have acted differently. have brought this unhappiness on myself, am being punished by God for my shortcomings or sins," etc.

Instead of the feeling of increased power of the manic, the melancholic patient has a feeling of diffidence, incapacity, inability to accomplish anything. Thinking is painful, an effort, concentration greatly impeded. Thoughts come slowly and recalling things from memory becomes a laborious task. This interference with thinking and recalling is designated as mental retardation and forms a strong contrast with the flight of ideas of the manic, his often remarkable ease of memorial reproduction, especially of old events.

In place of the overactivity and verbosity of the manic we find in the melancholic or depressed patient lessened activity and reticence to the point of so-called melancholic stupor, in which active movement is reduced to a minimum and speech suspended, although in some there is on the contrary an agitation of action and of speech approaching the flight of ideas of manics. The counterpart of this uncommon feature of melancholics is the uncommon arrest of activity in some manics, known as manic stupor, and so far as known to me, first described by Kraepelin.

Appetite is almost invariably diminished in melancholics, often to the point of complete refusal of food, to which result the feeling of unworthiness or the delusion of abject poverty greatly contributes. This is in contrast to the voracity of the manic, if such is not neutralized by his rapid, shifting, disordered activity.

Constipation is the rule, as against the usually free activity of the bowels in manics.

Mild Forms of Manic-Depressive Psychosis.—The mild forms of mania are usually designated as hypomanias, of which the following clinical picture as observed in a Jewish girl of 21 years during her stay at "The Oak" is illustrative:

Case 1.—*Hypomania.*—Patient is mildly elated, showing herself contented and giving unstinted praise to her surroundings. She describes the place, the care, and the meals here as grand. Everybody is lovely to her. She shows a marked activity, but of an ordered manner, yet with frequent shifting and a restlessness of purpose. She takes at once an interest in the patients and wants to take care of them, nevertheless soon losing patience when they obtrude themselves on her.

She writes letters by the dozen, in an elated style mostly of a flirtatious character and with many fabrications made evidently in the spirit of harmless bragadocio. In one of them for instance she writes to a girl friend that she is swimming and motoring, that to-morrow two Princeton chaps are going to take her on a motor ride, that there is "a bunch of game girls" here, all of which statements have no basis of fact, the reference to the patients as a bunch of game girls being irresistibly comical. She invites most of the addressees to visit her, many of them being quite superficial acquaintances. She is bent on having all the letters mailed, secreting some of them in her clothing.

She is so far amiable, good natured, seemingly perfectly amenable to the sanatorium discipline. With all that she has a rather bad influence on a young epileptic female patient, coaching her to pretend that she did not hear when her name was called, having talks with her of an erotic character. She exhibits a marked flirtatiousness towards the male sex expressed also in the numerous letters mentioned, remaining nevertheless in the limits of decency in her conduct toward the male sex. She is stylishly, coquettishly, but neatly dressed. She displays much liking for music both receptively and actively, letting the phonograph play and playing herself on the piano, with preference for lively, dashing, and also trashy music, executing the same in a loud and rather trashy manner, with many mistakes.

The patient is perfectly oriented regarding time, place, and surroundings. Attention is perfect and she is very alert, giving one the impression of one that has to be carefully watched against impulses to run away, conducting of clandestine correspondence, etc., as she would quickly seize any opportunity to elude watchfulness. Her memory is good. She enters other rooms, using articles of clothing and of toilet of other patients and of the supervising staff.

The formal content of her speech is well ordered, showing no tendency to giving way to superficial associations. She gives evidence of intelligence and culture. Sleep and appetite good, bowels regular.

On September 25, 1915, ten days after admission, the following note was taken: "Has become more systematic, more settled in her activities, spending a good deal of her time in embroidery work, although doing the same in a careless, ragfashion manner. Litters the grounds up with torn-up letters. Still writes numerous letters, addressing one of the young men written to as her husband and sweetheart and using other endearing terms, speaking effusively of her affection for him (this man made it very distinctly understood to her folks that he did not want to have any correspondence with her). Writes to another young man in the same manner, except that she does not call him her husband. The letters contain very thinly veiled erotic allusions, speaking for instance of men's admiration of her legs, of the wedding night, etc. In the letters to her family she at times shows discontent,

finds fault with all sorts of things, misrepresenting conditions with the evident intent to arouse her family's sympathy and to be taken home. Four days ago she made an attempt to run away, which was nipped in the bud. Patient eats and sleeps well. Has had only one night of actually poor sleep, owing to disturbance of another patient."

September 27, 1915.—Weight 120 lbs., a gain of 5 lbs. since admission (September 15).

The following case, of which I likewise render only the notes of the mental examination made on her admission to "The Oak" (April 28, 1915) and again six days afterward (May 4), is a good type of hypomania, though differing in some points from Case I. It also concerns a young girl, age 25.

Case II.—Patient shows a mild maniacal exaltation, manifested by marked talkativeness, but without flight of ideas and without tendency to superficial associations. Develops considerable wit, and makes many good, snapshot-like observations and commentaries of character and disposition, all given in a good-humored way, without malice. In a naive way she confesses to a mild erotism, exhibited by her saying that somehow she always thinks of men, that men somehow all fall in love with her. The emotional tone is one of euphoric elation, but with a certain sensitiveness and interrupted by occasional crying spells occurring on slight provocation or without apparent motive. She is perfectly oriented, perfectly willing to cooperate, desirous to get full benefit of the sanatorium treatment, and offering to be occupied to promote this purpose. Patient is intelligent and alert.

May 4, 1915. Is becoming decidedly less talkative and the elation is ceding to a more sensitive, irritable feeling tone, dislikes hearing sad tales and begs to be kept from the patients who are wearying her with them. Is irritated at the alleged heavy walk of one person and at other things not affecting a normal person, thinks the children who are on a visit here walk strangely, as if ordered to do so, and utters a few more slightly paranoid ideas. At a visit of her mother and sister, she expressed herself as fearing to go to bed, being afraid of the writer, etc.

Sleep, pretty fair even the first night, has been constantly improving. Now sleeps almost all night until daylight.

Special Features Observed in Hypomanias.—In discussing the two cases just reported attention is called to the erotic manifestations accompanying the milder forms of maniacal exaltation. This has especially reference to women, and particularly to young girls. The latter are to be carefully watched, but not in a severe manner, as by antagonizing them one is apt to make them discontented and defiant. In that phase they are apt to write love letters to almost anyone, containing gross, thinly veiled sexual allusions in these professions of their loves. They employ all sorts of tricks to have the letters mailed, by dropping them on the street or slipping them over to a passer-by, etc. Their loves, at such times at least, are very polyandric. One does not mind writing to one man calling herself his wife and writing in the same mail to another one, in almost the same vein, saying how happy she would be to have children by him and the like.

It occurs to the writer that many representatives of the "summer girl," of whom we hear so much and read about in the comic papers and magazines as becoming betrothed to another fellow each summer season, the engagement breaking up invariably at the end of the season, may belong to the manic-depressive type. That a manic-depressive enters a matrimonial engagement in a hypomaniacal state to break it again in a depressed state, there is no doubt about.

Of interest is the attitude maintained by actual wives toward their husbands, the change that occurs in their feelings toward them. They often feel so alienated toward them in that phase as to ask for divorce, and at the same time they usually fall in love with some one else. When confined in an institution they are very apt to have runaway impulses, in order to acquire the desired freedom, especially sexual freedom.

Very often masturbatory trends are greatly developed and too serious reprisals to stop them may lead to sexual relations with the opposite sex.

As was indicated in the case first reported, there may be marked moral looseness in women who were formerly of strict morals. The thieving habit, that is, taking things from other people, making often no attempts or very faint attempts to conceal these acts, are not infrequently noticed. Such cases cannot be classed as kleptomanias, as they occur only during the maniacal state.

The nonchalant attitude against reproof is another point worthy of note. Censure of their conduct is apt to glance off like water off a duck's back. This is often in sharp contrast to their former attitude of strict obedience and impressiveness to such reproofs. Very often we observe the so-called *folie raisonnante* tendencies in these cases. They argue their case, give all sorts of plausible motives for their abnormal or unusual actions. Yet their true motives are quite different, entirely morbid, in conformity with their morbid state.

The Physical Changes.—The mental changes above mentioned are often of a rather subtle kind and one who does not know the patients is apt to construe their actions in a way very prejudicial to them. Often, however, marked physical changes accompany the mental ones and they occur especially in the cyclic cases with such regularity at certain phases of the disease that they in themselves become convincing of the pathological nature of their state. These changes concern the weight, the appetite, the bowels, the skin, hair, eyes.

As to the weight, such may offer typical fluctuations, particularly in the cyclic cases, increasing usually toward the abatement of the maniacal symptoms, sometimes also during their gradual development. However, the phase during which the increase of weight takes place varies considerably. In the state of depression the weight usually goes down and differences between maximum and minimum weight may amount to as much as forty or fifty pounds. The appetite, as has already been mentioned under the symptomatology of the severe forms, is usually increased in the manic and lessened in the depressed state. The bowels usually move freely during maniacal exaltation and are constipated in the depressed times.

The skin is apt to be dry, sometimes scaly in the depressed state, moist or at least reacting freely to sudorific influences in the maniacal state.

Differences in the appearance of the hair are sometimes called attention to by the patients themselves. They find their hair of a rather dry, brittle quality and without luster during depression, and soft and pliable in the manic state.

The eyes often strike one by their brilliancy, sometimes even a slight exophthalmus, in the maniacal elation, as contrasted to the dulness and

lusterlessness in the depressed periods. Likewise depressed patients usually are pale, anemic, pasty-looking, whereas in the mild maniacal state they usually have good color.

The *milder forms of depression* of manic-depressive patients differ from the severe ones in the degree of the symptoms, although the one noted in the following case took apparently about a year for its full development, declining gradually after that, but not ending in full recovery until almost 2 years after its onset. It concerns a young man of 30, of more than average intelligence and horizon, who at the time of admission to "The Oak," July 14, 1915, showed the following mental condition:

CASE III.—*Mild Depression.*—Patient on admission appears depressed, diffident, and extremely undecided. Cannot come to a decision as to entering the sanatorium, although having come manifestly prepared for such stay, that is, with a properly packed suitcase. He appeals to both his wife and writer for advice, asks whether it is the only way to get well. With all that he shows marked insight and full willingness to cooperate and ultimately comes to a spontaneous decision to stay.

He shows himself well mannered, courteous, and obliging, gentlemanly, giving, in spite of his depression, the impression of intelligence and of a somewhat larger horizon and sphere than corresponds to his position, which is mostly of a clerical character. He is oriented as to time and place, and shows no gross defects of memory, in spite of the difficulty of recalling things at will.

His attention is on the whole good and in spite of his alleged difficulty of finding words, speech and articulation show no objective disturbance. The formal content of his speech is coherent, devoid of flight of ideas, and he relates his own history in an ordered manner.

His subjective complaints, summarized, are as follows: "Insomnia, a whimsical appetite, nervousness, inability to concentrate, indecision, lack of self-confidence, particularly as to his capacity to do his work properly; retrospective belief that he never had capacity for the work he has been doing for the past years, fear of losing his position, of never being able to fill a position again, difficulty of recalling things at will, difficulty of expressing himself, *i.e.* of finding the proper words. His own account of the development of his depression is so interesting that it was decided to render it in full here below:

Development of the psychosis (Patient's account): At the end of March, 1915, patient began to have uncomfortable feelings, a vague apprehension. He had obtained a responsible managing position in the office where he worked, after having first occupied a more clerical one. The increased responsibilities came on gradually. At the time mentioned, that is, the latter part of March, 1915, he began to fear that he could not fill the place with the increased responsibilities and the needed business capacity implied thereby. He saw everything black, the least things caused him worry, and he began to apprehend that a nephew of his employer, who had come over from Europe and become employed at the office in May, 1914, was going to supplant him. In the retrospective he now thinks the man was too young and too inexperienced in that particular office to fill the place.

He (patient) experienced more and more difficulty in performing the work connected with his position. All tasks seemed so difficult and he envied others that they could work nicely and enjoy their work. Some salesmen whom he formerly considered as greatly inferior to himself in mental capacity, he began to think were better qualified than himself. He commenced to be very restless, had no patience to finish anything begun, wanted to get away from everything in the office.

When a letter arrived that he had to answer, he had to read it again and again, could not put his mind on it, always thinking of other things and getting so confused and disgusted that he had to refer it to someone else to reply. Whenever something came up that required a decision he had to leave it either to his employer or to his manager; he could never make a decision alone, *i.e.* without consulting somebody. Retrospectively, he now thinks that he could have done it.

Another cause of worry was that the manager of the concern, owing to dissensions with the employer, spoke of leaving and patient feared that in that case the business would suffer and might go to ruin altogether and that he would not be able to fill his place as he would have been expected to do in the natural course if said manager did leave. At the same time increasing difficulties arose, owing to the war, of obtaining goods from Austria and Germany. There was consequently good ground for the fear that sales would be less and that the business would greatly suffer. The sales indeed were less than half those of the previous year.

Patient became more and more nervous; he often stayed home till 10 A.M., not being able to make up his mind to go to the office, because he concluded he could not do anything and would be only in the way of the others, retarding their work.

On June 12, he obtained a leave of absence of two weeks, asked for at the suggestion of Dr. Joseph Fraenkel. His employer was very willing that he should have the leave but his manager intimated, patient thinks, that he was to be discharged altogether, telling him to forget everything and saying that perhaps he would not have to come back at all. This and the conduct of his associates, as it appeared to him, gave him the impression that he was looked upon as a discharged man. He thought they looked at him commiseratingly and the manner in which they spoke to him confirmed his impression and he only thought, "Why don't they tell me that I am discharged?" He then went on his leave to Sea Cliff, L. I. After a week of the two weeks allowed to him, in accordance with a prearranged understanding, he would come back to the office for a day but found that he could do even less than before. His employer then told him to stay over the fourth of July but to come back for a day on June 28 to close up the books for the half year. Patient then returned to Sea Cliff. In the meantime his employer fell ill and this affected him deeply and when he came back on June 28 to help close up the books, as arranged, he could not do anything. He became so depressed that he did not want to go out or to dress. He was at the time advised by Dr. J. Fraenkel to go to "The Oak," but being unable to make up his mind to do this, went back to Sea Cliff instead.

Sleep became impaired the first part of April, becoming gradually worse. He lay awake a good part of the night and when he did fall asleep, the least noise woke him up; he slept only when so exhausted that he could not keep his eyes open. Previously his sleep had been very good, averaging from 7 to 8 hours. The appetite was not so much affected, yet at times, especially lately, he did not care to eat. He never had been a great eater. Bowels remained regular. Ever since April he had the feeling at times as if everyone looked at him and thought he was sick. Now this idea appears ridiculous to him. Sexually he did not notice any change except that for the last month or so sexual desire appeared increased, at least the desire appeared to exist to get something to divert his thoughts.

Patient states that his wife told him she had noticed a change in him as far back as August and September, 1914, that is at the time of the outbreak of the European War. She found him becoming more irritable than previously—he always having had a somewhat hasty temper—and reticent. She said that patient at the time expressed the fear that the importing business in which he was engaged as an employee would be unfavorably affected by the war and that his fear, although not materializing at the time, may have reflected itself on him even then. Patient himself was not aware of the change observed by his wife but it occurs to him now that even in January, 1915, his mind was not as active as before, that he sometimes could not express himself as readily as previously, could not find the proper words, could not recall things as easily, emphasizing that his memory had been a particularly good one. He states in illustration that when he was shown in May, 1915, a contract that he had signed in January of the same year, he was highly surprised to find that he really had signed it, having no recollection of this fact even now.

Physical examination showed patient to be a man of fine, almost athletic muscular development. Special features attracting notice, were: a slight torus palatinus, crowded teeth, the left lower eye tooth and the four lower incisors being arranged in a straight line forming an angle of ninety degrees on each side with the rest of the teeth; furthermore some coating of the tongue, flat feet, and a rather fine tremor of the hands.

In the further course, the patient, under a régime of outdoor exercise, consisting of tennis playing, lake-bathing and swimming, work with shovel, rake, and tennis roller, in a few days became cheerful, went at the sports and the work with full zest and enthusiasm, greatly enjoying them. His sleep and appetite improved markedly, and self-confidence returned to a great extent. Patient also noticed subjectively an improvement of memory, shown objectively in a reading test, he giving a good report of the page of a novel, read aloud to him and then shown him to glance through, although he stated that before his illness he could have given a more accurate reproduction of what he read.

He also on July 24, ten days after admission, acquitted himself very nicely, and with good speed, of the task of typewriting some notes to dictation. He stated with satisfaction that he would not have been equal to the task a week or a month previously. He rarely had to have a phrase repeated to him while performing the task.

August 7, 1915: Patient had a slight relapse last week, lasting about three days, when he felt less confident, less hopeful of getting well again, sleeping less well. The relapse coincided with the end of the period of prolonged heat and humidity. Since then he has been sleeping increasingly better, usually until daybreak, with hardly any but occasional interruptions of a minute or so.

Bowels have kept regular, at least once daily, right along. Appetite somewhat less good during the relapse mentioned, but very good since.

Sept. 3, 1915: Steady improvement since date of last note. Had three successive nights when he slept without a break from 10 P.M. until 6 and even 7 A.M. averaging from 7 to 8 hours per night. Self-confidence has increased. Thinks now most times that he will be equal to the requirements of the position he last occupied. Appetite very good. Bowels regular, at least once daily. Splendid physical appearance.

Very good response to memory and attention test, made a few days ago. Was given to read the society news of a local paper and reproduced with fully normal accuracy, if not better, the details of the contents read, rendering these at the same time in a manner showing very good attention and digestion of the material read.

Has still periods of mild depression when he feels somewhat diffident of his future, but these periods are fugitive.

Patient was discharged on September, 15, 1915, one month after his admission to "The Oak."

On February 4, 1916, in a letter received from him patient wrote: "You must pardon me for not writing ere this, but ever since I am back to the office (Oct. 3) I have been so terribly busy that I have had no chance to do anything. I am very glad to say that not only am I entirely well again, but I can accomplish much more now than I did two years ago and I can see now that already at that time I must not have been entirely well, as the work in the office tired me out so much. I am back to my old position in the office, I am not afraid any more that I will not be able to fill it; on the contrary, I must say now that I am better able to do it than any other one in the office. As said before, I am entirely well and happy that I can work without being tired."

Depression of the Lyric Composer, Franz Schubert.—The following autographic description of a depression comes from the pen of the famous lyric composer, Franz Schubert, and is rendered here because it so aptly portrays the mental state of a patient suffering from such a depression.

"In a word, I feel the unhappiest, most miserable man in the world. Imagine to yourself a man whose health can never be put to rights again, and who from despair over it makes the thing worse instead of better all the time. Imagine to yourself a man, I say, whose most brilliant hopes have come to naught, to whom the happiness of love and friendship offers nothing but, at the most, pain; to whom enthusiasm (at least of the stimulating kind) for the beautiful threatens to vanish, and ask yourself whether that is not a miserable man, an unhappy man? 'My peace is gone, my heart is heavy, I find them never and nevermore.'* This I may well say every day, for every night when I go to sleep I hope never to wake up again and every morning announces anew to me the grief of yesterday. Thus joyless and friendless do I spend my days, if sometimes Schwind did not visit me and direct at me a ray of those past sweet days."

Another depression, illustrative chiefly of the mental insufficiency, the dearth of ideas accompanying it, is autographically described by the great German poet Goethe. This description is given below in this paper under the heading "Vocations fitted to the manic-depressive temperament." Under the same heading will be found a third autographic note of a depression of the Russian author, Gogol, as quoted by Bagenoff.

Special Types.—It has been brought out by some authors, and of late particularly by Dr. M. Gregory, that the cases of dipsomania are nothing else but special types of manic-depressive insanity. Many points certainly speak in favor of this conception. For these patients usually do not show the "spree," *i.e.* periods of alcoholic debauch, as an isolated symptom. On the contrary, they usually or very often show general mental changes in connection with it, changes which have decidedly a hypomaniacal character. As an illustration I quote from Dr. S. E. Jelliffe's paper on cyclothymia,[2] in which he refers to dipsomanic types of cyclothymia and quotes the periodic mental changes to which the well-known writer, Alfred de Musset, was subject and which were associated with alcoholic debauches. His own brother, Paul de Musset, describes these as follows:

"At times at the bottom of an armoire he had an old yellow boxcoat, with six mufflers, and which could be wrapped about him three times. Thus muffled up, he would lie down on the floor of his room and hum in a lamentable tone some old contemporaneous air. Then in the evening he would cast aside these rags and put on his best clothes. This change of decoration was sufficient to change the course of his ideas. He would leave to make a tour of the cafés of Paris, where the pleasures of the world made him forget the reverse of fate. Soon he would be in a fever of excitement. He worked without interruption until the morning. When he appeared at breakfast I did not notice any signs of fatigue on his face. He had as his fantasie the month of May. The muse possessed him. During the day he would take the lead in conversation and work like a chess player who plays two games at one time. At times he would leave us, to write a dozen verses, and then return to chat with us. But at night he returned to work as he would to a lover's rendezvous. He had late supper served to him in his room. He purposely asked for two services, in order that the muse should have her place designated. All of the lights were lit. He lit twelve candles. People of the house, seeing this illumination, would think he was giving a ball. On the morning of the second day, the piece having been accomplished, the muse took herself away; but she had been so well received that she promised to return. The poet blew out his candles, went to bed, and slept until evening. On awakening, he reread the verses and could find nothing to retouch."

*Quoted from Marguerite's words in Goethe's "Faust": "Meine Ruh ist hin, mein Herz ist schwer, ich finde sie nimmer und nimmermehr."

After the inspiration—daughter, it may be, of excitation—here is the other stage: "Then from the ideal world in which he had lived for two days the man fell brusquely to earth, sighing as if one had awakened him from a delirious and fairy-like dream. After the enthusiasm there followed all at once an ennui, a distaste for ordinary life and for its petty miseries, a deep melancholy. In order to relieve himself from such a depression, it seemed that all the luxury of Sardanapolus, all that Paris could offer of distractions and of refinements, could hardly suffice."

George Sand, in describing similar periods observed by her on Alfred de Musset, made the "sorrowful disclosure of his dipsomania." She said that he accused her of smothering his genius in wishing to destroy his fever. When she believed him to have come to the limit of disgust in his excesses, he appeared to be anxious for more. When she told him to return to the world, he feared her jealousy and threw himself into gross and mysterious debaucheries. He would come home drunk, with his clothes torn and his face bleeding.

Undoubtedly many manic cases of *drug addiction* too are built up on a manic-depressive basis. Their impulsive make-up leads them to correct their nervous states or symptoms by means of stimulants or sedatives or hypnotics, as the case may be. In the manic state there is usually craving for stimulants like alcohol, tea, coffee, tobacco, to keep up the over-activity which their manic state leads them to. Again the insomnia, increased by such practice, leads to the regular employment of hypnotics, such as sulfonal, trional, veronal, to counteract the state of excitement, and the patients often are unable to give up the habit after the maniacal state has passed; and if, as in the cyclic cases, an attack of depression comes on in the meantime, a new source for insomnia is created and the hypnotic is kept up. Thus on a periodic basis a permanent drug habit may be grafted.

Dr. Eva Charlotte Reid[3] in a very interesting paper points out how the addiction to drugs observed in some prominent English authors was really to a great extent the result of periodic pathological states of the manic-depressive type and presented, like these pathological states, a corresponding periodicity. Thus, in speaking of de Quincy's "Confessions of an Opium Eater," which confessions, as most readers probably know, referred to de Quincy himself, she mentions the fact that these were written in a few weeks (while in a hypomanic state), but that "when the proofs were returned, his period of hypomania having passed, he spent six months in trying to correct one volume. She also states that Coleridge was interrupted in writing "Kubla Khan," an opium dream, and never could complete the poem.

Fugitive or Fleeting Types.—Here should also be mentioned the interesting types which Gregory[4] quotes from literature and describes from his own vast experience: "mild and short attacks of a manic-depressive psychosis which may closely resemble the normal variations in mood." These, he says, "have been described by writers on psychiatry." He emphasizes, however, that while for the most part these reports have been of attacks of more than a week's duration, he not only has observed attacks of manic-depressive psychosis ranging in duration from a few hours to several days, but even finds them very frequent, an important point brought out by him.

He points out that they are often mistaken for transitory mental conditions of other character, such as hysteria, psychic epilepsy, migraine, neurasthenia; furthermore, that they may be associated by the patient with disturbances of bodily functions and interpreted as common physical ailments, whereas the general practitioner, in such case, frequently regards them as nervous dyspepsia, nervous heart, liver, and intestinal trouble.

The Manic-Depressive Temperament or Constitution.—In the beginning of this paper, when giving the classification of the manic-depressive psychoses, reference has already been made to the manic-depressive make-up, temperament, or constitution, which we almost invariably find in the patients subject to manic-depressive psychoses and which may also exist as a latent state, *i.e.* without manic-depressive psychoses developing on its basis. A. Hoch[5] deserves the credit of having called attention to this make-up. The latter quite particularly affects the emotional field; it is quite justifiable, therefore, to speak of a manic-depressive temperament.

The characteristics of this temperament are that those thus affected respond intensely to emotional factors both in feeling and in external expression thereof. They are easily moved to joy and grief, laughter and tears, in response to the emotional stimuli affecting them. They are also apt to have a high and hasty temper, getting easily indignant or angry and as quickly regaining their placid mood. They have usually strong likes and dislikes. Their affections when engaged are usually very strong; they make intense lovers, very fond parents or children. Their mood is subject to rapid and abrupt changes under the influence of the impressions received. The "Himmelhoch jauchzend—zum Tode betrübt," although meant by the poet to apply to a lover, very aptly characterizes this temperament.

The fluctuations of weight which we find so markedly developed in the cyclic cases may also be put down as a frequent manifestation of the manic-depressive temperament.

A further characteristic of this temperament is the manner of reacting to damaging influences like continued emotional strain, protracted fatigue, continued lack of sleep, physical diseases, in a special way, *i.e.* by the appearance of symptoms of the manic-depressive order. If, as a result of physical disease, say, typhoid fever, erysipelas, pneumonia, heart disease, a high fever, etc., a psychosis develops, it will usually show a manic-depressive "coloring," even if the main psychosis should have some special character conforming with the physical disease which gives rise to it.

Adolf Meyer's Reaction Types.—To Adolf Meyer[6] great credit is due for having called attention to these "Reaction Types," of which the manic-depressive is a representative instance. It should be mentioned here that some patients of this group have chiefly a manic, other mainly a depressive reaction type, others a mixed one, manic or depressive reactions occurring according to the nature of the damaging influence giving rise to them.

We may add to this the tendency of resorting to stimulants, sedatives, and hypnotics to find relief for emotional strains, fatiguing influences, unhappiness, insomnia, etc.

Vocations Fitted to the Manic-Depressive Temperament.—A study of the mental characteristics of great musical composers, undertaken by the writer, indicated that a great majority of these possessed what in the last chapter has been described as a manic-depressive temperament or constitution. This fact justifies the reversed conclusion that this temperament or constitution, in combination with other factors giving him mental superiority along definite lines, particularly fits an individual for the musical profession and especially for that of composing. This does not imply that this constitution or temperament is adapted only to the performance of the art of music. It undoubtedly is adapted also to the art of acting as expressed in comedy, drama, tragedy, musical comedy, and "screen acting." In all these fields the play of emotions successfully rendered forms an important part of the activity of those following out the said vocations, and a great emotivity, a great response to those stimuli which act on our emotions, has been pointed out in the previous chapter as a prominent characteristic of the manic-depressive temperament. What is known of some of our great actors, more particularly perhaps the prima donnas and tragedians, shows indeed that in their life off the stage they show marked manic-depressive traits. The irascibility, emotivity, great lack of self-control and of adaptation to the restrictions of social rules and customs, leading to unusual outbursts of passion, to murder and suicide, to divorces, are noted with particular frequency among theatrical folks. The mobility of physiognomy, so characteristic particularly of the versatile actor, is another manic-depressive trait, going a long way in making him successful. This has special reference to the "screen actor" in whom the great mobility of facial expression and of action in general forms an important feature of success.

But aside from the field of music and acting, the manic-depressive temperament has a fruitful field in literature, and especially in poetry. In the paper already referred to, Dr. Eva Charlotte Reid' collected some very interesting material in that respect, demonstrating the manic-depressive traits and in some cases well pronounced psychoses of the manic-depressive type in some of the prominent English poets and writers, such as de Quincy, Poe, Coleridge, Keats, and others. For detailed evidence on which this conclusion is based, the reader is referred to the original paper.

Goethe.—That the great poet Goethe was a cyclothymic, results from studies of Moebius,[7] made partly on autobiographical material furnished by Goethe himself, going to show that he had periods of depression indicated by inactivity and insufficiency, alternating with periods of exaltation. One of these depressions is described in his own words as follows: "The winter passes and I do nothing. I cannot accomplish anything. My spirit is incapable of any effort. I submit to this state with patience. I have passed so many times through similar periods. I have learned to suffer and to be resigned. I cannot work, I cannot read, I even cannot think, except in short lucid moments." And again in a letter dated November 3 of the same year: "What state! What suffering! The morning and the evening do not exist for me any more, no activity, not a clear idea."

These periods of depression which Goethe himself considered as pathological were followed by periods of exaltation, which, says Bagenoff, were rightly considered by Moebius as hypomanias, and elsewhere Goethe himself speaks of "a cycle of good and bad days which revolve in my soul. The faculties of invention, of execution, of method as well as of humor, joy, sadness, energy, weakness, initiative, prostration—all moves in a regular cycle."

Gogol.—States of exaltation and depression following each other in cyclic order were likewise observed in the famous Russian author Gogol, who, according to Bagenoff, thus described one of his own hypomaniacal states: "I really do not know whence comes to me this afflux of freshness of energy and of braveness, which I have never felt as yet. I feel the ideas buzzing in my head like a swarm of bees; my imagination has become extremely subtle." But this state was of short duration, to be followed brusquely by a nervous irritability, increasing out of all measure and joined by an indescribable anguish. "Rome and the sky of Italy have lost their charm for me. I don't see them any more. I don't feel them any more. Oh, how painful it is to reveal my state. . . . but you must know. Tear up my letter." (Letter to Pagodin.) Alfred de Musset's dipsomanic form of cyclothemia has already been mentioned.

Bagenoff makes indeed a contention which he is about to produce evidence for, in a monograph in course of preparation, that in cyclothymic persons of talent and genius the hypomaniacal state opens up the subconscious and puts into action a powerful factor of creative imagination and of artistic, literary, and even scientific production.

Thus the writer's contention that the manic-depressive constitution fits its possessors particularly to the vocations of musician, actor of stage and screen, poet and author, finds a strong support in the view promulgated by Bagenoff on the basis of great experience and elaborate study.

Prophylaxis and Treatment of the Manic-Depressive Temperament and Psychoses.—In undertaking the treatment of a manic-depressive, it is essential to explain to him or her the nature of his or her mental make-up and some of its physical characteristics. He must be told that the tendencies to ups and downs, the susceptibility to disturbances of sleep, of appetite, of intestinal function, and the liability to great fluctuations of weight, under the influence of the emotional, fatiguing, and other factors acting on the central nervous system, denote an instability of the nervous system and that the treatment must, therefore, be one of stabilization, both mental and physical, in view of the interaction between mind and body.

In effecting this stabilization, correction has to be made along the following lines:

(1) *Physical Stabilization:* An important point is the regulation of the processes of nutrition and assimilation. According to whether he is elated or depressed, the manic-depressive is apt to overeat or to underfeed himself. The greater the underfeeding occurring in depressed phases, the more is overfeeding apt to follow, with a corresponding overweight resulting.

The intake of food* should therefore be stabilized by making the taken quantity more or less even. In cases of cyclic insanity it will prove most efficient to begin this regulation during the normal phase, carrying it as far as possible through the depressed and elated phases.

The quality of food is another point to be considered. Anything interfering with the easy performance of digestive function and with a normal general metabolism is to be avoided. Meats should thus be restricted, not only in quantity as compared to other food, thus changing the *general quality* of the food-intake, from a proportional point of view, but also in quality. White meats, such a chicken, lamb, fish, should be favored if not exclusively used. The freshness of meat and other decayable food is an important item, as the ingestion of old meat may give rise to acute diarrhea, followed often by constipation. These intestinal "upheavals" as tending to counteract the "stabilization process" should be carefully avoided.

Fried food, as a frequent source of fatty-acid intoxication, from the rancid disintegration of fat taking place in frying, should as much as possible be cut out. The intake of fat is an important point of regulation. In this respect one should remember the fat percentage of certain foods. Eggs, for instance, according to König, contain, the white 0.25 per cent., the yolk 31.70 per cent. of fat. Certain fish are very rich in fat contents, salmon 13.53 per cent., eel 28.40 per cent., red carp 8.73 per cent.; others, particularly the "flaky fish," are poor in it. Of meats, goose and pork are particularly fat, squab especially lean.

Butter should be fresh and its quantity regulated by the general needs of the organism and by the quantity of fat taken in other ways. On the whole, there is a tendency to overuse of fat in cooking, which should be avoided.

Excess of acids is to be avoided, to prevent hyperacidity with subsequent gastric disturbances and acidosis; and particularly the stronger acids, like vinegar, should be used in very spare quantity. Lemon may be advantageously substituted for vinegar in salads.

A certain amount of fruit, particularly fresh fruit, is to be favored, especially to regulate the movement of the bowels, but it should be only mildly acid. This should be considered in the selection of the apples, oranges, grape fruit, peaches, strawberries, etc., bought in the market. The degree of ripeness plays a considerable rôle in this respect.

Green vegetables, such as spinach, lettuce, asparagus, green peas, and beans, should be given freely, not so much for their nutritional qualities, although spinach is valuable for its marked percentage of iron, phosphorus, and lime (Lorand, l. c.), and green peas and beans are high in protein and carbohydrate value, as for their "ballast" making qualities, thus favoring intestinal peristalsis. Recently I have seen very favorable anti-constipational results by the regular administration of salted peanuts, the Spanish variety, one ounce every morning and evening. It is essential, however, that they should be fresh, free from rancidity, and preferably well roasted.

Milk, fresh and fermented; eggs, cheese, particularly the fresh kinds, like cream cheese and pot cheese, should form important items of food for the manic-depressive, being rich in protein, lecithin, and fats and easily digested.

Lorand points out that the digestibility of milk is increased by the addition of bread. Milk should not be given in large quantities, however, although in the heat of summer it can be given much more freely than in other seasons.

Since, particularly in the depressed states, we often find the patients presenting anemic conditions, manifested by a pale, pasty color of the face, an increased oxygenation, as gained by a predominant out-door life in the open country, is an essential feature, increasing the resistance of the patients to fatigue and other debilitating influences. Indoor occupations are injurious to such patients.

Hygiene of Movement.—A certain amount of muscular exercise is very helpful in maintaining that physique which enables the patient to offer a greater resistance to the damaging and thus unstabilizing influences of fatigue, lack of sleep, continued emotional factors, etc. Owing to the increased power of his muscles the patient has the satisfaction of not finding every muscular effort a source of exhaustion. He acquires the pleasure of muscular action, in compliance with Spencer's law that function, if normal in its nature, gives pleasure. However, the selection of the kind and measure of muscular activity is a factor the value of which must not be underestimated. In the first place, it ought to be as much as possible of an outdoor kind so as to add the advantage of increased oxygenation by good air and light to the metabolism improving effect of muscular action. Another essential point is that the muscular activity be general, with such alternation of the muscles put in action as to give them rest and action successively, thus avoiding overaction and overfatigue of one group or another. This avoidance of overfatigue is to be a general guiding feature, not only in muscular, but also in mental work, as overfatigue leads to discouragement, increasing the depression and interfering with sleep. Proper alternation of activity and rest is, therefore, very important.

Another weighty factor in this selection of the muscular activity is the element of pleasure connected with it. An activity, therefore, which gives pleasure by itself is naturally to be given preference. In this no doubt individual taste and training play an important part and what would give pleasure to one may prove a bore to another. On the whole, however, I have found one activity which rarely fails to give pleasure, to young people at any rate. I have in mind the sport of tennis, and this sport combines so many of the other qualities which I have pointed out as being valuable in improving the physique of the manic-depressive and

*For much inspiration in regard to the dietetic treatment of manic-depressives the writer is indebted to his friend Dr. Joseph Fraenkel, as he is also for some other points in their therapy, although Dr. F. may not fully subscribe to the general plan outlined here, nor to many of its details. The suggestions received were partly from private conversation, partly gained in consultation. The writer likewise owes valuable hints to the book of Lorand, "Health and Longevity Through Rational Diet," published by the F. A. Davis Company, Philadelphia, 1916.

thus stabilizing by the increased resistance gained thereby against damaging factors, that I consider it the sport *par excellence* for the manic-depressive, particularly in the depressed stage. The outdoor element, the healthy alternation of muscular groups in action, the pleasure of successful return of balls, the complete mental relaxation which full interest in the game leads to—and it rarely does fail to arouse this interest—all these factors have a healthy effect, especially on the depressed patient who sees that he still is capable of enjoying something and of accomplishing something, even though it be of no direct use. The indirect use he soon begins to feel instinctively.

The quickness of action and of thinking, the latter being eminently automatic and no source of mental fatigue, are valuable aids in the confidence and cheer-restoring process and soon the patient notices also that the thinking in other occupations, such as the digestion and retention of what has been read, becomes easier and coupled with a renewed interest.

The patient should always be impressed, however, to keep the health factor of the sport paramount and not to be misguided by a too sport-like spirit into an overindulgence, such as might ensue in the endeavor to finish a game (*i.e.* set), no matter how long the same may extend itself, or in the chivalrous intent to give the opponent the chance of reprisal, etc.

Sea and lake bathing, especially for swimmers, gives additional muscular exercise of a pleasureable and healthful kind. Gardening and similar work also contribute to give the pleasure of muscular action, together with the advantages of the outdoor life.

With regard to elderly persons, especially women, it is often difficult to induce them to take any other muscular occupation than the domestic work around kitchen and rooms that they were used to as housewives. It is interesting to observe then how the same work which at home was a burden and a source of discouragement to them, becomes a pleasure and satisfaction when done for "health" in company with others. The difference is that at home it was a duty which had to be fulfilled no matter how weary they were; and the displeasure and lack of interest thus developing, soon made the work increasingly difficult. The same work when done outside of the home, for health's sake, and dropped whenever it fatigued a little, not done as a duty, but as a pleasure, and alternating with rest and amusements of a quiet kind, soon lost its harmful qualities, becoming, on the contrary, a curative agent.

Regularity of Life, of Sleeping, Eating, and Stool Habits.—Along wtih the measures of physical stabilization mentioned so far must go others concerning the habits of living. Regularity in the hours of retiring at night, rising in the morning, partaking of meals is very important.

Constipation is one of the most prominent symptoms to deal with, particularly in the depressive patient, and therefore requires special attention. The depressed state itself retards intestinal peristalsis and the semivoluntary act of defecation. But the constipation often is found to have existed years before and in many cases certainly is greatly contributed to by neglect of establishing a regular habit of defecation, and equally essential as it is to counteract constipation by a proper diet already pointed out, is it to establish a regular stool habit, *i.e.* to attend to the act of moving the bowels at the same hour every day. This not only creates a periodicity for the involuntary intestinal motor function, thereby greatly stimulating it for the definite act of defecation, but it also establishes that often subconscious automatic memory which guarantees the daily performance of the act with the certainty of the daily winding of the watch, of which indeed we so often appear entirely unconscious.

Mental Stabilization.—This must follow aims similar to those of the physical stabilization. The patients must learn to get a hold on themselves. They must not allow themselves to become the plaything of their emotions, to give in to every impulse. Just as it is important to lessen the great fluctuation in weight in a rational manner, so is it vital to avoid the extremes along mental lines and to favor the medium states. "Who laughs too much will cry," is a popular saying with a sound basis, following the law of action and reaction. These patients are too prone to let themselves go in grief as well as in joy and must be taught to counteract this tendency. As in emotions, they are also apt to "overdo" in other things, letting themselves go to extremes in amusements, with lateness of hours and encroachment on sleep, as they do in work, physical as well as mental. This they must try to overcome, as much as circumstances and their make-up allow.* They must avoid both physical and mental overfatigue, partly by so arranging their work wherever it lies in their power to do so, that there is a frequent change of the kind of work, thus allowing a resting of cerebral parts and muscles engaged in one activity, while keeping others in function.

It has already been mentioned that the element of pleasure plays an important part in the healthfulness of an activity, mental or physical, or both. It is therefore quite essential that the vocation or profession selected be a congenial one, adapted as much as possible to the peculiar temperament.

While a morbid introspection, an anxious nervous watching for symptoms is to be decidedly condemned, a healthy self-observation, noting and heeding of warnings of nature, such as beginning insomnia, loss of appetite, nervousness and haste, difficulty in concentrating, etc., should be fostered. The patient may thus perceive in time that he has passed normal limits in one field or other and may take corresponding precautions. A tendency to stifle these warnings by resorting to stimulants, sedatives, or hypnotics with a view of thus rectifying matters is again to be combated. The manic-depressive, as has already been stated above, is only too prone to resort to these means, including alcohol, tea, coffee and tobacco, to set himself to rights again and may thus easily become a drug addict.

Treatment of Hypomanias.—This can be dealt

*This control over themselves is not to be repression. It would be unjudicious to counteract to a great extent their propensity of "opening up" to their friends, of "unloading" themselves of emotional burdens. One should aim, however, to keep them within proper limits in these directions.

with briefly, as the main points have already been discussed. In addition to the measures enumerated, some additional features should be observed here, however. With the tendency to overaction, physical as well as mental, regular periods of complete repose once or twice a day, varying from one-half to one or one and one-half hours, on a resting lounge or even in bed, are often very beneficial.

Restriction in the intensity, extent, and duration of amusement and of muscular feats is particularly here in order. The regularity of life and of habits discussed above also applies here, as does the restriction in the use of tea, coffee, tobacco and alcoholic stimulants to which there is a particular tendency in this state.

Erotic trends should have close surveillance, particularly in young girls. However, as said before, great discretion should be used in that respect and severity avoided, so as not to frustrate the good efforts by the antagonism created. This refers also to the combating of the masturbatory habit so frequently found in this case and as often disappearing by itself when the hypomania subsides. In cases of the cyclic kind more stringent measures, acting as safeguards relative to the erotism, may have to be resorted to; for example sterilization, particularly in girls, may prove to be very desirable. This, to be sure, will not cure the psychosis, but may relieve unfortunate mothers of the constant anxiety that the patient "may go wrong" and by becoming pregnant bring disgrace on the family.

Treatment of Depressions.—It has been pointed out already that during a depression a manic-depressive usually shows marked physical signs, an anemic, pasty appearance, a coated tongue, loss of appetite, constipation, insomnia. These manifestations therefore require special therapeutic attention. To stimulate the appetite and digestion, including intestinal peristalsis, secretogen in doses of one tablet t. i. d., taken at meals, often does good service. To this it is good to add a general tonic counteracting the anemia, such as the phosphoglycerates of lime and soda or syrup of hypophosphites, two teaspoonfuls t. i. d.; or one-grain doses of thyroid extract t. i. d. may be used to stimulate a sluggish metabolism. The diet at first should consist chiefly of milk, eggs, vegetables, and fruit, adding to it later gradually the white meats, chicken, fish, and lamb, in moderate quantity.

In addition to the diet and the other anticonstipation measures described under the heading "Physical Stabilization," it may be necessary to use special means for counteracting the constipation, usually such a prominent symptom in the depressed state. A lubrication of the intestine and its contents by means of Russian oil, one tablespoon every morning and evening, is often very helpful as a starter, but the aim should be to reduce gradually the dose and rely on the anticonstipation diet and other measures alluded to. An occasional physic, preferably a saline, like magnesium or sodium sulphate, or a combination of the two, one-half a tablespoonful of each, may be necessary, but a regular daily physicking or a daily enema is to be decidedly advised against.

An outdoor life greatly helps to combat the anemic condition. Short walks are usually helpful from the very beginning, gradually to be made longer, as the improvement progresses. The seeing of pretty scenery helps much in the beneficial effect. Muscular exercises of the kind recommended under the heading of "Hygiene of Movement" should soon be added or installed from the very beginning.

The mental therapy must be chiefly one of encouragement and of stimulating interest and good cheer. It is vital to assure the patients that they are suffering from an actual disease, but one they will recover from and to explain to them the interaction between mental and physical signs. Every improvement noted must be pointed out to them. They themselves are very reluctant to acknowledge any improvement, showing great lack of confidence in the gains made. As to amusements considerable discretion is to be used. If they are of the too boisterous kind they are apt to make the patients worse rather than better. They feel keenly that they cannot enjoy themselves as others do, which creates an unfavorable reaction. Motor rides, listening to well-selected music, which can now be so easily furnished by a phonograph, games like croquet or tennis, etc., usually have a favorable effect. When the patient has advanced somewhat in improvement, moving picture shows, if properly selected, may help to cheer up and arouse the interest, which it is so important to stimulate.

In sanatorium treatment it is usually indicated in the beginning to forbid visits of relatives or friends until the patient has become used to the new surroundings, losing the distress of being separated from his family and friends, and reaping the benefit of the breaking away from the painful associations of home life.

Too long or too complete severance of communications with family and friends must as a rule be avoided, however, as it is apt to give food and substance to delusions that something has gone wrong at home, that the children are sick, the people at home have lost interest in the patient or want him or her to stay in the institution, or the like.

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A PROPHYLACTIC VACCINE AGAINST THE SO-CALLED SPANISH INFLUENZA.

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THE primary object in the preparation of this vaccine was, if possible, to protect the nurses of the Ellis Hospital from the complication of bronchopneumonia, which practically is the only cause of death in this disease. Soon after beginning its use, however, its prophylactic power against the influenza itself became so apparent that its use was extended very generally to the citizens of the county.

As it was believed that a vaccine requiring more than one injection was impracticable for use in an epidemic so overwhelming as was this, it was planned to prepare a vaccine containing all of the organisms found in the sputum of early cases of influenzal bronchopneumonia, test the protective power of one injection and subsequently make a careful study of the individual organisms, provided the vaccine demonstrated any immunizing power.

It may here be stated that the vaccine did not contain the Pfeiffer bacillus.

The first recorded case of this malady appeared in the city on the fifteenth day of September and, within a short time enough cases were in the wards of the Ellis Hospital to afford considerable material for study. For many days the sputum in every case complicated with bronchopneumonia was typed and, almost invariably, the pneumococcus fell into Type IV. Three of Type III were found in one hundred and twenty-eight specimens, but no Types I or II.

A vaccine was prepared and, on September 30, twenty-four of the hospital nursing staff were injected. Thirty-two nurses failed to receive the injection.

At the end of two weeks, not one of the vaccinated nurses had contracted the disease, although eight of the unvaccinated ones became ill and four developed serious bronchopneumonic complications. The vaccinated nurses cared for the cases complicated with pneumonia, were overworked, and although they wore masks, were constantly in an atmosphere of contagion. The nurses who were not injected were not so thoroughly exposed to infection.

As soon as it was learned that a vaccine was in preparation, physicians wished to aid the experiment, and within a few days thirty-five out of seventy-nine had submitted to the injection.

One of the vaccinated doctors developed a very light attack, while eight of the forty-four unvaccinated became ill and three developed bronchopneumonia.

On October 5 the demand for the vaccine became so large that it was made in quantities and supplied to almost every physician of the community. Altogether 12,362 persons were vaccinated; 3,300 at a station established at the hospital and the remainder by physicians at their offices, in the homes of patients, and in the larger manufacturing plants.

The test was rigorous. It started before the epidemic had reached its height and continued until it had completely subsided. Those injected were invariably told of the experimental nature of the procedure, none refused the treatment because of this, and it may be said that the physicians of this community are convinced that the vaccine possesses a distinct protective value. It may also be said that the reputation of the medical men of this community has not suffered because of its use.

Of the 12,362 persons who were vaccinated but 117 developed influenza, and over one-half of these became ill within twenty-four hours after vaccination, demonstrating the fact that injection had been given in the incubation period. Four of these cases were complicated with bronchopneumonia and there was one death.

Many interesting incidents are related by physicians, pointing toward the protective value of the vaccine; many tell of one member of a family refusing the treatment, and later that one was the only member to develop the disease.

One physician was called to a family where five children were ill with bronchopneumonia; a sixth child had escaped infection. The mother stated that this child was at the home of a neighbor when the members of that family were being vaccinated, and he had received the treatment with the rest.

Of course, such occurrences may be termed just coincidences, but when seventy physicians tell of them they should be given some weight. Foremen in the large manufacturing plants have pointed out an interesting phase of the experiment. When the epidemic was at its height, and many of the shops were almost depleted of workmen and those remaining were becoming demoralized, the men were taken in groups to be vaccinated. There was a complete change of morale for the better. The men became cheerful, and many who had remained at home because of fear of contagion were vaccinated and returned to work.

Several letters could be quoted from presidents of companies employing numbers of men. The vaccine had been used in these factories with an influenza incidence of less than one per cent. of those vaccinated, while it was from fifteen to twenty per cent. among those who objected to the injection.

The vaccine was prepared as follows: Collect six specimens of sputum from cases of influenzal bronchopneumonia, not older than forty-eight hours (the sputum should be as free as possible from contaminating sputum and saliva). Each specimen is washed in several changes of sterile 0.9 per cent. saline, placed in a sterile mortar and ground for five minutes. The culture medium is human blood agar (2 c.c.-10 c.c.), the blood being taken from individuals who had not had influenza nor had been vaccinated. The ground sputum is spread thinly over one or two of the blood agar petri dishes, with a long, flexible sterile cotton swab, and incubated for a period of twenty-four hours.

Then a few cubic centimeters of sterile saline are poured into one of the dishes and the growth is washed off into the salt solution. As soon as an even suspension is procured, the swab is used to seed from ten to twenty blood-agar plates and they are incubated for twenty-four hours. The growth is washed from these, saving one or two plates for future seeding purposes.

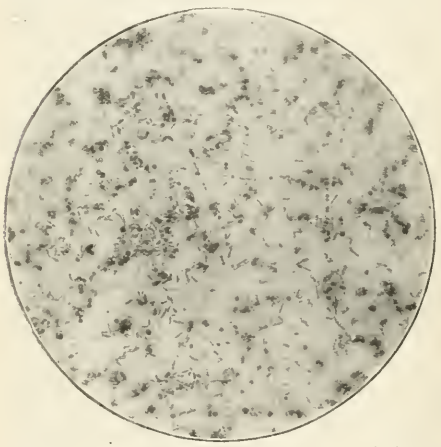
The suspension is poured into a sterile measuring flask, the washings from twelve plates being usu-

ally made up to four hundred cubic centimeters. It is filtered through very thin cotton and five cubic centimeters are placed in a Hopkins' tube and given 2800 revolutions per minute for one-half hour. It is standardized at three per cent., sterilized at 56° C. for seventy-five minutes, and 1½ per cent. of phenol is added. Before using, tests for sterility are made. The dose is 25/100 c.c., which is given subcutaneously, preferably with a tuberculin syringe.

The reaction is usually very slight, and it is believed that the immunity established lasts for a period longer than four weeks. In order to keep up the virulence of the organisms and to ward against overgrowths and contaminations, we made fresh cultures from the sputum every three or four days.

Every plate was examined as to its bacterial content, and it was remarkable to observe the uniformity, both in regard to the kind of organisms seen and the amount of growth.

The only bacteria found in 100 per cent. of the



A carbol fuchsin (1:8) stained smear of an original blood agar plate showing the pneumococcus and gram negative bacillus. 1 × 1000

plates were the Type IV pneumococcus and a rather large gram negative bacillus.

The *Streptococcus hemolyticus* was frequently found in the early almost uniformly fatal cases, but later completely disappeared from our cultures. Occasionally the Type III pneumococcus, the *Staphylococcus aureus* and *Micrococcus catarrhalis* were grown.

In about eight per cent. of the plates we found the Pfeiffer bacillus, but as it was absent from the first vaccines made, which were apparently efficacious in producing immunity, we discarded for vaccine production all cultures containing this bacillus.

By averaging many plates, it was computed that the dose of vaccine contained approximately 500 million each of the pneumococcus, Type IV, and the gram negative bacillus, also 25 millions of other organisms, including the *Streptococcus hemolyticus*, the *Staphylococcus aureus*, and the *Micrococcus catarrhalis*.

It was believed that the pneumococci in the vaccine would prevent the pneumonic complications, but it did not seem probable that the pneumococcus was the cause of the influenza. Suspicion naturally turned to the gram negative organism, which was found in every plate and was also isolated from the pus of two cases of empyema, complicating influenzal pneumonia. It is from 1 to 3 microns in length and about one-half in width. It is motile and does not ferment the sugars. It is non-pathogenic to the mouse and guinea-pig. It does not give one the impression that it is a disease producer; however, complement fixation, agglutination, and precipitin tests are being carried out in hope that something definite may be found.

In conclusion we would like to state that we believe this vaccine has proved its value in preventing the so-called Spanish influenza and the broncopneumonic complications. Our experience leads us to believe that the Pfeiffer bacillus has no etiological relationship to this disease.

ELLIS HOSPITAL.

PRINCIPLES UNDERLYING THE SURGICAL TREATMENT OF CERTAIN INFECTIONS ABOUT THE SACROCOCCYGEAL REGION.

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IT would seem at first thought, that nothing could be gained by a discussion of the treatment of localized infection, because surgical science already has definite and well-established ideas on that subject, but every one familiar with certain pathological conditions commonly found about the sacrococcygeal region will admit that the results of their treatment are far from satisfactory by reason of recurrences which are only too frequent, even at the hands of men of skill and experience. In point of fact, there is such a striking disparity in the results of those infections, when compared with such as occur in other parts of the body, as to compel the conviction that they belong distinctly in a class by themselves. We estimate from our personal knowledge based upon hospital and private work, that fully 20 per cent. of all patients suffering from the diseases which are under consideration here, are obliged to submit to operation repeatedly before they are rid of their trouble. As we know there is no effect except as the reflection of an adequate cause, the question must arise in every inquiring mind what this cause (or causes) may be, and how it may be prevented or overcome.

Let us look over briefly the pathological conditions which may occur in this region:

1. Simple acute suppurative inflammation, characterized by (a) superficial lesions, such as furuncles, retention cysts, etc.; (b) deep seated lesions, such as abscess, periostitis, or osteomyelitis of neighboring bony structures.

2. Syphilis in the form of condylomata, ulcerations, gummata, chancre, spread by extension from the anal region.

3. Tuberculosis of (a) the soft parts, either primary or secondary, a part of peri anal, anal or rectal tuberculosis; (b) the bone, involving the lumbar, sacral or coccygeal vertebra.

4. Infections from congenital tumors, cysts or teratomata; sacrococcygeal meningocele, spina bifida.

5. Chronic infections from the burrowing of fistulous tracts posteriorly.

6. Ulcerations from malignant growths, epithelioma, adenocarcinoma, sarcoma; fibroids, lipomata, etc.

7. Ulceration from gonorrhea, chancroids, etc., occurring in women secondary to genital or rectal infection.

8. Miscellaneous actinomycosis (?) anthrax(?)

It would be manifestly impossible within the limits of this paper to take up for discussion every one of the conditions enumerated above, besides being wholly unnecessary, because the treatment of most of these is along lines which are well understood, and its limitations generaly recognized; it will require but a moment's thought to determine that our problem is in group 4, and that congenital tumors or cysts are the surgical affections with which we are concerned here.

Sacrococcygeal tumors or cysts are congenital lesions, which may be either endodermal in origin, when they result from the embryological remains of the postanal gut, or ectodermal, when they arise from enclosures of adjacent epithelial tissue, such as the neural canal, or any portion of the central nervous system, and may be classified broadly as tumors of the postanal gut (rectal), and postrectal dermoids. Tumors of the postanal gut grow from that portion of the caudal extremity of the enteron which is below the point where early in fetal life the proctodeum joins the neurenteric canal to form the lower end of the intestinal tube; when two have joined, the part below the point of union, having no physiological function to perform, shrinks up, atrophies, and finally comes to be represented by a vestigial fibrous cord. If however, by reason of traumatism—and this appears to be the clinical history of many cases—infection or any other exciting cause it becomes activated into pathological growth, it develops into a structure which contains vesicles resembling intestinal glands, in accordance with a well-known biological law, that when an organism has attained its full development, its cells invariably reproduce the kind of tissue from which they themselves arise; on the other hand, postrectal dermoids originate from inclusions of adjacent epithelial tissue, which in course of growth has accidentally become separated, cut off, and enclosed in other tissue. Being ectodermal in origin, they necessarily reproduce elements which are derived from the epithelium, hence we find in them hair, skin, teeth, mammæ, rudimentary brain substance, etc.

As these tumors differ biologically and structurally, it is but natural to expect clinical differences among them; these are not without surgical significance, and may be summarized as follows:

A. *Tumors and Cysts Derived from the Ectoderm.*—1. Those of epithelial origin are far more common. Out of 682 consecutive rectal cases observed in the Rectal Clinic of the Post Graduate Hospital, on the surgical service of Doctor John F. Erdmann, there were 8 cases of sacrococcygeal tumor; all of these belonged to the type of post rectal dermoids, as their clinical character showed.

2. They contain for the most part strands of hair rolled into a ball, or arranged in the form of sheaves; other epithelial derivatives, while described, are very uncommon.

3. They are located dorsal to the sacrum and coccyx, below the level of the lower third of the sacrum, and unless complicated with true fistula, their tracts ramify upwards, rather than toward the anal margin.

4. They seldom attain large size, generally not exceeding that of a pea or bean; sometimes they are so small that they have to be carefully looked for, and the wound diligently searched before they are discovered.

5. They are apt to be multiple, and occur in pockets or nests; this explains recurrences even after thorough dissection.

6. They are more common in men, and between the ages of 18 and 50. The youngest patient we had was a boy of 15, while the oldest was a man of 84, seen on the service of the Home of the Daughters of Jacob.

B. *Tumors Derived from the Endoderm.*—1. They are rare.

2. They are seen soon after birth, at any rate in early infancy.

3. They are generally single.

4. They grow from the remains of the tube into the post rectal space, or anteriorly, pushing the structures of the pelvis forward. They are never located dorsal to the sacrum.

5. They are usually larger in size.

6. They are made up of vesicles, resembling intestinal glands.

We shall take up for consideration in this paper sacrococcygeal tumors of epithelial origin, because they form a majority of such lesions as seen by the general practitioner, and belong to the class which typifies the difficulties in treatment which have been mentioned.

The usual history obtained from a patient suffering from an infected sacrococcygeal cyst or tumor is, that for a variable period—often following trauma of the lower spine—he had experienced burning pain in the region on assuming the sitting posture, felt the parts to be swollen, and noticed a thin, dirty grey, gruel-like discharge. Occasionally there may be some fever, with general aches and pains especially in the lower extremities, but there are no intestinal disturbances, no bleeding from the rectum, no discharge of pus or mucus from it. A local examination discloses one or more brawny, indurated, discolored areas near the median line, below the lower third of the sacrum, and occasionally an opening from which a drop of purulent material may be squeezed out, often containing some hairs. The most natural thing to do, is to incise it, evacuate its contents, and drain the cavity, which is followed by temporary relief, but by no means disposes of the trouble permanently; sooner or later there is a repetition of the cycle, and our records show that a good proportion of these patients have to submit to operation again before they are cured. The reason is clear; we can

not expect permanent relief if we are content to remove what are obviously only the effects of the lesion, without disturbing the cause responsible for them; plainly the suppuration is only the result of something which for the time being acts as a foreign body and a focus of bacterial infection.

In the light of the above, it follows then, that the proper thing to do in every case of localized suppuration of the sacrococcygeal region is: (*a*) To determine the nature of the trouble; (*b*) to remove its cause, if possible, by suitable surgical means; (*c*) to attend to the necessary after treatment.

In order to determine the true nature of the trouble, it is advisable to look over the pathological conditions as they are found to occur in this region, and exclude them one by one, by such means as must readily suggest themselves to every one of us. It might be helpful to repeat categorically the following:

1. Sacrococcygeal tumors or cysts are the most common lesions found in this location.
2. They occur below the lower third of the sacrum, dorsal to the bone.
3. They are chronic in their course.
4. They exude a thin, greyish-white purulent fluid, rarely thick, creamy, or ill-smelling.
5. They frequently contain hair and detritus in a gruel-like material, seldom any other epithelial elements.
6. They are often in the medial line, at any rate in the vicinity of the anal dimple.
7. Occasionally there are two or more indurated areas, because of the multiplicity of the lesion.

To permit thorough removal of the cause, it must be emphasized, that the first prerequisite is general anesthesia; while local anesthetics have justly earned a definite place in the surgery of the anorectal region, they are not suitable for work which requires extensive dissection. It is necessary to open the wound wide, follow the tracts and curette them, make a careful search for all pockets and nests, remove foreign bodies, old scar tissue, and such portions of the wound edges as appear to be badly infected, and look after the postoperative treatment in the usual way. It may not be amiss, however, in this connection, to mention some points which are not unimportant: that the underlying bone must be searched for evidence of disease, because some cases either begin as an inflammation of the bone, or the process is later communicated to it from the soft parts; that when the burrowing leads downward toward the anal canal there may be perforation into the walls of the rectum, which requires division of the sphincters for the establishment of proper drainage; that the more chronic cases may be caused by specific infection, as in one reported by the writer before the New York Physicians' Association, which was due to tuberculous degeneration. In any event, it is advisable in every case to submit a specimen of the tissue for laboratory examination, in order to learn the true nature of the pathological process, and be prepared to deal with it.

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Mortality of Lima.—The death rate of the Peruvian metropolis has decreased in 50 years from 49 to 27 per 1000.—*Cronica Medico-Quirurgica.*

REFERENCES TO HAIR BY RABELAIS.

By Douglass W. Montgomery, M.D.,
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An Abundance of Hair as Indicating Great Strength and Bravery.—It will be recalled that Pantagruel, like his father, Gargantua, before him, had a rather notable birth. Gargantua was born through his mother's ear, and Pantagruel, although he came into the world in the natural way, was so large that his mother died of the effort. When he was born he was all hairy like a bear—tout velu comme un ours—whereupon one of the midwives cried out that he would do marvelous things, and if he should live he would reach a great age.[1] The same idea that hairiness, bravery, and strength are associated is expressed in the name, le poilu, the hairy one, given admiringly to the modern French infantryman.

Manner of Cutting and Dressing the Hair.—The human animal, having no fixed way, like his fellow creatures, of wearing the hair, has delighted in treating it in all sorts of fashions, combing it, curling it, clipping it short or allowing it to grow long, twisting it, braiding it, tonsuring it, or wearing a wig over it. In the Middle Ages the manner of wearing the hair was of great importance, as it frequently denoted the social status of the individual. It constitutes a telling point, for instance, in the description of Maistre Janotus de Bragmardo, who was commissioned by the Sorbonne to recover the bells which Pantagruel had stolen from the towers of Notre Dame de Paris.[2] He is said to be "tondu a la cesarine"; that is to say, to have his hair cut after the fashion of the Cæsars, the short warrior cut of the Romans. It is needless asking why these very efficient military leaders went clean shaven and had their hair close cropped. The helmet fitted better, and besides it was a mattter of hygiene, as it did away with two chief nesting places for certain vermin very prevalent during active campaigning.

Others have thought that Rabelais' reference was to the great Julius himself, who was bald, and who became so quite young. It would appear that he was sensitive in regard to this defect, as he wore a floral wreath to hide it, when electioneering in Rome. It would be quite edifying to see some war horse of the Democratic Party—democracy was the particular brand of politics professed by Cæsar—so decked out when on the stump in California.

Still another explanation for the short hair of the above-mentioned Bragmardo is that Francis I, King of France, had received a wound in the head, which required him to have his hair cut short. Because of this the courtiers and everyone else wore their hair in a similar way, just as the modern German cocks up the ends of his moustache ridiculously in imitation of the Kaiser.

The tonsured head of the monks gave rise to many a joke. For instance, Friar John, while on a military expedition, rode under a tree, and the stump of a branch caught in his helmet. While so hooked his horse rode from under him and left him suspended in the air. Instead of helping him his companions began to crack jokes upon his predicament, and among other things compared him to Absolem, the son of David, who was similarly sus-

pended from the branch of a tree by his hair. Attention was drawn to the difference as well as the similarity by saying that as the monk was tonsured and had no hair he was hung by the ears. Friar John expressed freely his opinion of the merry companions who could find time to make game of him while in such a position. Finally they let him down, and he showed his contempt for defensive armor by taking it all off and scattering it about the field, and then clad only in his monastic habit and armed with his staff he went gaily forward with the others to battle.[3]

Friar John was tonsured, but monks of other orders, as for example the Quavering Friars, fashioned their hair differently. In order to show that they despised the world and its goods they shaved the hinder part of the head and neck down to the shoulder blades, so that from behind they looked like pigs. The hair in front, from the bregmatic bones (parietal bones) forward, was allowed to grow as it would.[4]

In another chapter Rabelais tells how by a certain ceremonial consisting of drawing a shirt over their robe, clipping their hair, and muttering certain apotrophic or harm-averting and expiatory words, men were changed into birds.[5] By birds he meant monks, and birds some of them appear to have been.

A Seborrheic Type.—Maitre Aedituus, sacristan of the Ringing Island, was an old duffer, small of stature, bald, with a richly illuminated nose and crimson face. Pantagruel and his companions, after having fasted, bore him a letter of introduction. After a fast was a most opportune time to meet with a man showing the attributes enumerated above. Maitre Aedituus, knowing that these worthy gentlemen had fasted, made them very welcome, and saw to it that they were plenished, and afterward made them acquainted with the noteworthy singularities of the Island,[6] which they undoubtedly saw double.

A small, chunky man, a generous feeder, and the possessor of the kind of nose and face as above described, is almost always bald, and his smooth dome glistens with oily seborrhea. Besides alopecia, oily seborrhea, and rosacea, such men are liable to a long list of other skin diseases of a seborrheic type, such as seborrheic eczema and senile patches, as well as certain infections of a staphylococcic and streptococcic nature, causing acne, furuncle, and infective eczema.

The Personification of Lent.—Rabelais describes his personification of Lent as being a demigiant with downy hair and a double tonsure.[7] When hair falls because of seborrhea it gradually becomes finer and frailer, and finally ceases to appear altogether, and the person becomes completely bald in that situation. Other explanations have been given for this passage, but this seems to me to be the natural one, and is a creditable piece of medical observation on the part of Rabelais.

The Hat as a Cause of Disease.—The hat has frequently been accused of causing disease, and Grandgouzier, so careful in every particular in choosing the dress of his son, the infant Prince Gargantua, especially mentions caps fashioned like the crust of pastry, as being likely some day to cause a mischief to their closely cropped wearers.[8] It is not the cap cocked on the side of the head that we nowadays blame for causing baldness. It is the stiff and formal stovepipe hat, which is supposed by some to act by pressing on the temples, and interfering with the arterial supply. Baldness goes merrily on, however, no matter what kind of hat is worn.

Combing the Hair.—In two interesting passages Rabelais refers to Gargantua's way of managing his hair. First he gives a long list of his infantile ineptitudes when he was between three and five years of age. He says that like all the other little children of the country he passed his time in drinking, eating, and sleeping, in eating, sleeping, and drinking, and in sleeping, drinking, and eating. These were his chief occupations but there were others of a more temporary nature such as wallowing in the mire, slobbering his nose, dirtying his face, treading his shoes down at the heel, and gaping at flies. Occasionally he would vary the above by wiping his nose on his sleeve, snivelling in his soup, and rubbing his belly with a basket. But what particularly interests us in the present situation is that he combed his hair with a bowl.[9]

Farther along, in his very detailed description of the studies and the way in which Gargantua passed his time as a student, Rabelais says that, after getting up he put on a coarse frieze gown lined with fox skins, and then combed his hair according to precepts laid down by Almain, a learned professor of that period, which was accomplished by using his four fingers and his thumb, for his preceptors had taught him that to comb his hair in any other way or to wash and clean up was to lose time in this world.[10]

His father, seeing that this kind of education did not bring the results desired in a young prince, turned him over to the care of Ponocrates, a young, alert tutor, and Eudemon, an equally accomplished youthful companion. Even the names of these two were significant of their qualities. Ponocrates meant work and force (πόνος work, and κράτος force), and Eudemon a good angel (εὖ well, and δαίμων a spirit). Under these guides, Gargantua throve marvelously both in his capacity for merry-making and for absorbing useful knowledge.

After such an infancy and such an education, Gargantua grew to manhood and led his troops to battle. In a notable encounter at Vedewood he suffered a severe cannonading, and afterwards, in combing his hair, more than seven cannon balls tumbled out at every rake of the comb. These had been shot at him by the enemy and had remained in his hair ever since the fight. His father thought they were "cooties," and questioned his son minutely in regard to them.[11]

The Alleged Phenomenon of Hair Rising From Fear.—That hair stands up on the head from fear is an old and widespread belief. This belief evidently arises from the feeling of cold shivers and the sensation that the hair moves when under the influence of the strong emotion of fear. It is, of course, impossible for the weak erector pili muscles actually to cause the hair on the human scalp to stand up so as to be observed as erect. Rabelais says that at the mere sound of certain fear-inspiring names he has seen the hair of a nobleman stand on end.[12] This, of course, might be written

by Rabelais as it might be written by many an author of the present day, just for its literary effect and without any idea of the actuality of the occurrence, but it may readily be that the occipito-frontalis, one of the most powerful cutaneous muscles we possess, moves under this strong emotion, and so may give rise to the sensation in question.

Sayings and Proverbs Relating to the Hair.—There are several of these sayings in Rabelais' writings and one of the wittiest of them was uttered by Ponocrates, one of the companions of Gargantua, in urging prompt action in pursuing an enemy. He reminded his associates to take Time by the forelock as Opportunity had no back hair.[13] It appears that this is taken from a distich of Canton, Fronte capillata, post est occasio calva.[14] Gens a tout le poil is untranslatable.[15] It means folks who stick at nothing.

Panurge had been in many a tight place, but never in a more desperate situation than when he questioned Trouillogon, the ephectic and Pyrrohonian philosopher, on the difficult question as to whether he should or should not marry. The ephectic philosophers were so called because they suspended judgment in all cases. After putting the question in many forms Panurge in desperation cried out: "Now let us turn it quite the other way, against the hair."[16] If the questions previously had been put with the hair, or directly, those put a contre poil, against the hair, succeeded no better, and poor Panurge had to fly next to taking counsel of a fool.

I believe I have personally met some ephectic philosophers and they are particularly tantalizing when the office is full of patients, and one is trying to get a direct answer out of them to help in solving a knotty question in diagnosis.

When a person has "a head" on him from taking too much alcohol, an old remedy is to take some more alcohol, to take a hair of the dog that bit you. This remedy Friar John suggested to Panurge, when that worthy took to rhyming and spouting doggerel,[17] and Friar John affected to believe he was drunk.

The Middle Ages was a great period of symbolism, and the most characteristic of the above references to the hair are symbolic as the one referring to the hair as indicating strength, and the ones describing the peculiar fashioning of the hair by the monks as tonsuring, and otherwise shaving in a peculiar manner. In the Middle Ages almost every gesture seems to have had its special signification and in medicine symbolism was carried to a ridiculous extent. For instance, the yellow color of rhubarb was a symbol of the liver, and was considered the real reason why this drug was curative in hepatic disorders.

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13. Occasion a tous ses cheveux au front; quand elle est oultre passée, vous ne la povez plus revocquer; elle est chauve par le derriere de la teste et jamais plus ne retourne. Gargantua, Chap. XXXVII.
14. W. F. Smith's translation of Rabelais' Works, Vol. I, page 131, note 5.
15. Pantagruel, Book IV, Chap. XII.
16. Pantagruel, Book III, Chap. XXXVI.
17. Pantagruel, Book V, Chap. XLVII.

IS THERE A CLINICAL ENTITY IN ACUTE VASOMOTOR PARALYSIS?*

(PRELIMINARY COMMUNICATION).

BY FREDERIC J. FARNELL, M.D.,

PROVIDENCE, R. I.

PASSELER, Romberg, and their coworkers of the Leipzig Clinic were among the first to observe the importance of the blood vessels per se in acute infections and concluded that cardiac failure was not one due to an infection but one due to a vasomotor paralysis. They also attributed this paralysis to the action of the poison or agents upon the nerve conters.

If one now considers the symptom-complex manifested in the peripheral circulation, one observes a low or fall in blood pressure and an altered distribution of the blood causing edema, etc. How often, when these symptoms become manifest, does the clinician immediately turn his attention towards the heart and kidneys and various symptomatic diagnoses are made—myocarditis, nephritis, cardionephritis.

The object of this short report is to offer a few facts, (1) clinically, (2) pharmacotherapeutically, and (3) pathologically in favor of acute vasomotor paralysis.

CASE.—"Harry;" age 45; married; a professional man of standing; heavy smoker; temperate habits. He appeared for examination August 9, 1916. Chief complaint "cardiospasm," accompanying physical disorders, periodic attacks of asthma, pain around the heart, dyspnea upon going upstairs, hyperacidity. All these symptoms became exaggerated under emotion and undue stress of business.

Clinical Examination: Blood and urine negative in every respect. Eyegrounds normal. Functional tests of kidney and stomach normal. No evidence of focal infection in throat, tonsils, nose or ears. *X*-ray of the heart showed apex 8.8 cm. to the left of the median line; right border 4.4 cm. to the right of median line; total transverse diameter 13.2 cm.; length of heart 14.2 cm.; diameter of base 10.4 cm. Possibly a slight enlargement of right side of heart. Electrocardiographic findings: Normal rhythm. Very large "P" deflection indicative of auricular hypertrophy as with mitral stenosis. *X*-ray of gastrointestinal tract: A distinct play at the cardia but no definite obstruction or irritability. Stomach normal, good sphincter and cap. Remainder of tract normal. Deductions: Autonomic irritability with a possibly enlarged right heart. Pulse 84. Blood pressure 118.

Dividing the autonomic system into its various parts according to the pharmacological action of drugs, three units are formed: (1) The synapse in the autonomic ganglion, (2) the end apparatus in the viscera or tissue, and (3) the cell in the spinal fluid of the central apparatus. Poisons acting upon the synapse first irritate and then paralyze; example, nicotine and tobacco poisoning. Those poisons acting upon the end appara-

*Presented before Boston Neurological and Psychiatrical Society, February 21, 1918.

tus in viscera or tissue do so in two ways, (a) autonomic irritability produced by the pilocarpine group and autonomic inhibition by the atropine group; (b) sympathetic irritants due to adrenalin and sympathetic inhibition due to no known agent. Those poisons acting upon the central apparatus are (a1) autonomic central excitants-picrotoxin; (a2) autonomic inhibition-botulismus toxin; (b1) sympathetic excitants-cocaine, atropine, and caffeine; (b2) sympathetic depressant-morphine, chloral hydrate, etc. In none of these systems is there a sharp line of demarcation by means of a distinct selective action of the drug, which is due to the fact that the drug acts on other centers and to the inherent neurogenic tendency towards mutual antagonism between the divisions of the systems. This overlapping is quite confusing and disappointing to the clinician who is seeking immediate results.

In the case in question the provocative type of pilocarpine was given with merely the usual pharmacological effect, no exaggeration. This was obtained only after two weeks' administration of the fluid extract. At that time it was discontinued and atropine sulphate, gr. 1/150 a day, prescribed. All symptoms of autonomic irritability were relieved for two and half months. In January, 1917, he developed an acute influenzal infection of the upper air passages with several severe attacks of true asthma. He developed ulcerations about the nose and mouth which were later secondarily infected. The patient ran no elevation of temperature. Atropine had no effect. Adrenalin, 1/10,000 by mouth, caused a subsidence of the disorder in two days and the patient remained quite well until April, 1917. On April 4 he developed an attack of rapid breathing which interrupted his sleep. These attacks became more severe during the next four days so that on April 8 when seen by the examiner he presented paroxysms of apparently difficult breathing and yet there was no change in color of the mucous membrane or facies and no distinct anxiety. The chest revealed prolonged inspiratory and expiratory rhythms with a few sonorous râles. There was no irregularity in the heart rhythm. Pulse ranged between 80 and 90, and blood pressure was 120 even during his attacks. Atropine aggravated the condition. In the beginning adrenalin had no effect but later controlled his paroxysms greatly when used hypodermically. Psychic treatment and mental diversion controlled him wonderfully well. On April 12 the patient developed edema of the ankles, scrotum and penis became enlarged. There was a partial subsidence of the edema upon lying down. A trace of albumin was observed in the urine at this time but no casts. 150 c.c. of 5 per cent. sodium bicarbonate solution intravenously caused complete disappearance of the albumin. During the last two weeks in April this breathing difficulty became so marked that it was necessary to resort to morphine in addition to the adrenalin. These two drugs could keep him comfortable for a period of three or four hours. Finally cardiac distress and respiratory discomfort became severe and led to the development of edema of the lungs which resulted in the patient's death May 6, thirty-three days after the onset of his respiratory difficulty.

It is the writer's feeling that this respiratory difficulty and the disorder in peripheral circulation was distinctly one of a vasomotor type and probably secondary to some poison or agent affecting the central cell. So that, in reviewing the entire picture, one observes that the three units so formed as divisions of the autonomic system had undoubtedly been affected at some time or other during the progress of this disease process and that the ultimate result was a complete central vasomotor paralysis.

The microscopical examination of the heart and kidneys showed the following heart section—there is a probable thinning of the heart muscle fibers and some widening of the space between the bundles which is probably an artefact. There is no indication whatever of myocarditis or endocarditis. Kidney sections along the tubules in the vertex of the pyramids are seen small hemorrhages and some oozing of red blood cells into the surrounding tissue. This is not a pathological disorder. The general appearance of the kidney was normal, no increase in tissues to indicate interstitial nephritis and no pathological disorder in the functioning portion of the kidney, tubules, glomeruli, etc., to indicate a "Bright's."

In view of the distinct negative pathological findings in the heart and the kidneys, the approximately negative or normal findings in electrocardiographic tracings of the heart and normal functional tests of the kidney, it would seem only proper to infer that the pathological disorder bore a relation to the vascular system which is under autonomic control. The question of split protein products, bacterial poisoning, and the reduction of protein by body enzymes has not been considered in the summary description of the disorder but should undoubtedly be kept in mind.*

In conclusion it might be stated that whereas text books on theory and medicine merely refer to acute vasomotor paralysis, it would appear from the facts presented that there may be a disorder in the connecting link between the heart and kidney, namely, the blood vessels, and only the future will tell of the importance of a more thorough study of the autonomic system and its relation to the peripheral circulation.

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THE "ENDLESS CHAIN" TREATMENT OF PNEUMONIA.

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THE prevalence of influenza and pneumonia with their high death rate makes it imperative to resort to heroic methods of treatment rather than to follow the accepted ones only. The lack of serum or other specific remedy for influenza together with the inability to obtain antipneumococcus serum forced me to use convalescent serum. The economical phase together with the clinical value obtained in even such a small number of cases seemed to justify a thorough trial of it.

The Endless Chain.—It is a well-known fact that persons convalescing from pneumonia have antibodies in their blood stream. As soon as the patients' condition permits therefore, they are bled as much and as frequently as possible. The bottles used for collecting the blood are rinsed in normal saline and autoclaved. After the blood is collected it is allowed to stand at room temperature until the serum separates. It is then pipetted off and centrifuged. The clear serum obtained is now heated to 56°c. for thirty minutes.

*Sudden death in the present epidemic of influenza has resembled in some respects an overwhelming toxemia affecting the vasomotor system.

Tricresol three-tenths per cent. is used as a preservative. This treated serum is placed in stock.

When another patient comes in with pneumonia the type of pneumococcus is determined immediately and treatment is begun. When convalescence sets in, the above procedure is repeated. It is a case of one gives serum to two, two gives serum to three, and so on, the procedure becoming endless.

Compatibility Test.—It is very important that recipient's corpuscles be tested against the donor's serum. Several serums are tested in order to be sure of getting one from the group that will not cause agglutination.

Syphilis and Tuberculosis.—No attention is paid to syphilis in donors. Granting that living spirochetes are present in the blood stream they would be killed by the heating process—fifty-six degrees centigrade for thirty minutes. Tuberculosis should be eliminated by frequent sputum examinations after the crisis, making a differential cell count as well as the blood examination.

Treatment.—The serum is administered intravenously. It should be given only once daily unless the condition of the patient is critical. As high a dose as 170 cc. has been administered without any untoward effects. Reactions occurred in only two cases in each being of a mild character.

Results—The number of cases treated is eleven: Type I, 2; type II, 4; type III, 4; type IV, 1. There was one death—type III. All others had an uneventful recovery except one. This patient has a venereal infection. This small number of cases is reported in order to interest physicians and determine the efficiency or lack of efficiency of convalescencent serum when used type for type.

Medicolegal Notes.

Complaint Failing to Allege Negligence of Physician Is Insufficient.—In an action by an employee against his employer and its insurance company for damages for injuries alleged to have been caused by the negligence of a physician, also a defendant, employed by the two companies to treat the plaintiff for an injury received, the court sustained demurrers to the complaint for the following reasons: The liability of an employer and its surety at common law and under the California Employers' Liability Act for the negligence of a physician employed to treat an injured employee is secondary to and dependent upon proof of the physician's negligence; and it was held that the complaint failed to state a case of negligence or malpractice on the part of the attending physician. The complaint alleged that the physician undertook to treat the plaintiff, "but did not use due, proper, reasonable, or any care or skill in treating plaintiff's injury, but, on the contrary, carelessly and negligently treated said injury in this." Then followed several paragraphs in which the course of treatment pursued by the doctor was set forth. It was alleged that for a time the plaintiff's leg remained unset, except in splints, and that on a certain day the splints were removed, the leg set, and a cast put on; that thereafter the cast was taken off, and, it being found that the leg had not knitted, it was rebroken and reset and a plate and longer cast put on, which last cast was taken off after 9 days and a shorter cast put on, and that thereafter the plaintiff was discharged by the physician, returned home, and remained in bed for four weeks. On or about July 4, 1913, and more than 90 days after the accident, it was discovered that the leg bones were not knitting, and the plaintiff called upon the defendants to furnish the treatment necessary to cure him, which demand was refused. Under the provisions of the statute there is no duty imposed upon the employer to furnish treatment to an injured employee for more than 90 days after the injury, and therefore no liability on the part of any of the defendants could be predicated on their refusal to treat the plaintiff after June 18, 1913. The remaining allegations of the complaint set forth the course of treatment pursued by other physicians, the expenses incurred in obtaining such treatment, and a general damage clause.

The court said that in pleading their case in the manner above set forth the plaintiff's counsel evidently misapprehended the law as to the duty and liability of physician to patient. Their brief was wholly directed to the question of the liability of the corporation defendants, and the sole reference to the law of physician and patient to be found in their brief was the following phrase: "As to the liability of Lohse (the physician) it seems a case of res ipsa loquitur." What they really pleaded was a non sequitur, for the description of the course of treatment pursued by Dr. Lohse, contained in the complaint, was entirely consistent with his having exercised all necessary care and skill in treating the plaintiff, and it did not follow from nonsuccess that Dr. Lohse was negligent.

As was said in Houghton vs. Dickson, 29 Cal., App. 321, 155, Pac. 128, the implied contract of a physician in taking a case is that he possesses a reasonable degree of learning and skill in his profession, and that he will apply the same to the treatment of the case; and if he possesses and uses such skill therein he is not liable for the result, for a physician, of necessity, is not a warrantor of cures. "Negligence on the part of a physician consists in his doing something which he should not have done, or omitting to do something which he should have done," (McGraw v. Kerr, 23 Colo. App. 163, 128 Pac. 870), and in order to charge him with liability, some such negligent act or omission must be alleged in the pleading. In the absence of such allegation, it will be presumed that the physician has used the necessary care and skill.—**Foreman v. Hunter Tumber Co.**, (Cal.), 173 Pac. 408.

Public Health Commissioners—Distribution of Milk.—The Maryland Court of Appeals holds that under Baltimore City Charter the mayor and council had authority, in the exercise of the police power therein expressly conferred upon them, to pass Ordinance No. 262 of 1917, regulating the production and distribution of milk and milk products in the interests of cleanliness and health. The ordinance was held not unconstitutional as depriving milk dealers of their property without due process of law. It is not invalid as attempting to confer on the commissioner of health unlimited discretion in granting, refusing, and revoking permits to and of milk dealers; as failing to provide for proper notice and hearing before the commissioner of health as to the issuance or revocation of milk dealers' permits; as failing to provide an appeal from the exercise of discretion of the commissioner of health; or as attempting to delegate power to the commissioner of health in that it attempts to empower him to make regulations for the sale of milk, etc. The fact that milk producers and distributors, owing to war conditions, had not been able, in the five months allowed by the ordinance, to make the changes in dairies and farms required by it, was held no ground for holding unreasonable or enjoining enforcement of an ordinance deemed necessary for the discharge of the city's duty to preserve the public health.—Creaghan v. Mayor, etc., of Baltimore, Maryland Court of Appeals, 104 Atl. 180.

Expert Testimony as to Value of Physician's Services.—The Washington Supreme Court holds that where application is made for a commission to take the depositions of five physicians as to the value of professional services rendered by the plaintiff physician, it is discretionary with the trial court to limit the number to three. Such evidence consists of pure opinion with reference to something that is neither exact nor scientific. Such expert evidence, even if uncontradicted, is not conclusive, but merely advisery—only a guide. Such physicians may testify as to the reasonable value of a physician's services in the case of a disease known of by all physicians, although the services were rendered by a physician in a different city from that in which the testifying physicians are practising.—Terrill v. Fotheringham, Washington Supreme Court, 173 Pac. 748.

Military Medicine.

Cases of Stammering from War Shock Treated by Psychotherapy.—Writing in the *Medical Journal of Australia*, September 28, 1918, Dr. Clarence G. Godfrey states that during the past two years a number of cases have been referred to him for treatment by hypnotic suggestion at No. 5 Australian Garrison Hospital, in which stammering or stuttering has developed, or has been revived, after years of disappearance, as the result of shell shock or of various war stresses. In the majority of these cases there had been in addition to the speech disorder, certain neurasthenic conditions, such as persistent muscular tremors, insomnia, functional paralysis, and so on, which had disappeared or diminished, but the stammer had remained as a severe and distressing defect.

It is pointed out that in all these cases the active cause is the psychic disturbance. Practically all the patients exhibit a temperament showing nervous excitability and many of them have a definite neurotic history.

Realizing the psychic origin Godfrey is treating these cases by applying, in the first place, psychotherapeutic methods, supplementing these, if necessary, with the recognized procedure of the expert who treats stammering and stuttering.

Each case of stammering, therefore, which has come under his care at the base hospital, he has hypnotized, and although he thinks it is premature to speak of results as cures, they have been at least gratifying. The method that he has invariably adopted, has been to induce a hypnotic sleep or lethargy, and to suggest to the patient that he is now perfectly at ease mentally, that he can now pronounce the stumbling words as easy as any other because his vocal mechanism is sound and intact, that where nervousness has interfered with his normal powers, the nervousness is no longer felt by him, that nothing prevents him from being able to speak clearly, and that he will be convinced of his ability to speak normally when he finds himself doing so on awakening. Godfrey then orders him to repeat after him simple words or sentences and leads up to difficult ones, and, in almost every instance these are spoken fluently and in a normal tone. Strongly expressed suggestions are given to the patient's capacity to speak equally well on waking. Sometimes a patient has been told to keep on repeating some well-known nursery rhyme and not to cease at the signal to awake, although, in the middle of the rhyme, but to keep on talking. He will usually manifest his astonishment at finding himself talking without difficulty. Sometimes a patient will converse on waking without realizing that his stammer has disappeared, until his attention is drawn to it with amusing effect. In several cases, however, it is noticed that the stammer after disappearing entirely for some time, will return, but always in a less degree. In one case the patient spoke perfectly in sleep, at the first attempt to hypnotize him, although he had had a very bad stutter for eight months past, being almost inarticulate. He woke in a few minutes apparently cured, and has been free from stuttering ever since. It has been noticed that every case treated, even the worst, has been able to speak far better in the hypnotic state than out of it, all the interesting influences of emotionalism being then removed or diminished. This, in the opinion of Godfrey, surely establishes the condition as a psychosis rather than a neurosis.

Treatment of Chest Wounds.—William Hutchinson, in the *Canadian Medical Association Journal*, November, 1918, concludes as follows: (1) All cases of wounds of the chest should be treated in special wards or special hospitals; (2) careful charts should be kept which record temperature, pulse, and respiration four times a day; (3) early diagnosis of infection is important; (4) every case in which there is more than two fingers' breadth of dullness should be aspirated; (5) cases of open pneumothorax should be closed as early as possible; (6) cases in which there is a large amount of clot in the chest should be opened, blood and clots evacuated, and the chest closed; this should be done as early as possible; (7) cases in which the hemothorax is found to be infected should be opened, washed out and closed; some antiseptic being left in preferably an emulsion of bipp in liquid paraffin; (8) postoperative aspirations must be done in all closed cases, the first forty-eight hours after operation; (9) no attempts should be made at the base hospital in France to remove a foreign body from the lung.

Injections of Saccharose in Tuberculous Soldiers.—Sergeant and two others have made a trial of the saccharose treatment of tuberculosis as recommended by Lo Monaco and have found it of no value (*Journal de médecine et de chirurgie pratiques*, Sept. 25). The patients all had tubercle bacilli in the sputum and thus it was readily possible to learn whether the treatment could control the essence of the disease. The injections were painful. Sugar did not in any case appear in the urine, the amount injected being five cc. daily of a 50 per cent solution in distilled and sterilized water. It is true that there was an initial gain in weight but this was not maintained. The sputum when weighed showed a decrease in some subjects, while others showed no decrease but instead an actual increase. The temperature was not influenced, neither was the auscultatory expression of the disease. Subjectively the results were better. Patients thought they were benefited and the treatment became popular; they felt better and claimed that their night sweats even lessened.

Convergence of the Eyes in Major Cases of Shell Shock.—Descomps, Euzière, and Merle in *La Presse Médicale* for October 3, call attention to the numerous indecisive discussions on the nature of the phenomenon of shell shock. If it is based in any way on minute organic alterations these should betray themselves sooner or later. Among evidences of organicity is the phenomenon of convergence. The authors have seen this in ten subjects. The phenomenon is, in part at least, an elicited one. Rotatory tests bring it out while it also appears during excitation of various types, notably the galvanic circuit. In the rotation test the patient is turned in one or the other direction

and with closed eyes and after the tenth turn is told to pause and open the eyes which are then seen to converge strongly. The pupils may reach the extreme inner angles of the eyes. This convergence may persist for a considerable interval—in one case a minute and a half. Convergence is not always symmetrical and may be unilateral. In general all other ocular motion is unaltered. The tests are best made on a revolving platform so that the patient remains passive throughout. The muscles of the adductor group evidently overact and the author accepts the convergence as the result of minute organic lesions in the cerebrum. One of the subjects had formerly a paralysis of the sixth pair and the rotation test was not necessary to bring out convergence. The lesions could occur in a variety of localities—motor centers, nuclei of various cranial pairs, association centers or paths of connection. Often other symptoms were present which suggested diffuse lesions in the encephalon. The phenomenon of convergence seems to stand in no definite relationship to nystagmus although in the latter we may see isolated convergence movements. Generally speaking the authors see no reason to implicate the labyrinth in any way in this manifestation.

Sudden Death of a Soldier from Adrenal Sclerosis.—In the *Journal de médécine et de chirurgie pratiques* for October 10, Bazin relates the following case. The patient was an artillery man aged 38, an alcoholic, general condition poor but an excellent soldier. He presented himself for fatigue, backache, and diarrhea. Placed in repose his fatigue augmented. Although under observation several days no diagnosis seems to have been made. The symptoms became aggravated without new developments. Then a cadaveric odor appeared which seemed to emanate from the entire surface. The white line of Sergent could not be elicited. The first diagnosis was asthenia attributed to influenza. The latter had not been mentioned before in the history and was presumably masked or mild. After a day of effort he became worse. He had complained off and on of dyspnea and his pulse had been weak and rapid. Death took place suddenly in syncope. The autopsy showed no tuberculosis, no cardiac lesion and general freedom from organic disease save sclerosis of the pancreas and adrenals. The liver and kidneys showed some enlargement but no histological report was made. Even the pancreas is not accused of contributing to death. Professor Sergent himself made the histological study of the adrenals and appears to regard the sclerosis of these organs as the sole cause of the invalidism and sudden death. The nature of the process is not clear beyond the belief that the attack of grippe, mild as it was, was sufficient to determine the acute symptoms. The glands appeared to have suffered no marked functional compromise and were equal to their work under normal conditions. The blood pressure was not taken but there was absence of pigmentation and of the white line while the gastroenteric symptoms were not of high degree.

The experience of the present war teaches us to be on the lookout always for adrenal insufficiency which appears under different clinical and pathological expressions. The adrenals may be attacked in the tuberculous as part of that disease, they may be involved in any acute general infection, or if already attacked may be made worse; they have frequently given out from overwork, both physical and mental, and, as is known, antityphoid inoculation sometimes develops mild cases of functional insufficiency. Our knowledge of symptoms is increasing as muscular atrophy is noted at times as a result or accompaniment of the profound asthenia. The patient in this case suffered in this manner.

Getting American Sick and Wounded Home.—The American Expeditionary Forces will have all sick, wounded, and convalescent American soldiers back in the United States within two months, according to an announcement from Washington. The number of military hospitals abroad has already been considerably reduced by the Medical Corps. The daily hospital census shows that there are now more than 100,000 hospital beds vacant.

Base Hospital at Tent Camps to Remain.—The War Department has ordered the sixteen tent camps constructed as training centers for National Guard Divisions to be abandoned as soon as possible, but the base hospitals in connection with the camps are to be maintained. These hospitals are at the following camps: Camp Greene, Charlotte, N. C.; Wadsworth, Spartanburg, S. C.; Hancock, Augusta, Ga.; McClellan, Anniston, Ala.; Sevier, Greenville, S. C.; Wheeler, Macon, Ga.; MacArthur, Waco, Tex.; Logan, Houston, Tex.; Cody, Deming, N. M.; Fort Sill, Oklahoma; Bowie, Fort Worth, Tex.; Sheridan, Montgomery, Ala.; Shelby, Hattiesburg, Miss.: Beauregard, Alexandria, La.; Kearny, Linda Vista, Cal.; Fremont, Palo Alto, Cal.

Medical Examinations Before Demobilization.—All troops from overseas are to be kept in observation camps for at least two weeks prior to embarkation, and suspects will be detained until all possibility of the development of infectious disease is over. The health of the troops as a whole is said to be excellent at the present time. Before demobilization every man will be subjected to a thorough medical examination, and careful statistical records kept of his condition. Those found with defects will be kept under medical attention until the defect has been removed or found to be incurable. By this means records will be available that will be useful in the settlement of pension claims later on.

American Women's Hospitals to Continue in Service.—It is announced that the three units of the American Women's Hospitals will continue in active service in France for another six months. The unit of which Dr. Caroline Finley is the head will spend the winter in the vicinity of Nancy. The gas unit will remain where it is at the present time, while a third unit will continue its relief work among refugees in the south of France. This latter unit, at the request of the French War Department, has added a 100-bed military hospital to its civilian work.

Permanent Appointments for Temporary Medical Officers.—The Bureau of Medicine and Sur-

gery of the Navy is formulating a bill which will provide that all temporary medical officers of the Navy be offered an opportunity to qualify for an appointment in the permanent establishment with the rank now held.

The Navy's Loss in the War.—The naval casualties during the entire war, excluding the Marine Corps, and exclusive of those who died of disease, numbered 1,233, according to the report of Surgeon General William C. Braisted. Practically all the deaths in the Navy were due to combats with submarines. Admiral Braisted declares the most important task of the medical branch of the Navy still lies ahead in taking care of the sick and wounded and extending some aid to the Army in this work. Already naval hospitals in the United States are filled. Hospital facilities at Norfolk are so taxed that it is probable the Navy Department will commandeer homes to house sick men being sent here. Hospitals in Baltimore, Philadelphia, and New York may be called on to aid.

Italy's War Losses.—According to the Italian Bureau of Public Information, Italy's total war causalties number 2,000,000. Of these 400,000 were killed or died of wounds, and 100,000 died of disease and other causes. In addition 500,000 are listed as permanently disabled, leaving 1,000,000 who were wounded but not permanently disabled, missing, or prisoners.

Austrian Losses.—Austria-Hungary reports 4,000,000 men killed and wounded during the war, of which 800,000 were killed, including 17,000 officers.

Lieutenant Colonels George E. Brewer and Alexander Lambert of New York were promoted to the rank of colonel on November 12.

Rides for Convalescent Soldiers Wanted—The American Red Cross has called upon 1,000 automobile owners in New York City to provide automobiles and chauffeurs for transporting convalescent soldiers and sailors on recreational tours of the city. This service has been centered in a new division known as the Red Cross Recreation Transportation Department, and will be under the direction of the Red Cross Motor Corps. Owners are asked to give their automobiles for three hours' service weekly. A Red Cross nurse or uniformed member, in compliance with United States Government regulations, will accompany each party.

Germans Merciful to the End.—A correspondent of the London *Times* and New York *Sun* with the British army of occupation says in a recent despatch that everywhere in the reoccupied territory one meets the same universal disgust and loathing of the Germans and hears the same tales of looting. "But the topic of all others to which it is impossible to refrain from referring to is the German treatment of prisoners, especially the British. In all the black history of Germany's conduct in this war there is nothing viler than her treatment of the sick prisoners in hospitals up to the time of the armistice . . . The culminating crime was the last when the Germans made no attempt to hand the hospitals over to any authority or representatives of the Allies. They did not even inform the patients or civilians where they were going, they merely went away and left the patients alone." The consequences to the patients, deserted, without food, medicines, or any one to help them in any way, can readily be imagined.

Hospital Ship Arrives.—The United States Hospital ship *Northern Pacific* arrived at the Port of New York on December 1 with 1,100 sailors, marines, and soldiers on board. Of these 500 were seriously wounded. There were 60 wounded officers, among whom were several belonging to the Army Medical Corps who had been gassed while attending the wounded at the front.

Deaths in the Service.—LIEUT. IRA CONDICT, JR., M. C., U. S. Army, of Hoosick, N. Y., honorably discharged from the service on account of physical disability, August 16, 1918, died of pneumonia at his home, on October 27, aged 32 years. He was graduated from the Albany Medical College in 1912, served with the British Expeditionary Forces in Flanders in 1917, and was invalided from there to the Prince of Wales Hospital, London, then to Osborne House on the Isle of Wight, and later to Netley Hospital, from whence he was returned to the United States and placed in United States Army Hospital No. 1, at Williamsbridge, until his discharge.

LIEUT. WILLIAM FREDERIC CRAIG, M. C., U. S. Army, of Philadelphia, was killed in France on September 26 while caring for wounded soldiers northwest of Verdun. He was a graduate of the Medico-Chirurgical College of Philadelphia, in 1897, a specialist in neurology, and for fifteen years professor of biology, anatomy, and French in the Central High School. While in the service he was on duty at Camp Oglethorpe, Ga., Camp Weir, and Camp Meade, Md.

CAPT. THEODORE DOUGLAS MEAD, M. C., U. S. Army, of New York, an assistant surgeon of the 104th Field Artillery of the New York Division, died on October 30 of wounds received while attending the wounded on battlefields near Le Catelet. Captain Mead was a graduate of Cornell University Medical School in 1912, and before entering the service was a member of the Bellevue Hospital Staff.

CAPT. JAMES FREDERICK MUNSON, M. C., U. S. Army, of Sonyea, N. Y., died from influenza, at his station in Plattsburg, N. Y., on October 25, aged 37 years. He was a graduate of the University of Michigan, Ann Arbor, in 1904, for twelve years pathologist at the Craig Colony for Epileptics, Sonyea, and for several years secretary of the National Society for the Study of Epilepsy.

LIEUT. ARTHUR MORGAN EVANS, M. C., U. S. Army, of Chicago, a graduate of the University of Illinois, in 1916, died from cerebrospinal meningitis in Evacuation Hospital No. 21, Camp Custer, Battle Creek, Mich., on October 5, aged 28 years.

LIEUT. FRANCIS MARION BURKHALTER, M. C., U. S. Army, of Bay City, Ga., a graduate of the Atlanta, Ga., School of Medicine, 1909, died from pneumonia, in France, on October 8, aged 31 years.

CAPT. LAWRENCE EDWARD FLANNAGAN, M. C., U. S. Army, died from pneumonia following influenza at his home in Charlotteville, W. Va., on November 6, aged 54 years. He was a graduate of the University of Virginia, Charlotte, in 1884.

MAJOR JOSEPH BIDLEMAN BISSELL, M. C., U. S. Army, died at his home in New York, on December 2, after a few days' illness. (See page 995.)

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New York, December 7, 1918.

THE INFLUENZA PANDEMIC.

THERE can be no doubt that the world has been or still is in the grip of a pandemic of influenza and of the associated affections which habitually follow in its train, such as has not been known in our times; nay, perchance not since the Middle Ages. There is, however, nothing in the pandemic for which ample historical parallels cannot be found, and every characteristic at present reported can be traced in the old records. Such outbreaks have been noted in the earliest records to which we have access, and in their more virulent forms they have usually extended with amazing swiftness throughout the world. It has been well said that influenza is the "crux of epidemiology," and although it is the most elusive of morbid processes to investigate, still it is not to the credit of medical science that so little is known relative to its origin. In the matter of origin, although not necessarily of development, all that can be said with some degree of certainty at the present writing is that it would seem to be quite independent of climate, of race, and of seasonal influences and variations of both weather and winds.

Influenza *per se* is not a highly fatal process, and because for the past twenty years it has appeared only in comparatively mild types the medical profession has looked upon it far too complacently. It has, however, frequently been associated in extreme cases with pneumonia, and what makes this year's visitation most serious is that in all countries people are dying of septic pneumonia, which often supervenes unless the most rigorous prophylactic measures are quickly taken. The existence of diphtheroid conditions of the throat has also been noted in England. It will be well to reject once and for all the fanciful theories which unquestionably exist, largely due to the erroneous belief that this pandemic is something new. It certainly did not originate in malnutrition, because France, England, Spain, and Switzerland are not underfed in the strict meaning of the word. Even if they were, the American continent is not underfed, yet influenza has had a paralyzing effect upon activities in the United States and Canada.

Influenza has nothing to do with the admixture of other forms of nutriment with wheat, as has been suggested. Its extension is not particularly due to the rapidity of modern transportation, for it crossed seas and continents with incredible swiftness when railroads and steamships were unknown. There is nothing novel in the outbreaks at sea, for thousands of instances of the kind have been established. It is not the old English "sweating sickness," which never became pandemic, and disclosed a very different symptomatology. It is not a benign type of pneumonic plague, though in an article in the MEDICAL RECORD of October 12, Dr. King showed that there was a striking similarity in the two diseases, and certain curious cases reported some time ago on a ship at Gothenburg would seem to demand further investigation. Most emphatically it bears no relation to trench fever, which is a louse-borne process. There is no evidence which directly connects the pandemic with the war at all. Typhus, smallpox, plague, dysentery, typhoid fever, and scurvy are diseases of warfare, as has been amply demonstrated in Germany and Austria-Hungary almost since the commencement of the Teuton onslaught, but influenza is not among the generally accepted pestilences of war. However, the possibility that there may be some relation between it and the *consequences* of the war cannot be entirely eliminated. We know little of the connection between mind and disease, and for some years the peoples of the world have unquestionably been in an abnormal and overstrained mental state. The germs of disease are with us constantly, and we carry not a few of them in our bodies in an innocuous state until some subtle change of physical and mental condition makes the human soil favorable for their pullulation, perhaps quickened by contact from without. The surroundings of the continental peoples are less healthy, sanitation has certainly been neglected, drainage has become imperfect, houses have fallen into disrepair, with the inevitable resulting dampness which makes dwellings a hotbed of disease. The shifting of the population has resulted in overcrowding in certain areas, and influenza flourishes in crowds. Though in the allied nations food has been sufficient in quantity, changes in diet among them must have had a bad effect. The lack of sugar, the most easily realized form of energy, has certainly had unfortunate results, especially upon women and children. The milk question and the difficulty about fats are equally serious factors, and should be taken into careful consideration, although all such are absent in this country, which has suffered severely from influenza. The rise and decline of great epidemic diseases have perplexed mankind throughout the ages. Hecker believes that great epidemics had "a cosmical origin." Simon held that "the chemistry of our globe is subject to variations, perhaps definitely progressive or cyclical, in which human epidemics are but a part." Yet the conundrum of influenza should not be insoluble, and we hope before this recrudescence of the disease has entirely subsided that the mystery surrounding it will be cleared away.

PITY THE PARETIC!

UNDER the present system of military practice, when a soldier is discharged from the United States Army for physical or mental disability, the question at once arises whether this disability was acquired in "line of duty" or not; if so, he is given an honorable discharge and a pension, if not, a dishonorable discharge and no pension. In other words, he is kicked out. A disability due to syphilis, unless an extragenital chancre can be definitely proved, is considered due to the soldier's own misconduct and hence not in line of duty. The extragenital chancre may have had its origin in kissing a prostitute. No matter, it is in line of duty. That is, it is a duty to kiss a prostitute, but misconduct to have intercourse with her.

When we consider that of the hundreds of thousands of soldiers who have served in the United States Army before, we will say, venereal prophylaxis came into use, doubtless there are very few who have been soldiers any length of time and have not indulged in some extralegal intercourse and hence exposed themselves to lues. (As to the possibility of contracting syphilis from marital intercourse we will say nothing, for fear of being accused of cynicism.) Of this number some contract syphilis, others, more lucky, escape. Of the former, a few—three or four in every hundred—years later develop nervous syphilis. Why they do, and others do not, no syphilologist has yet been able to tell us. Certainly it does not appear that when a patient has contracted syphilis he can prevent the possibility of paresis by any medicine or treatment, mode of living, charm, or incantation. Thus we see the situation—not an exaggerated one or fanciful, but occurring every day—of a soldier being treated for syphilis by military surgeons, its existence a matter of record in the War Department; we see this soldier honorably discharged at the end of his enlistment with *conduct excellent*, accepted for another enlistment, and another and another, promoted to corporal or top sergeant, serving the Government faithfully and conscientiously for ten, fifteen, or twenty years, marrying, having children, and assuming the responsibilities of a family man, and then paresis develops. The diagnosis at once sets in motion the chain: due to syphilis, not in line of duty, due to patient's own misconduct, dishonorable discharge, no pension.

Any one who has followed a paretic through his brief course of fatuous grandeur, convulsive seizures and wasting away, who has seen these men admitted in the early stages to the insane asylums, apparently in the best of health, and seen them within a few months wither away to noisome living skeletons, as if the curse of some malignant Deity lay heavy on them, will not believe that an iota should be added to their punishment. Let us not then take a faithful soldier who, after serving his country many years, becomes afflicted with this awful curse, and kick him out in disgrace, leaving his family paupers. It is well enough to let the moralists mouth platitudes; perhaps he has done wrong and should be punished. But what more fiendish punishment could the mind of man conceive than general paresis? If he has danced, he is paying the piper with his life. Let us not shame his family and send the widow of a soldier of the United States out begging for bread. Pity the paretic!

A RECENT ACCOUNT OF TRENCH FEVER.

CHRISTOPHE, writing in the September number of the *Archives Médicales Belges*, gives a brief and condensed but up to the minute account of this malady. The latter is characterized by periods of intense fever which alternate with five day afebrile intervals (five represents the mean duration). *Quoad* history it is extremely difficult to state when the disease was first definitely recognized, although it certainly did not antedate the present war. It probably was first confounded with malaria because the latter condition was known to occur in all localities where trench fever first developed. A German wrote of "Russian malaria" and another German of a quintan type of malaria. At almost the same time it was regarded as a special type of influenza, socalled "Polish influenza" and also "periodic influenza." Next topical designations appeared, one of which, "Volhynia fever," proved a catchy name. Another title which was maintained was "five day fever." All of these terms apparently preceded "trench fever" which was to gain the greatest vogue. Beginning among German troops on the Polish frontier this affection ended by appearing on all fighting fronts from Belgium to Mesopotamia.

Trench fever is chiefly a fever of special type which comes on suddenly in the midst of health. The one day fever is followed by say five athermic days after which the temperature again shoots up for one day to 40° C. or more, to be succeeded by five more feverless days. The total number of febrile hours in a seizure is not over five or six. The sudden fall of temperature suggests a crisis which exceptionally lasts two hours or more, and may then be termed an atypical crisis or a.lysis of brief duration. But there may exceptionally be a lysis which lasts 24 or 48 hours. Finally there have been seen lytic phenomena prolonged over four or five days. In the latter rare instance there is hardly any fever-free interval. However the athermic periods may be longer than five days—six, seven and eight days have been noted. Also the interval may be unusually brief—three or four days instead of five, so that here again the patient may not be free of his fever. Next to the latter the chief symptom is tibialgia, which is invariably bilateral and aggravated by pressure and percussion. The seat of the lesion responsible for this pain is still unknown. At the outset pain is clearly determined by the rise of temperature, but when established it does not show parallelism with the latter. Even at times a sharp ascent of temperature may not be accompanied by pain. Of numerous symptoms seen in addition none seems to be in any wise constant

or characteristic. The course shows want of type and there may be from one to eight febrile accesses to the case.

Because of its intrinsic brevity this fever seldom can make any inroad on the patient's general condition. Practically he remains well throughout its course. Various alleged disturbances of general health do not appear to be the result of the fever but of antecedent or coincidental conditions. By reason of the wide range of symptoms, efforts have been made to make numerous clinical varieties of trench fever. The author does not uphold these endeavors at all.

In regard to causation one may provisionally accept the louse hypothesis of diffusion of the malady. But so far as the actual pathogenesis is concerned there is neither consensus of views nor any plausible opinion. Blood parasites of the most varied and opposed types have been accused in this connection. In regard to epidemiology one can only insist that it is a louse-borne malady which rages by preference in the spring.

In regard to significance there is no mortality to speak of and there are no demonstrable sequelæ. What then is the significance of the malady? The answer is that this is purely military. Many men are attacked at the same time and disabled for the moment; also we know that there will be more or less future incapacity for a period which may attain seven or eight weeks. After the last febrile paroxysm the patient must be granted absence from duties for several additional weeks to be on the safe side. Of treatment, whether indicated or empirical, there is none—the author recommends collargol only on the testimony of one man, admitting that he has no corroborative evidence.

TREATMENT OF SOFT CHANCRE AND CHANCROIDAL BUBO.

In 1914 it was noted that the chancroid was undergoing a retrogression in incidence. Once ranging in frequency with the chancre proper, the proportion had in some clinics become 2 to 5, and even less. Nor was this movement peculiar to any one country. But with the progress of the present war the chancroid has again come into its own, and has caused a vast amount of military disability. Special research has therefore been necessary for a prompt, efficient, and practicable wholesale remedy, and such has been found in iodine fumes, according to Petges, Gratiot, and Cottu, writing in the September number of the *Journal de Médecine de Bordeaux*. The method goes back to 1911, and the authors, although they have used it but six months, have treated 236 cases of chancroid, of which 80 were complicated by buboes. Several forms of apparatus are in use for carrying out this treatment. In many cases, cure results in 8 or 10 days. There are, however, large or multiple or deeply ulcerated forms which may require from 2 to 4 weeks for a cure. An open inguinal bubo heals within a month. The authors have seen numerous extragenital chancroids, seated, for example, on the chin, lips, fingers, thighs, etc., and these cutaneous lesions respond especially well to this treatment. There appear to be absolutely no drawbacks to the method. It is not intended to be kept up indefinitely, for it probably retards rather than hastens simple scarring, the object being merely the destruction of the Ducrey bacillus. The iodine vapor is most readily generated from iodoform under the influence of warmth. To treat a bubo, the authors use retractors, after opening by wide incision, and allow the vapor to enter the new cavity. The bulb of a thermocautery is used to force the vapor into the infected area under pressure. Every second day is sufficient for exhibition. The surfaces to be treated are carefully cleansed, and after treatment a powdered iodoform dressing is employed.

Another, though allied, method of treatment of chancroidal bubo is that by injection of a 10 per cent. iodoform-vaseline mixture into the substance of chancroidal buboes after puncture with a bistoury to evacuate the pus. This treatment was proposed originally by Otis of New York, and later by Fontan of France. Since 1893 numerous reports have appeared on the subject, but for some reason, perhaps the retrocession of chancroid as a world evil, the method has fallen into disuse. The recrudescence of the malady during the present war has made advisable a trial of forgotten remedies. The authors announce that this will at times cure a chancroidal bubo in 8 or 10 days. All aseptic precautions are strictly observed. No anesthetic is required. Incision is made wherever there is fluid to evacuate, and the tissues are gently squeezed. The length of incision is 1 to 2 mm. A large cotton compress is applied, with a spica bandage over all. The authors would enforce rest, although the pioneers of this treatment evidently meant it for ambulatory cases. The patient should be well after ten to twelve days. Petges has used this management since 1898, and claims 90 per cent. good results. The combined authors have treated 38 patients in the past 10 months, with a total of 46 buboes. Of this total, 34 recovered in from 8 to 12 days. The special indications are buboes in which fluctuation has just become perceptible. The skin is as yet not involved. There appear to be no unfavorable results, such as iodoform poisoning. The statement that the treatment is unnecessarily long or burdensome is not borne out by facts, for comparison shows that the reverse is the case. It is true that the technique is exacting, but the results are obtained more rapidly than by the expectant method.

Changes in the Adrenals After Burns.

The actual causation of death following burns still remains more or less a mystery. The causes usually assigned, as toxemia from genesis of a poison in the burnt skin, perforating ulcer of the duodenum, etc., by no means cover the subject as a whole. The latter factor is almost negligible, while the former is a mere hypothesis which rests

on the interpretation of certain experiments. To throw some light on this mystery Nakata, a student of Professor Askanasy of Geneva (*Correspondenz-Blatt für Schweizer Aerzte*, September 21), has made a series of experiments with the following provisional report: The experiment animals were chiefly male guinea-pigs and rabbits and the autopsies were held at all intervals from a few minutes to 16 days after death. In all cases of early death—within 24 hours—changes were found in the adrenals in both cortex and marrow. These comprised hyperemia and cortical parenchymatous alterations. The latter involved both the protoplasm and nuclei of the cells and extended as far as necrosis. If the animals lived beyond 24 hours the adrenals showed a remarkable augmentation in weight and size, due to alterations in the parenchyma. The cortex in these cases was hyperemic and often hemorrhagic. The lipoid content was notably diminished. The author seeks to explain these changes by the operation of a toxin. The condition of the adrenals in actual clinical cases in human beings agrees with the author's finds. The toxic theory is therefore upheld and its rationale is bound up in the intermediation of changes in the adrenals. The report does not give full details of the mode of causing death. Apparently, moist heat was employed, and doubtless under full analgesia.

Toxicity of Eggs.

From time to time, at least in France, reports of poisoning attributed to ducks' eggs gain credence. Discussing a recent report to this effect, Carles of Bordeaux (*Journal de médecine et de chirurgie pratiques*, September 25) says that it is now 40 years since Guyon announced the discovery in apparently sound eggs of bacteria, yeasts, moulds, and dust particles. Further investigations revealed the occasional presence of minute stones, grains, insects, worms, fragments of plants, and unique objects like the foot of a beetle. Such occasional finds need surprise no one, for conceivably they could enter the egg at the moment of fertilization and while the egg was still in the oviduct. All of the early studies were, so far as known, made on the eggs of the common fowl, but the method of life of the duck exposes it still more to such contamination. It is given to feeding and playing in polluted water, and fertilization naturally occurs in the midst of putrefying organic debris of all kinds. Copulation may actually occur under water, and the filthy liquid of cesspools and the like enter the female genitals. In theory, poisonous organisms could remain inert until the egg incubated, and under such circumstances eggs are not supposed to be eaten. Moreover, cooking should be sufficient to destroy all germ life. The inference is that insufficient application of heat must be responsible for poisoning. The eggs need not be raw, but the cooking may be of such nature that the germ-bearing portion of the egg is not sterilized.

Narcolepsy of Gastric Origin.

Since Gélineau first introduced the term narcolepsy to indicate "sleeping fits" due to an incoercible desire to doze, many different conditions have been described under this name. At present we have typical narcolepsy and various conditions in which a desire to sleep may be present. It seems evident *a priori* that any physiological state which prmotes drowsiness might supply a predisposition to attacks of narcolepsy. Even after a meal of moderate size taken by a normal subject there is a slight tendency to drowsiness which becomes much more pronounced after a heavy meal, or in dyspeptics. When sleep under such conditions is irresistible we have narcolepsy. The patient may fall asleep so abruptly that he may endanger himself or others. It is characteristic, however, of narcolepsy of whatever kind, that the attack is of brief duration. The victim never collapses, for he always has time to assume a posture suitable for sleep. He may even announce that he must doze for a few minutes, after which he will awake refreshed. He may be kept awake, or readily awakened. Hence there should be no likelihood of mistaking narcoleptics for epileptics of any kind. The digestive troubles are of no particular type—cases have been seen of alcoholic gastritis, hyperchlorhydria, atony, etc. In these patients indigestion is only a determining cause, but relief of the stomach mischief seems to lead to complete recovery. Possibly akin to these gastric cases are others in which a subject falls into an imperative sleep after indulgence in alcohol, but who wakes in a few moments completely sober, instead of passing into a stupor.

News of the Week.

Pryor's Naval Hygiene.—In the notice of this important work published in our issue of November 16, page 873, the author's surname was through error omitted in the transcript of the title, the name being given as James Chambers; it should have been James Chambers Pryor.

New Drug Commissioner.—Governor Whitman has appointed Frank Richardson, of Cambridge, N. Y., as Commissioner of Narcotic Drug Control. It had been expected that State Senator Whitney, of Saratoga County, would be named Commissioner, but the objection was raised that he was ineligible as a senator cannot be appointed to a State office during his term in the legislature.

Influenza in South Africa.—It was stated recently by Governor-General Buxton in Cape Town that there had been 50,000 deaths from influenza during the recent epidemic in South Africa. This figure included both whites and blacks.

New York Hospitals Report Deficits.—The annual report of the United Hospital Fund, which defrays in part the expenses of free treatment in forty-six hospitals in this city, discloses a substantial increase in the number of persons able to pay for their own treatment. The total service rendered by these forty-six hospitals for the year ended September 30 was 2,513,622 hospital days, an increase of 147,672. The receipts for the year were $183,778.34, a gain of $48,688.73 over the previous year. The increase, however, in the cost of material and labor has caused thirty-six of the forty-six hospitals to close the year with deficits aggregating $391,431.36, with a result that some of the institutions have been compelled to decrease their free service.

The Medical Society of the County of New York, at its annual meeting on November 25, elected the following officers: *President,* Colonel Charles Howard Peck, M. C., U. S. Army; *First Vice-president,* Dr. Charles H. Chetwood; *Second Vice-president,* Dr. George Gray Ward; *Secretary,* Dr. Daniel S. Dougherty; *Assistant Secretary,* Dr. J. Milton Mabbott; *Treasurer,* Dr. James Pedersen; *Censors,* Dr. William S. Gottheil, Dr. Gustav G. Fisch and Dr. Herbert B. Wilcox.

An Anti-Serum for Yellow Fever.—A letter from Dr. L. Becerra, President of the Board of Health of Guayaquil, Ecuador, to Dr. J. Cueva of New York, published in *The Sun,* announces the discovery of an anti-serum for yellow fever by Dr. Noguchi, who is working with the second Yellow Fever Commission of the Rockefeller Institute in Ecuador. Dr. Noguchi is said to have isolated the microorganism of yellow fever, and to have proved its pathogenicity by animal inoculation. Following this discovery, it is said further, he has been able to prepare a vaccine with which he has immunized horses against yellow fever. The progress made with the vaccine has justified the vaccination of the troops of Ecuador that must go down from the interior to Quayaquil where yellow fever has been prevalent. The confidence that Dr. Noguchi and the authorities of Ecuador have in the serum is attested by high honors conferred upon him. The Government and the city of Guayaquil are going to make him a public expression of thanks. The national Congress is going to confer upon him the honor of the title of Doctor of Medical Science of its universities, which will be the first time such title has ever been given to a foreigner.

American Physicians Honored by French Society.—The Societé medicalè des Hôpitaux has elected the following American physicians as honorary members: Drs. Beverley Robinson, Alexander Lambert, and Simon Flexner of New York; William S. Thayer of Baltimore; Morton Prince of Boston, and James T. Chase, chief of the radiological service of the American Army in France. The following British physicians were also elected to honorary membership: Sir Bertrand Dawson, Sir Almroth Wright, Sir William Leishmann, Sir Thomas Barlow, and Sir Thomas Duckworth.

Governor of Massachusetts Urges Precautions against Diseases brought from Europe.—Governor McCall of Massachusetts has sent a letter to Dr. Eugene R. Kelley, State Commissioner of Health, urging thorough preparations for combating possible epidemic diseases which may be brought back from Europe by returning soldiers. He has also written to the authorities at Washington urging that every precaution be taken to prevent such diseases as meningitis, bubonic plague, and cholera, which are prevalent in Europe, from being brought into this country by any of our returning men.

Safety Museum Changes Name.—The American Museum of Safety has been granted permission by the Supreme Court to change its name to the Safety Institute of America. The trustees announce the extension of the institute and the enlargement of its activities for the coming year.

Dr. Henry E. Pflug and Dr. Charles F. W. Horn have been appointed temporary Police Surgeons of New York City.

Drive for Jersey City Hospital.—A campaign to raise $100,000 has been launched for Christ Hospital, Jersey City. A considerable part of this fund is needed for a new building to house the nurses. Owing to the increased demands upon the hospital from war conditions, the executive committee estimates that this is the minimum sum required to continue the work of the hospital.

Dr. Braillon, professor of clinical medicine in the Ecole de médecine et de pharmacie at Amiens, died recently from an infection contracted from a wounded soldier whom he was attending.

Dr. Paul Lucas-Championnière died recently at the age of 73 years. He was editor in chief of the *Journal de médecine et de chirurgie pratiques,* now in its 89th year, which was founded by his father in 1830. At the decease of the latter in 1870 the periodical was edited jointly by an older brother and himself, the former dying in 1913. The editorship will pass under the control of two cousins who bear the name of Lucas-Championnière and doubtless will remain in the same family indefinitely. The leading feature of this journal is the excellence and timeliness of its abstracts, which often proceed from sources quite out of the ordinary channels of information, especially recent theses and bound books. Both original and abstracted articles have always been given serial numbers, so that the total to date amounts to 25,908. During the entire course of the war the "Journal Championnière" as it is termed by its French readers, seems to have undergone no change from its ante-bellum status.

Obituary Notes.—Dr. Joseph E. Corrigan of St. Leo, Fla., formerly of New York City, died at his home in St. Leo on November 28, aged 74 years. He was a graduate of the College of Physicians and Surgeons, New York, in 1871, and for many years house physician of Bellevue Hospital. He was one of the founders of the New York Foundling Asylum. Dr. Corrigan was forced to give up his practice in New York thirty-four years ago because of ill health. He was the father of City Magistrate Joseph R. Corrigan and brother of Archbishop Corrigan.

Dr. Linnaeus Jones Hunter, a graduate of the New York University Medical College, in 1889, died from pneumonia, at his home in New York, on November 27, aged 56 years.

Capt. Henry Guild Burton, M. C., U. S. Army (retired) a graduate of New York University Medical College, in 1869, died recently at his home in San Francisco at the age of 71 years. He was formerly clinical assistant to the chair of ophthalmology in the San Francisco Polyclinic and Medical Department of the University of California, and assistant surgeon to the Pacific Branch of the National Home for Disabled Volunteer Soldiers, Los Angeles. He entered the army as assistant surgeon in 1876, and was retired February 5, 1902.

Dr. Henry William Ross died at his home in Brooklyn on November 29, aged 69 years. He was a graduate of the New York Homeopathic Medical College, and one of the organizers of the Eastern District Homeopathic Dispensary.

Dr. JOHN P. ROWAN of Brooklyn, a graduate of the Long Island College Hospital, in 1898, and at various times attached to the staffs of the Brooklyn, St. Peter's, Holy Family, St. Mary's, and St. Catherine's Hospitals, died on November 27, aged 41 years.

Dr. JOHN G. WINKLEMAN, a retired physician of Brooklyn, died of heart disease at his home in that city, on November 24, aged 62 years. He was a graduate of the New York University Medical School in 1879 and formerly on the staffs of the Kings County and St. Catherine's Hospitals.

Obituary.

JOSEPH BIDLEMAN BISSELL, M.D.

NEW YORK.

MAJOR JOSEPH B. BISSELL, M. C., U. S. A., died at his home in this city on December 1 after a brief illness. He was home for the Thanksgiving holidays from Fort McHenry, Maryland, where he was chief surgeon, when he was taken ill.

Dr. Bissell was born in Lakeville, Conn., in 1859, and was educated at Yale College, where he was editor of the *Yale News*. He received his degree of M.D. from the College of Physicians and Surgeons of Columbia in 1883, and after serving as interne at the Charity (now City) Hospital he studied surgery in Vienna and Munich. He was professor of clinical surgery in the New York University and Bellevue Hospital Medical College, and had been visiting surgeon to Bellevue and St. Vincent's hospitals for twenty-one years. He was chief surgeon of the Radium Institute, which he established eight years ago, and was commissioned a Major in the Medical Corps of the army last July.

Correspondence.

CONSIDERATION FOR THE DRUG ADDICT.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Not only does the law for a Drug Commission in this State abrogate the confidential relations, long sustained in the courts, of professional privilege between physician and patient in the case of sufferers from drug addiction, but it compels also an equal violation of the rule of secrecy in every instance where opium or its derivatives have to be administered for any cause whatever.

On this account this law was pronounced to be unconstitutional by eminent private counsel consulted by the writer before appearing in opposition to this bill at the hearing given by Governor Whitman. This contention has been sustained since the passage of the bill both by the counsel for the Medical Society of the State of New York and by the counsel of the Medical Society of the County of New York.

Failing in every effort to protect the rights of the patient and the physician and with no apparent endeavor on the part of the organized medical bodies of the State to test this matter in the courts, a set of resolutions were presented to the Medical Society of the County of New York in the hope that the scientific laboratory and clinical investigation of drug addiction therein proposed might afford some measure of relief to an otherwise calamitous condition of affairs both to the physician and the patient. This presentment was based upon the findings of the Committee on "Narcotic Drug Investigation" of the Medical Society of the County of New York made and adopted March 25, 1918, in which it was stated that "After carefully considering the matter of drug addiction we have come to the conclusion that the addict is entitled to the same medical care vouchsafed any other diseased or afflicted person." The resolutions in question were presented and adopted unanimously at the regular meeting of this Society on November 25, 1918.

JOHN P. DAVIN, M.D.

NEW YORK.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE MINISTRY OF HEALTH BILL—ROYAL AIR FORCE MEDICAL SERVICE—PROPHECY AND INFLUENZA.

LONDON, November 8, 1918.

ON Thursday, November 7, the long expected Ministry of Health Bill was introduced by Dr. Addison. The bill proposes to establish a Ministry of Health and a Board of Health to exercise in England and Wales and Scotland respectively powers with respect to health and the local government connected therewith. The main purpose of the new measure has been accurately indicated in these columns more than once. It is to bring together under one ministry the chief departments dealing with the health of the people, so that we should no longer have the comical position now occupied by official medicine, namely, that authority resides (mainly though only partly) with the Local Government Board, most importantly with the Board of Education and the National Insurance Commissioners, but also with the Home Office, the Foreign Office, the Statistical Bureau at Somerset House, and even the Privy Council. The bill gives the new Ministry powers to bring under one roof the medical inspection and treatment of school children, the health duties of the Ministry of Pensions with regard to sick soldiers, the powers of the Home Office with reference to lunacy and mentally deficient, as well as the care and treatment of the impoverished sick and infirm now administered as part of the Poor-Law under the Local Government Board. With regard to Scotland the Bill brings together in precisely the same way as in England the different health services under a Board of Health responsible to the Secretary for Scotland, but the proposals of the Bill are not extended to Ireland, in view, said the optimistic Dr. Addison, of the belief that "Ireland would soon administer her affairs for herself." There was opposition on the first reading of the Bill, though the opposition did not go to a division, because the measure takes away, or appears to take away, from the National Insurance Commissioners their right to deal with questions of disease and ill-health, and this position will have to be made particularly clear on the second reading or in the committee stage. The National Insurance Commission represents clinical as opposed to preventive medicine, in relation to the more important third of the community —probably the proportion could be put higher, and there must be no doubt whatever under any Minis-

try of Health that this great block of State therapeutics is not altered save for the better. At the present moment the National Insurance Commissioners command the services of the Medical Research Committee, although the work of that Committee has been largely directed for the past four years in assisting to carry on the war. In the future the work of the Committee must be for the good of the State and must not work solely for any section of the community, however large and important. Lastly, those who anticipated any vast general scheme for erecting medical practitioners into a State Service will not find in the measure anything of the sort; but although a great many of their ideals will not be capable of accomplishment at once, there is nothing to prevent a State system of medicine arriving in the reasonable course of evolution.

The important post of Director General of the Royal Air Force Medical Service has been offered to Colonel Fell, a very distinguished and capable officer of the Royal Army Medical Corps, who is understood to desire to administer the service under the enlightened scientific system laid down by the Watson Cheyne report already summarized in a previous London letter of which I remind your readers.

On publication in *The Lancet* of the conditions of the Royal Air Force Medical Service evidence was obtained that those conditions, as embodied in the Watson Cheyne report, had been received with great satisfaction by the medical profession, as representing an improvement from the scientific point of view upon any terms hitherto offered to the medical profession when engaged on naval, military, civil, or administrative work. The partition of medical work of the Royal Air Force into two main branches, one having the care of the effective personnel and the other of the non-effective made proper room for the allocation of the medical officers to occupations for which they were fitted. The care of the effective personnel could under the scheme be undertaken by officers whose work had lain on the hygienic and preventive side of medicine, while it was here that the psychologist had his fruitful field of activity, by taking into consideration the physiological, but also the psychological, attributes of the candidate. The officers in charge of the effective personnel could be selected in special directions to make all the necessary investigations of the respiratory and circulatory systems of the flying officer, his special senses and visual reflex; while those officers who had studied the psychology of medicine could make proper inquiry into the "flying temperament," now recognized as an asset of incommensurable value. The fifteenth general condition runs as follows: Promotion to ranks above that of Captain in the R. A. F. Medical Service will be by selection to fill vacancies in the establishment. This means that the officers in the Royal Air Force Medical Service would be intrusted with subdivisions of medicine or surgery where they had shown special knowledge while a system of special merit, promotion, and pay would be instituted.

Early in August the Medical Research Committee issued to the medical press the following statement:

The pandemic of influenza has not spared any single part of Germany. The clinical course does not seem to differ from that run by the disease in this country. Relapses and fatal pneumonias are particularly noted. The clinical picture is declared to be identical with that of the last pandemic of 1889. A very striking observation has been brought forward and generally confirmed at a special meeting of the Munich Medical Union on July 9—namely, that persons under thirty years of age mainly fall victims to the disease; this was explained by a survival immunity in the elder generation. The meeting considered all the aspects of the epidemic on the basis of the hospital and university material of Munich. Pfeiffer's bacillus has been found but exceptionally; streptococci, and occasionally pneumococci, were recovered from the sputum, organs, and also blood of the patients. Similar findings were recorded in 1889, and thus the present results were in "keeping with the precedent." Pfeiffer's bacillus had not been found until 1892, although it should have been impossible to overlook it in 1889; thus it may be that it will yet turn up in due course. The editors of the *Deutsche medizinische Wochenschrift* have addressed a circular inquiry to all the leading bacteriologists in Germany requesting enlightenment as to the results of their laboratory investigations. Pfeiffer himself had reserved his final opinion as to the relationship of the pandemic with those of 1889 and 1891-92. He had not examined a sufficient number of cases at Breslau, but found his bacillus in some, while failing to recover it from others, and was still investigating the causes of this discrepancy. Gruber answered from Munich very simply: "Influenza bacilli not found hitherto—investigations proceeding." Ulrich Friedemann, who is in charge of the infectious wards of the Virchow Hospital of Berlin, expressed his belief that the symptomatology and complications of the epidemic correspond exactly with those described in 1889-90. He had not found the Pfeiffer's bacillus, streptococci and pneumococci being the most common agents of the complicating pneumonias. The influenza bacillus may be evading capture on account of faulty method of inquiry, yet on the other hand the possibility must not be overlooked that there may be epidemic diseases clinically resembling influenza of which Pfeiffer's bacillus is not the agent. Uhlenhuth has so far reported from Strassburg the same contradictory results as those of Pfeiffer. Kolle reported under date of July 18 from Frankfort his failure to detect Pfeiffer's bacilli in any of the few cases which he had thoroughly examined. In practically all cases there were found, however, large numbers of a Gram-positive coccus—often in a pure culture or in symbiosis with pneumococci. The diplococcus tended to develop involution forms and to grow in very long chains in the condensation water. He regards them as agents of a secondary infection in the "Spanish disease," which to his mind may not be identical with the pandemic influenza of 1889-1893. The finding of this pleomorph Gram-positive diplococcus is very interesting in view of the observations of Rosenow and his pupils in the United States.

This statement was published in *The Lancet* and the British *Medical Journal*, the latter paper sagaciously adding that the Committee, from whom the statement had been received, would be glad to receive further information on the subject. It is quite clear that the résumé of important communications on the subject of influenza included an indication of the likelihood of the onset of secondary waves of the epidemic in the Autumn. Moreover, there was contained in the résumé what almost amounted to a prophecy that those secondary waves would be more severe in character than the primary waves of the Spring. It is an unfortunate fact, however, that no practical attention was paid, so far as can be ascertained, to the prophecy; indeed, the fact that the prophecy had been made appears to have escaped the notice of the British clinicians and sanitarians. The preventive medicine of the country

is watched over and controlled from the Local Government Board, and while the epidemic was at its height a valuable circular was issued from that Board pointing out the anxiety of the position. But at that time the epidemic was at its height and to recommend certain general methods of prevention was belated. It stared all men in the face that the circular, which would have been exceedingly valuable two months previously as a warning, was behind its date as a therapeutic measure, for it gave the community details of the dangers which were already upon them and with which they were only too conversant. There is no doubt that prescience was not displayed in the exact quarter in which it might have been expected, but we cannot find that the gift of prophecy was very much displayed by any one outside the Board except the Medical Research Committee, and the warnings of that body fell upon deaf ears.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

INFLUENZA IN PARIS—CHANGES IN THE MEDICAL CORPS PERSONNEL—GAMES FOR SOLDIERS.

PARIS, November 4, 1918.

ACCORDING to the official statistics during the past week, there were 1,944 deaths in Paris, as compared with 1,465 in the previous week. The average figure at this time of the year is 721. Of the 1,944 deaths, 880 were put down to influenza. Precautions to be taken to prevent the spreading of the influenza epidemic are given in a report issued by the Epidemic Committee of the Seine Department. The following points are included in the report: Influenza may be transmitted from a person suffering from the complaint, when speaking or coughing, or even by touch. Contact with those who are ill should therefore be avoided. Persons who are taken ill should be isolated, if not possible at home by being sent to a hospital. Those in attendance need not keep at too great a distance. The objects for the patient's use should be disinfected. Attendants should wash their hands and rinse their mouths each time after looking after the patient. If the case is serious they should use a respirator over the mouth and nose. Gatherings of people both in the open and indoors, such as in churches, theaters, big shops, and trains, should be avoided and personal cleanliness should be strictly observed, especially as regards the mouth and hands.

According to information from medical officers, influenza, so far as the troops are concerned, is confined to the ports, and there the cases are being handled so carefully that there is practically no danger of its spreading to the troops at the front.

Major General Merritte W. Ireland, recently appointed surgeon general of the United States Army, to succeed General William C. Gorgas, retired, came to France as General Pershing's choice for chief surgeon of the A. E. F., and has accomplished excellent work in that capacity. Though his aides are congratulating him on his appointment, he regrets leaving France at this time. Col. Walter D. McCaw has been appointed chief surgeon of the A. E. F., pending official confirmation from the War Department. Colonel McCaw has had wide experience in medical administration, having been in charge of sanitation of troops on the Mexican border prior to his coming to France. Brig.-Gen. Jefferson Randolph Kean, who has been closely associated with General Ireland at the chief surgeon's headquarters, will, it is expected, continue in the same capacity in Washington. Maj. Thomas Hurley of the United States Army Ambulance Service with the French Army, is to-day receiving the congratulations of his fellow officers upon his promotion from a captaincy in the Medical Corps. He will leave next week to be the official liaison officer for the Ambulance Service.

One of the most difficult problems that the Y. M. C. A. is meeting in France is that of finding games suited to all sorts of conditions. The normal American sporting calendar is rich enough in good competitive athletics, but many of the games that flourish at home are not available in some of the areas in which America's soldiers are operating. Baseball and football, for example, are wonderful games, but they require skill, and that takes time to acquire, plenty of room, a big level field, a considerable amount of equipment, and the number of men that may play at a time is limited to eighteen and twenty-two respectively. Also it is necessary to have fairly expert officials in order that these contests be conducted successfully. What the army needs in many cases is a game that a large number of men play at one time, that requires a minimum of paraphernalia, little space, and that can be learned quickly and well enough to be enjoyed. Such a sport the Y. M. C. A. physical experts believe has been found in "Y" ball, a new pastime evolved this summer in the Red Triangle training schools in America, and now being played with great success by the Army in France. This game is a modification of indoor baseball. For the purpose to which it is put it has certain advantages over the regulation brand of that sport. As many as thirty men can play on a side. Every batter is practically sure to hit the ball, as it is merely tossed to him by one of his own side without "anything on it." The rules are very simple and the umpire need not be endowed with the wisdom of Solomon nor the eyesight of a hawk to be a thorough success. Anybody can learn to play this game in a few minutes. The action is constant and lively.

Progress of Medical Science.

New York Medical Journal.

November 23, 1918.

1. Nasal Complications of Epidemic Influenza. George W. Mackenzie.
2. Surgical Pathology of the Present Influenza Epidemic. J. W. Kennedy.
3. Clinical Observations of the Present Epidemic of Influenza in the U. S. Marine Hospital. Z. I. Sabshin.
4. Prophylaxis of Spanish Influenza. Bernard Frankel.
5. Influenza and Suprarenal Glands. Johannes H. M. A. Von Tiling.
6. Danger of the Mask for Protection Against Influenza. J. C. Minor.
7. A Wasserman Modification. Max Shaweker.
8. Clinical Report of Three Interesting Cases of Eye Injury. Dunbar Roy.
9. Carbolic Acid in Tetanus. D. Delfino.
10. Wound and Shell Shock and Their Cure. Fenton B. Turck.

9. Carbolic Acid in Tetanus.—D. Delfino reports a case of tetanus in which no result was obtained by the injection of antitetanic serum, but in which recovery followed the injection of 2 per cent. phenol in

sterile oil. Altogether the patient received 35 c.c. of the phenol, the dosage being 10 c.c., 15 c.c., and 10 c.c. on three successive days. A dermatitis developed which practically involved the whole face, the urine became scanty and cloudy and contained albumen and phenol; patient gradually became relieved of symptoms and made an uneventful recovery. Diagnosis in this case was not confirmed by bacteriological examination, but the patient was seen by at least ten physicians, who all concurred in the diagnosis of tetanus. The treatment of tetanus by phenol was tried with good results about twenty years ago by Baccelli, who used 1 to 2 per cent. carbolic acid in sterile oil, giving injections of 2 to 4 c.c. subcutaneously, and increasing the dosage finally to 75 c.c. daily. Maragliano claims a number of cures as a result of treatment with carbolic acid alone. The author states his intention of trying the remedy in other cases, since phenol was manifestly the cause of recovery in the case under consideration.

Journal of the American Medical Association.

November 23, 1918.

1. Multiple Infections: A Study of the Relation of One Infection to Another. William W. Duke.
2. The Treatment of Lye Strictures of the Esophagus. Thomas Hubbard.
3. The Nature of Surgical Shock and Henderson's Theory of Acapnia. A. Osorio de Almeida and Migul Osorio de Almeida.
4. Ocular Headache. J. W. Charles.
5. Tuberculous Effusion. Traumatic in Origin. H. A. Bray.
6. Observations on Three Cases of Scurvy. Vilhjalmur Stefansson.
7. Paralysis of the Sixth Cranial Nerve Associated with Otitis Media. John M. Wheeler.
8. Acquired Stricture of the Lower End of the Ureter. Robert H. Herbst.
9. The Rational Etiology and Satisfactory Treatment of Dacryocystitis. W. R. Thompson.
10. Poliomyelitis: New Developments in the After-Care and Treatment; Better Results in Response to the Demand. Charles Ogilvy.
11. Phagocytic Experiments in Influenza. Ruth Tunnicliff.
12. Epidemic of Bronchopneumonia at Camp Grant, Ill.; Preliminary Bacteriologic Report. Edwin F. Hirsch and Marion McKinney.
13. Clinical Observations on Influenza. Bernard Fantus.
14. Acute Vegetative Endocarditis with Multiple Secondary Foci of Involvement Due to Micrococcus Pharyngitidis-Siccae. Oscar T. Schultz.

1. Multiple Infections: A Study of the Relation of One Infection to Another.—William W. Duke points out (1) that when a person has several infections each may increase the severity of the others, whether due to the same or different microorganisms; (2) that acute exacerbation of one chronic infection may stir up other apparently latent infections into activity; (3) that the removal of one infection may under favorable conditions be followed by spontaneous healing or improvement in others; (4) that if minor infections are properly taken care of, those that appear more serious may yield more easily to treatment; (5) that chronic sepsis exerts a serious influence on the course of tabes dorsalis, and its removal is frequently followed by amelioration of the symptoms of this disease. The author cites cases in which the eradication of chronic sepsis in patients suffering from syphilis of the nervous system has resulted in marked improvement; he states, in fact, that as a therapeutic measure the removal of chronic sepsis in tabes dorsalis ranks in importance barely second to specific medication. The problem of multiple infections and the relationship that one infection bears to another may best be described under the terms allergy, protein sensitization, and anaphylaxis. Duke notes that of the microorganisms, the tetanus and diphtheria bacilli are the only ones that produce a true toxin. Allergy and its effects are well illustrated by the action of tuberculin, with the local, general, and focal reactions. The well-known principles of these reactions are true of infection in general and furnish an explanation of many interesting phenomena, *e. g.* why with the onset of a new infection, signs of irritation and inflammation may appear within a few hours at remote points; why an attack of typhoid renders a person sensitive to the protein of the typhoid bacillus, etc., etc. Whether or not this explanation applies in cases in which different microorganisms are present is open to question, since sensitization against the protein of an infecting organism is believed to be more or less specific. However, the fact is indisputable that infection with one microorganism may lower the resistance against other microorganisms to a degree that is by no means negligible. Apparently there exist two types of immunity—a specific and a non-specific immunity. The latter has been made use of by Miller and Lusk, Jobling and Petersen, and others, who have injected alien protein of different types (including killed typhoid bacilli) in the treatment of arthritis and other infectious diseases, with striking results. The reactions produced by the injection of alien proteins are often very similar to reactions that follow inoculation with the specific organism that causes the person's disease. It is not inconceivable that repeated inoculations with a non-specific virus might cause repeated reactions in inflammatory lesions due to other organisms and in this way do harm and cause an exacerbation of the disease. It is possible that one infection may exert a deleterious influence on lesions caused by other microorganisms, which might in part explain the cure of one infection by the removal of another infection in no wise related to it. Whether or not the explanations given are correct, a consideration of the relationship between infections often assists in the practical handling of the situation.

The Lancet.

November 2, 1918.

1. An Address on Spirochaetosis Icterohaemorrhagica. Delivered before the Section of Medicine of the Royal Society of Medicine. Major General Sir Bertrand Dawson.
2. The Harveian Oration on the Doctrine of Consumption in Harvey's Time and Today. Delivered Before the Royal College of Physicians of London on October 18, 1918. Percy Kidd.
3. On a Pyemia Due to Organisms of the Bacillus Coli Group Occurring in Turkish Soldiers. Captains J. J. Enright and P. H. Bahr, D. S. O.
4. Observations on a Small Localized Epidemic of Influenza with Special Reference to the Incubation Period. Majors Michael G. Foster and H. Anstey Cookson.
5. Supplement to a Note on "Acute Yellow Atrophy" (?). Ernest Glynn.

1. An Address on Spirochaetosis Icterohaemorrhagica.—Major-General Sir Bertrand Dawson describes first of all the spirochaeta icterohaemorrhagica. This organism was first described by Inada and Ido in 1914; it varies in length from 4 μ to 25 μ, with an average of 8 μ to 9 μ; the ends are sharp and pointed and in many cases hooked. Terminal flagella ending in circular knobs have been described. The spirochete was first cultivated by Ito and Matsuzaki, who, following the method of Noguchi, replaced the kidney of the rabbit by that of the guinea pig. Martin and Pettitt noted that an antiserum for spirochetal jaundice agglutinated the spirochetes, and the sera of convalescents was found also to possess this power of agglutination, and since the organism can be grown with ease, we have here a valuable diagnostic test. The clinical manifestations of the disease are usually sudden onset with shivering, head and body pains, great prostration, vomiting and diarrhea. Temperature, 102° F. or higher. The conjunctivae become injected and herpes, often hemorrhagic, appear on the lips in about 40 per cent, of cases. Bleeding occurs in severe cases; a slight hemoptysis early in the disease is a valuable diagnostic sign. Hemorrhage often precedes jaundice, which usually appears on the fourth or fifth day, but may be as early as the second or as late as the seventh day, and reaches its height about the tenth or twelfth day. Constipation is marked and stools may become clay colored. Usually there is tenderness of the upper abdomen. Tongue is furred and brown, and liver frequently enlarged. In severe cases there are evidences of acute bronchitis; respiration may rise to 28 or 30, and in fatal cases may resemble that met with in uremia. Pulse rate of 75 to 85 is usual. Systolic B. P. is about 120 mm. Early weakness and prostration are characteristic of the disease. Urine contains bile in abundance, which may persist for four or five weeks; albumin is usually present, and casts are common. Some French authors lay stress upon renal insufficiency. In acute cases, an irregular type of pyrexia persists for ten to fourteen days and ends by lysis. There may be a secondary rise of fever about the

beginning of the third week, which is difficult to explain. Convalescence is slow, but recovery is complete. From the morbid appearances of two fatal cases cited, it would appear that in some instances the infection localizes in the duodenum. In others, definite changes resembling those seen in subacute yellow atrophy are seen in the liver. Observations seem to show that the disease falls with varying force upon the liver, the changes varying from slight deviation from the normal to extreme disorganization. Changes in the kidneys also vary and in some cases are so marked as to approach necrosis. The spleen and pancreas show no departure from the normal, but peritoneal, subpleural, and subpericardial hemorrhages are common. Hemorrhages in the substance of the lung may resemble in size and constituency those met with in mitral stenosis. The disease resembles syphilis, another spirochetal infection, in that the same organs are not always attacked. The jaundice is caused by obstruction of the outlet of the common duct, or by interference with the drainage of the bile within the liver. Where there are no definite changes in the liver and no swelling of the duodenum, jaundice is absent. No evidence of blood destruction has been found in spite of repeated examinations. Comparing acute yellow atrophy and spirochætosis icterohæmorrhagica, a striking resemblance is found, and Dawson believes that what is styled acute yellow atrophy in the post-mortem room is the fullest anatomical expression of a destructive process which may be caused by several agencies, the *Spirochæta icterohæmorrhagiæ* among others. Of the laboratory animals the guinea pig is the most susceptible to the disease and in this animal pathological changes are very characteristic. The spirochete, which is found with difficulty in man, is abundantly present in the guinea pig, in the blood, the liver, the kidneys, the suprarenals, and the urine; they are excreted in the urine, feces, and bile, all of which are infective for the guinea pig (and man). Japanese and French workers have found the urine of patients infectious for guinea pigs, but Stokes and the author himself have failed to transmit infection in this way. The *Spirochæta icterohæmorrhagiæ* is found in the kidneys and urine of rats and Noguchi has shown that American wild rats harbor this organism and has also proved that the American, Japanese, and Flanders strains are identical. Coles found the spirochete in nine out of 100 rats examined in England. The disease is conveyed to man through water fouled by infected urine of rats; in Flanders the disease has been more prevalent in wet than in dry trenches and has appeared in endemic form. The evidence shows, therefore, that (1) this spirochete can be found in the peripheral blood stream of patients suffering from the disease; (2) injection of infected human blood into the peritoneal cavity of the guinea pig will produce a characteristic fatal disease in that animal, in whose tissues the spirochetes are present in large numbers; (3) the spirochete has been isolated in pure culture, and inoculated from such culture the guinea pig contracts the disease; (4) the disease has been produced in man by accidental inoculation from an infected guinea pig; (5) after the first fortnight of the disease the spirochete may be found in the patient's urine, and in the third week of the disease the patient's serum agglutinates the spirochete. The difficulty in diagnosis lies in the fact that in the early stages of the disease the symptoms may only be those common to several diseases and as the blood of the patient is only infective for the first few days (after the fifth day the chances of a positive result diminish and after the eighth day are few), and the jaundice does not usually appear until the fourth or fifth day. The opportunity of guinea pig inoculation may therefore easily be lost. In such event urine inoculation should be tried with a chance of success. Direct examination of the blood is not of much value, since the spirochetes are only present in the circulation for the first few days and even then only in scanty numbers. There remains the demonstration of spirochetes in the urine where they appear about the ninth and reach their maximum about the fifteenth day, disappearing about the end of the fifth week. The possibility of confusing the organism in question with urethral spirochetes of the meatal and refringens types may be eliminated by washing the glans and meatus and catching the middle portion of the urine in a sterile flask. Moreover, in healthy and in most sick people spirochetes are not excreted by the kidney, whereas in spirochætosis icterohæmorrhagica the causal spirochetes are always excreted in this way; in some cases of fever of unknown origin (P. U. O.), but excluding enteric, spirochetes other than those of spirochætosis icterohæmorrhagica are excreted.

4. **Observations on a Small Localized Epidemic of Influenza, with Special Reference to the Incubation Period.**—Majors Michael G. Foster and H. Anstey Cookson report a small series of cases (nine in number) of influenza observed in a surgical ward of the general hospital in France. There is no doubt in the minds of the authors that all these cases were influenza, both from positive bacteriological results obtained in two of the cases and from clinical observations. The following symptoms were presented by one or other case, and the duration of the illness was either long or short: (1) septicemia, (2), coryza, (3) bronchitis, (4) bronchopneumonia, (5) otitis media, (6) body pains, etc. In all these cases the incubation period was about forty-eight hours, and the cases in which possibilities of accurate observation were greatest were those which approximated most closely to a forty-eight-hour period. These observations illustrate two factors in the spread of influenza: (1) The narrow radius within which infection takes place; there were twenty-six beds in the ward and in the nine cases which occurred the infection spread from one bed to the next in rotation and was apparently stopped upon reaching empty beds which limited the cases on either side, the only exceptions being two cases which occurred on the opposite side of the ward. (2) The shortness and apparent punctuality of the incubation period. Both these factors help to explain the rapid spread of epidemic influenza.

British Medical Journal.

November 2, 1918.

1 Purulent Bronchitis Complicating Measles and Rubella. Lt.-Col. W. M. Macdonald, Major T. R. Ritchie, Lieut. J. C. Fox, and P. Bruce White.
2 The Differential Diagnosis of Scarlet Fever, Measles, and Rubella. Lt.-Col. J. S. Warrack.
3 Incubation Period of Influenza. Peter Macdonald and J. C. Lyth.

3. **Incubation Period of Influenza.**—Peter Macdonald and J. C. Lyth give the incubation period of influenza as forty-one hours (minimum), with a maximum margin of four hours, a computation based on personal experience. These authors both traveled from 5.30 P. M. to 9.30 P. M. on October 3 last with an officer who was coughing and sneezing and who informed them that he had had influenza for several days. On October 5, between 2 and 2.30 P. M., both of these observers suddenly developed typical attacks of influenza, both commencing with laryngitis. In one case the attack was mild, in the other more severe. The wife and two children of the latter also developed the disease, the first symptoms appearing suddenly about 2 P. M. on October 7. As infection probably did not take place until a few hours after the first symptoms observed by the author in his own case, the period of incubation was approximately the same as in the case of the authors themselves. A culture taken from the posterior nares of one of the authors on October 10 showed colonies of Pfeiffer's bacillus and the *Micrococcus catarrhalis*.

Crónica Médico-Quirurgica de la Habana.

August, 1918.

1 Our Medical Press. Juan Santos Fernandez.
2 Antirabic Vaccination in Cuba. J. Santos Fernandez and F. M. Fernandez.
3 Heterogenesis. Albert Preau Milice.
4 Pan American Notes. J. E. Lopez Silvero.
5 Medical Aspects of the War. F. M. Fernandez.
6 New Procedure for the Extraction of Cataract. B. Castresana.
7 Some Observations Concerning Trachoma at Cartagena. M. Obregón.

2. **Antirabic Vaccination in Cuba.**—J. Santos Fer-

nandez and F. M. Fernandez give a detailed description of the work of the Anti-Rabic Laboratory of Havana, that was established since 1887, or previously to any other in America. During that time 5,188 persons have been treated, and of these thirty-six have died from rabies. The percentage of mortality is 0.65. Dogs were the chief causes of infection, 4,712 persons having been bitten by dogs; next followed cats, 429 in number; horses bit nine persons, oxen, goats, and mules have six cases to their credit each; pigs, five; rats and rabbits, three; monkeys, two; squirrel, one; the ass one; five cases were inoculated by human patients. The method followed is the same as that of the Pasteur Institute of Paris.

Berliner klinische Wochenschrift.

September 23, 1918.

Constitutional Hypersensibility and Bronchial Asthma.—A. Besche offers a study of the case of a male having a hypersensibility in relation to horse-manure. This idiosyncrasy only became evident after injection of antidiphtheritic serum at the time of equitation or simply when the subject partook of sausages containing horseflesh. The blood of this interesting subject, when injected into a guinea-pig, caused the little animal to be hypersensitive to horse serum after the lapse of forty-eight hours. The anaphylaxis of the subject was also local. If he brought his finger, which had come in contact with a horse, in contact with the conjunctivæ the result was a mild edema of the mucosa touched. The writer has met with this ocular reaction in eleven cases of "equine asthma" that he has had under observation, and in yet another subject asthma occurred when a cat had been the pet. Certain asthmatic patients incriminate other domesticated animals as etiological factors of their paroxysms. Besche recalls the danger of antidiphtheritic injections in subjects predisposed to accident from equine anaphylaxis.

Death in Diabetic Coma Following a Traumatic Lesion of the Tail of the Pancreas.—K. Rochs has had a soldier under observation with a penetrating wound of the left flank from an exploding shell who was cachectic with a hyperglycosuria, acetonuria, and diacetic acid. At autopsy, the writer found traces of a missile track involving the splenic region and tail of the pancreas. The latter, viscous in its entirety, was the seat of an inflammatory process already arrived at chronicity, made evident by fibrous transformation and degeneration of the parenchyma. Death in coma occurred three months and a half after receipt of the injury.

Münchener medizinische Wochenschrift.

September 17, 1918.

Nerve Suture.—W. Spielmeyer, out of a total of 280 cases of nerve suture which were followed, selects 100 in which the postoperative time expired was not less than six months. He classifies the cases as follows:

	Successful	Improvement	Unsuccessful
32 cases of the radial nerve	11	11	10
12 cases of the ulnar nerve	3	1	8
16 cases of the median nerve	4	4	8
8 cases of the superior plexus	2	3	3
9 cases of the peroneal nerve	2	4	3
2 cases of the tibial nerve	0	2	0
21 cases of the sciatic nerve	1	11	9

The writer considers as successful the return of total motricity, even if still weak in certain territories of the nerve. He notes as improvement a marked return of the functions. He likewise notes the more favorable results obtained in suture of the radial, but the sciatic does not give such poor ultimate results as one might infer from the above table, because the number of cases noted as improved were, in reality, almost successful from the writer's viewpoint, although most American surgeons would not accept his reasoning as exact, and, all things considered, the total result, which only concerns direct suture, cannot be looked upon as joyful. Studying the histological modalities of regeneration, the writer defends his conception of proliferation and transformation of the cells of Schwann. He shows with microphotographs that total division of the nerve, followed by a cicatrix, does not of necessity constitute a permanent obstacle to regeneration. The fibrillæ force their way through the cicatrix in the most varied ways and finally end in a perfect functional recovery. A very early operation after division of a nerve is not logical, since regeneration takes place quite as well during the second three months as during the first few weeks following the injury. But the writer hastens to add that the clinical waiting time should not be prolonged beyond the lapse of six months. As to secondary operations in unsuccessful cases, the writer advises, as a general rule, to allow three years to elapse, as this time may be requisite in order to allow the results of the first operation to make themselves manifest. As to operative technique, Spielmeyer is of the opinion that actual apposition of the divided nerve is not essential. In cases of diastasis Berthe's procedure (nerve graft from a cadaver) is to be highly recommended. When a portion of nerve from a corpse cannot be had, uniting two nerves can be realized by incising the remaining intact nerve and bringing the flap over with its suture to the peripheral nerve.

Widal's Reaction: Can It Be Employed in Subjects Vaccinated Against Typhoid?—W. Liess says that coagulation of the paratyphoid bacillus accompanies more than 50 per cent. of vaccinated and unvaccinated cases of typhoid. This coagulation is absent in subjects who have been vaccinated for more than eight weeks and who have not developed typhoid. This property may render the Widal reaction applicable in vaccinated subjects.

Deutsche medizinische Wochenschrift.

September 19, 1918.

Stiff Knee Without Ankylosis Following Wounds of Warfare and Its Operative Treatment.—M. Katzenstein says that when a joint is stiff and not due to bony ankylosis, it may be the result of a mechanical cause or of a reflex action set up by the lesion, with pain on movement. The usual treatment of these cases has been rapid or progressive mobilization, but this procedure offers the drawbacks of the lighting up of a latent infectious focus or the production or accentuation of anatomical lesions. Katzenstein has resorted to operative treatment. After division of the ligament of the patella, the latter is retracted upward and the joint freely exposed. He next proceeds with the abrasion of the tissues which interfere with the movements, such as irregularities of the joint cartilaginous surfaces, ligamentous or fatty proliferations. The bone defects are covered in by fat or cartilage flaps derived from the joint itself. The patients operated on by the writer obtained movable joints and in no case did suppuration occur, regardless of the fact that the joint was closed at once with sutures, followed by mobilization a few days after the operation.

Extensive Xanthomatosis in a Case of Intense Diabetic Lipemia.—E. Hoffmann records the case of a soldier, aet. twenty-five years, with diabetes (60 per cent. sugar), who presented a multitude of small xanthomatous tumors, particularly over the extensor aspect of the arms and legs, on the face, buttocks, and prepuce, which resulted in phimosis. The tongue and conjunctivæ were not involved in the process. The blood was whitish and cloudy, this being due to droplets of cholesterin in suspension. There was also a marked lymphocytosis. Histological examination of the tumors showed the classical cells of xanthoma with deposits of a birefringent substance. A pleural collection which developed was also found very rich in fat. At autopsy, Ribbert discovered a striking paucity of the endocrine islands of the pancreas. It is to be noted that death was preceded by fever as well as by a marked decrease of the lipemia, a fact that Hoffmann explains by a more complete combustion resulting from the fever.

Wiener medizinische Wochenschrift.

October 5 1918.

The Leucocytic Formula as a Diagnostic Means in Infectious Diseases.—H. von Jagic wishes to replace the term "large mononuclear" by that of "monocyte," including the transitory forms. These "monocytes" and myelocytes arrested in their development and degenerated. The presence of myelocytes in the circula-

ting blood has little diagnostic value. The morphological changes of the fully developed elements are more important; swelling of the nuclei of the multinuclears in various infections and poor staining of the granulations in the same circumstances. The terms "lymphocytosis" and "lymphopenia" should be accepted in the strict sense and not in the percentage of white cells. The writer offers some considerations of a technical kind before passing to the question of the "blood formula and constitution." The cause of the changes of the leucocyte formula are not always to be attributed to the disease, since the soil upon which it develops may play a large determining part.

Neosalvarsan in Gonorrheal Cystitis.—Von Baar reports good results, particularly in "vagotonic subjects," as described by the Vienna school.

Correspondenz-Blatt für Schweizer Aerzte.

August 17, 1918.

Differentiation of Paroxysmal Tachycardia.—Roth states that while at first sight this should be easy, there are in reality different conditions which give rise to the same symptoms, so that interpretation is required. In its absence there can be no rational therapeutics. In the first place, the heart with this behavior may be normal or diseased. Paroxysmal tachycardia is closely allied to extrasystoles, the mechanism of both phenomena being related. The structures of the heart involved in both are the sinus, auricle, atrioventricular nodes and certain portions of the ventricle. The author goes so far as to state that the two phenomena are virtually one (*i.e. in the extrasystolic form*), not only in mechanism but in etiology. It is known that in arrhythmia perpetua paroxysmal tachycardia cannot be elicited (with the possible exception of ventricular or atrioventricular attacks of very rare occurrence). Disturbances of conduction stand in some relationship to paroxysmal tachycardia. Total atrioventricular dissociation prevents the development of ventricular tachycardia outright. The foregoing data show merely where the impulses are elicited, but throw no light on the casual factors. The nervous factors are vagus paralysis, accelerator stimulation, or both combined. The essential factor, however, is pathological irritability of the cardiac muscle fibers. The importance of the nerve mechanism in these attacks is shown by the presence of psychogenic forms. To better illuminate these conditions the author cites cases: A soldier of twenty-two years was found to suffer from palpitation. Over a year previous he had had follicular tonsillitis. Examination when free from paroxysms revealed nothing special. During a paroxysm he exhibited no dyspnea nor were there any evidences of dilatation. There was marked venous pulsation in the neck. The pulse was 225. Compression of the eyeball brought about a notable reduction in frequency, which held until the attack passed off. The patient ultimately recovered from these crises. From an analysis of polygrams under various conditions, including the use of atropine and adrenaline, the author decided that the tachycardia originated in the sinus. Of four other cases given in detail all were also examples of sinus tachycardia, which is therefore of common occurrence. The first three cases were typical, the others atypical. In the former sudden attacks of over 200 frequency, with feelings of anxiety and subjective palpitation, first heart sound audible at a distance and recurrent attacks constitute the picture.

Boletin de la Asociacion Medica de Puerto Rico.

June, 1918.

Dengue and Its Prophylaxis.—Figuera states that dengue is a malady of tropical and subtropical regions, contagious and of unknown causation. The symptoms are pyrexia, arthroneuromuscular pains, and a peculiar exanthem. It has had many popular designations, including those bestowed upon it in countries not commonly visited by it. But while in Spain it was known as the mild or gentle sickness; in Philadelphia it once received the designation of "break-heart" fever from the intense prostration which followed it. The Spanish name apparently meant nothing beyond the fact that there was no mortality; not that suffering was absent. At the present time its geographical incidence is given as follows: the Mediterranean regions of both hemispheres, from which it proceeds into the interior; the tropical and subtropical regions of Asia; the Malay archipelago. It is believed to be endemic in Egypt, Arabia, India, and to some extent in Central America and the Antilles. According to Bancroft the cause is an ultravisible germ and some intermediate host is necessary for its propagation. In Puerto Rico the mosquito is regarded as the host and there is good authority for this belief. Hospital patients protected from mosquitos have been seen to escape infection. The disposition to attack every one without respect to person is marked in dengue. The infection fairly radiates in all directions and this suggests mosquito propagation. The spread is also very rapid. The epidemiology agrees fairly well with that of yellow fever and differs radically from that of influenza. It respects high altitudes, which once more suggests a mosquito-borne disease. Even at a height of 600 meters, as in the Reunion Islands, the disease was unable to diffuse itself. It is eminently a disease of the litoral. The disease confers no immunity and the patient may be attacked two or three times in one epidemic. When the disease first appears in a community one has to exclude yellow fever. The course of the malady will soon do this. From grippe it is distinguished by the absence of catarrhal symptoms and by the peculiar exanthem. The latter appears on the extremities—hands and feet—and also on the trunk, neck and limbs and head. An initial redness is succeeded by fine papules which undergo desquamation and suggest scarlatina, which, however, seldom flourishes in the tropics. These scales have been regarded as conveying the contagion. In regard to prophylaxis one can seek a higher altitude, protect against mosquitos and, to be on the safe side, use antiseptics on the skin, as in Milnes's treatment of scarlatina.

Journal d'Urologie Médicale et Chirurgicale.

August, 1918.

Renal Lithiasis in a Urological Center for Troops.—Rochet and Boulouneix describe the cases of renal lithiasis which occurred at the Urologic Center for the XIV Region during the triennium, March, 1915-March, 1918. The total number was thirty-four, each case being given in detail. Infection was present in all but five cases. There were twenty-nine cases of renal, two of renoureteral and three of ureteral stone. In six cases the lithiasis was bilateral. The number of operative cases was ten, of which three were bilateral. The authors think thirty-four cases a good many, although one might readily get the impression that renal lithiasis is a rarity in men leading the lives of soldiers. These cases were largely of the silent type without history of renal colic, etc. The symptom which brought them to consultation was either hematuria or pyuria, or stone in the bladder. To explain the formation of stone and subsequent infection the authors cite the predominance of animal protein in the regimen, the hardships and the rough life on wagons and horseback. Infection is indicated by the supervention of pyuria. The general condition of the essentially robust men was not compromised by the calculosis, although the affected kidney was rendered partly insufficient in some of the material. The operation was always pyelotomy and it was impossible to state whether the function of the kidneys was completely restored thereby.

Third Reunion of the Chiefs of the Urological Centers.—This meeting, which was held in the autumn of 1917, discussed jointly the following subjects: Management of those with traumatized kidneys and ureters at the front and rear, and autoplastic procedures applicable to fistulæ of the urethra. Under the first head the following individual questions were debated: Contusions of the kidney, wounds of the kidney, operative intervention, wounds of the ureter, and military value of soldiers with old kidney lesions. The following were among those present: Cathelin, Luys, Pousson, Marion, Legueu, Rochet, Escat, Pasteau, Desnos, Le Fur, Nogues, André.

Book Reviews.

THE PHYSICAL CHEMISTRY OF THE PROTEINS. By T. BRAILSFORD ROBERTSON, Ph.D., D.Sc. Professor of Biochemistry and Pharmacology in the University of California. Price, $5.00. New York: Longmans, Green & Co., 1918.

THIS work was originally published in Germany, some six years ago. It now appears in English, with suitable additions, in the valuable series of monographs on Biochemistry issued by the same publishers. Among the new material which has appeared since the first edition was published, and which the author has incorporated in the present volume, may be mentioned Van Slyke's method of determining free amino groups, Pauli's work on the combining capacity of deaminized proteins, the work of Schmidt and of Ugglas on the compound proteins, Proctor's work on the swelling of protein jellies, the work of Reichert and Brown upon the crystallography of hemoglobin, and that of Dabrovsky upon the molecular volume of proteins dissolved in water and in solutions of coagulating salts. The present edition has been almost entirely rewritten, and at the end of each chapter there is a carefully edited list of the books and papers and literature in general bearing on the subject of the chapter; this bibliography has been brought down to the middle of the year 1917. The book is not one of general interest to the practitioner of medicine, but to the student of physical chemistry and of the biological sciences the work will appeal as a reference book in which may be found much of the recent work on the chemistry of the proteins which has hitherto been scattered widely throughout the medical, biological and chemical literature. Proteins and their derivatives are now being used in a number of important industries, their use here being attributable to their peculiar physico-chemical behavior.

A MANUAL OF OTOLOGY. By GORHAM BACON, A.B., M.D., F. A. C. S. Assisted by TRUMAN LAURANCE SAUNDERS, A.B., M.D. Seventh edition. Revised and enlarged. New York and Philadelphia: Lea & Febiger, 1918.

THIS is the seventh edition of Dr. Bacon's well-known manual, the previous publication bearing the date 1913. According to the Preface, Dr. Saunders has revised the chapters on adenoid growths, enlarged tonsils, submucous resection of the septum and suppuration of the labyrinth. To keep down the size of the volume some of the less important rhinological subjects are omitted. The book has been made available for the military otologist by the insertion of the Government tests for hearing. The present edition contains about 50 more pages than its predecessor, not counting the making good of certain omissions, and the additions in cuts amount to 25 per cent.

THE NORMAL AND PATHOLOGICAL HISTOLOGY OF THE MOUTH. Being the second edition of "The Histology and Patho-Histology of the Teeth and Associated Parts." Revised and enlarged by ARTHUR HOPEWELL SMITH, L.R.C.P., Lond.; M.R.C.S., Eng.; L.D.S., Eng.; Professor of Histology, Pathology and Comparative Odontology, University of Pennsylvania, etc., etc. Volume I, Normal Histology. Volume II, Pathological Histology. Price, $4.50 per volume. Philadelphia: P. Blakiston's Son & Co., 1918.

IT was well to make two separate books of this excellent work instead of enlarging the already cumbrous one volume first edition. While it is somewhat unusual for one writer to cover both normal and pathological histology, this seems permissible in a restricted field like that of the teeth and associated parts. The subject matter of Volume I comprises the histology of the teeth and oral tissues and the histogenesis of the teeth of all dentate animals. The volume is beautifully illustrated with 262 text figures.

THE section on pathological histology in the original volume comprised about 320 pages, while its successor, comprising Volume II, boasts of 469 pages. The number of chapters in the former—eleven—has been expanded to seventeen, the additions comprising as subjects pyorrhea alveolaris, degeneration of the periodontal membrane, diseases of the oral mucosa, odontoceles, dermoid teeth. As indicated by the changed title, the main innovation of the book is the incorporation of the oral tissues. The various changes in these two volumes make of this edition practically a new work, and it is one that can be confidently recommended as an authoritative treatise on oral histology and pathology.

THE A-B-C OF SANITARY HOUSE DRAINAGE. By DR. WM. PAUL GERHARD, Consulting Engineer. Price, 20 cents. Reprinted by courtesy of the Trenton Potteries Co., 1918.

THIS little booklet resembles at first sight a manufacturer's or dealer's trade catalog finely illustrated, but the absence of any proprietary names and devices and of quoted prices and the fact that some of the matter has appeared as magazine literature dispel the impression. The subject is one of exposed plumbing with especial reference to the sanitary requirements of countryside homes.

DENTAL AND ORAL RADIOGRAPHY. A Textbook for Students and Practitioners of Dentistry. By JAMES DAVID MCCOY, D.D.S., Professor of Orthodontia and Radiography, College of Dentistry, University of Southern California. Second edition. St. Louis: C. V. Mosby Co., 1918.

THE first edition of this work appeared in 1916 and was a duodecimo of 157 pages with 71 illustrations. It has been expanded into an octavo of 179 pages with 123 illustrations. The original 9 chapters have been increased to 11, the addenda comprising an introductory chapter and one on the indications for the use of the x-ray in the practice of dentistry.

CHEMICAL PATHOLOGY. Being a discussion of general pathology from the standpoint of the chemical processes involved. By H. GIDEON WELLS, Ph.D., M.D., Professor of Pathology in the University of Chicago and in Rush Medical College, Chicago. Third edition; revised and reset. Price, $4.25 net. Philadelphia and London: W. B. Saunders Co., 1918.

THE third edition of this extremely complete and valuable volume by a most competent authority has been entirely reset and largely rewritten. The very full bibliography has been enlarged and includes articles published in 1917. Hardly a page has escaped alteration and many of the chapters have been entirely changed so as to cover the results of the most recent research. The final section on diabetes has again been revised by Woodyatt. In its enlarged form the volume remains the best and most compact survey in any language of the subject of chemical pathology.

TRANSACTIONS OF THE AMERICAN SURGICAL ASSOCIATION. Volume the thirty-fifth. Edited by JOHN F. BINNIE, M.D., Recorder of the Association. Octavo of 616 pages with numerous illustrations. Printed for the Association. Philadelphia: William J. Dornan, 1917.

THIS volume of the Transactions contains the papers read before the Association at the meeting held May 31, to June 1 and 2, 1917. In accordance with the usual arrangement, after the Lists of Officers, former Presidents, Active, Senior, Honorary and Deceased Fellows, there are obituary tributes to six members who died since the previous report was published. These were: Alfred King, Joseph Ford Thompson, Sir Victor Horsley, Emil Ilessel Beckman, Vincenz Czerny, and Paul Monroe Pilcher. The remainder of the book contains the Address of the President, Dr. Samuel J. Mixter, and reprints of the thirty-seven articles which were read at the annual meeting, together with abstracts of the discussion.

WAR WOUNDS OF THE LUNG: NOTES ON THEIR SURGICAL TREATMENT AT THE FRONT. By PIERRE DUVAL. Authorized English translation. Price, $2.25. New York: William Wood & Co., 1918.

THIS translation of the original French comprises chapters on mortality from lung wounds, pathological anatomy of same, fatal hemorrhage, infection, operative treatment, urgent surgery of open thorax, operative technique, and end results. In the Appendix is a study of bacteriology. Under operative technique we find no mention of apparatus for equalizing pressure. Inhalation anesthesia is but little used. The thoracotomy technique of Willy Meyer of New York, with extensive rib resection, is recommended.

Society Reports.

AMERICAN PEDIATRIC SOCIETY.

Thirtieth Annual Meeting,

Held at Lenox, Mass., May 27, 28, and 29, 1918.

THE PRESIDENT, DR. LINNAEUS EDWIN LAFETRA OF NEW YORK IN THE CHAIR.

President's Address.—The Neglected Period of Childhood.—Dr. L. E. LAFETRA delivered this address, in which he said that the rejection by medical examining boards throughout the country of from 25 to 30 per cent. of men called as recruits, the study of the physical condition of men and women engaged in war industries, and the experience of the warring nations abroad, that under war conditions not only did the birth rate fall and the infant mortality tend to rise, but even older children suffered because of inadequate food and worsened hygienic conditions, had impressed on us the great danger to the nation's children. Already the effect of insufficient food was being felt in this country. In prompt recognition of this situation the Federal Child's Bureau had designated this second year of the war as "The Children's Year," and had inaugurated a campaign for the saving of 100,000 children's lives. This laid upon the members of the American Pediatric Society a special obligation. They should survey the whole field of child welfare work to see what links were weak and give their thought and effort to strengthening the weak places. The period of infancy and that of school age were the only ones that were at all adequately supervised. Prenatal work was now being taken up very extensively everywhere. But when one came to the pre-school age, the period of childhood from two to six years, very little had been done. When we looked among children of the runabout age we found only a small number that looked as well and strong as when they were babies. The impulse as regarded growth was only a little less strong during this period than during the first and second years, and during this period great and important changes were taking place in the brain and nervous system that might make or mar all the rest of the child's existence. It was highly important that the child's food at this time should contain just the right sort of building material for the highly organized protoplasm of these growing nerve cells. The heart also showed important changes at this period of life, and it was likewise true that at this age children were more susceptible to the diseases of childhood than at any other period. The essayist considered somewhat in detail other conditions that might manifest themselves during this period of childhood, such as general malnutrition, hereditary syphilis, tuberculosis, rickets, and backwardness of various sorts, including cretinism and Mongolianism. There were also nervous children, those with adenoid growths, malformed jaws, carious teeth, and enlarged tonsils, that should be cared for during this period. The removal of adenoids and enlarged tonsils was important because their presence encouraged serious complications should the patient later contract measles, diphtheria, influenza, or pneumonia. Acquired heart disease frequently had its inception during the pre-school age, usually following severe tonsilitis, or one of the severe infections. Whooping cough was most prevalent during the pre-school age and was often complicated by gastrointestinal disturbances or bronchopneumonia, and it predisposed to asthmatic bronchitis and to tuberculosis. Systematic vaccination against whooping cough had seemed in some instances to be of great value, and the speaker's experience was in favor of employing this vaccine. The first step necessary toward bridging this gap in our medical supervision was to make a survey of the whole situation. This had already been proposed for New York. A house to house canvass was to be made and the children were to be examined with special reference to the presence of malnutrition, enlarged tonsils, and adenoids, carious teeth, cardiac disease, rickets, and tuberculosis. Appropriate treatment would be advised and the effort would be made to educate the lay public, which was just now in a receptive frame of mind as far as the necessity of periodic examinations went and care of children before they entered school. The importance of protecting children against all sorts of contagious disease, including common colds, would be emphasized. In addition there should be established by the various out-patient hospitals and by the Department of Health, consultations for pre-school children, where the mothers could be taught about proper nutritious food, about clothing, cleanliness of body, hands, and teeth, and about the necessity for fresh air and sufficient hours of sleep. Incidentally such a survey would offer the opportunity to collect data on height and weight of normal children from two to six years of age. Studies of the nutritional requirements of these children when quiet and when at play should also be made. Provision should be made for better ventilation both of sleeping rooms and of rooms where children played. Roof playgrounds, as proposed by Dr. Northrup, would be an admirable solution of this need. When play grounds are furnished children should be compelled to play in the space provided, and not in adjacent streets, and certain blocks should be set aside as play streets where during certain hours no through vehicular traffic should be allowed. Children should not be permitted to play on streets where through traffic was allowed and they should be taught the dangers of the streets. They should be cautioned always to walk and not run across the street, and to look each way, particularly to the left, as they stepped from the sidewalk. The best way of supervising the child during the pre-school period would be to have the children of each district examined at regular intervals, preferably twice a year, at the nearest school in some room set apart for the purpose. Children in need of medical attention either because of undernutrition or special defects should be referred to hospitals or clinics for treatment.

Hæmoptysis Following Exploratory Puncture of the Chest.—Dr. AUGUSTUS CAILLÉ of New York read this paper, in which he reported the case of a child, six weeks old, admitted to the hospital in a markedly cyanotic and practically moribund condition, and giving a history that for the past two weeks she had suffered from symptoms of respiratory embarrassment. To make sure of the presence or absence of pus, an aspirating needle of moderate caliber was pushed into the seventh interspace, into the dull area of the right thorax, about three-quarters of an inch. This procedure was followed by a feeble coughing effort and a brisk hemorrhage from the mouth, and in less than a minute the child was dead. At autopsy the foramen ovale was found patent. Beneath the leaflet of the mitral valve there was an opening into the intraventricular septum about one-eighth of an inch in diameter. The cardiac musculature was about the same thickness on the right as on the left side. There was distinct consolidation of both lungs and marked congestion of the entire lung. There was an extensive hemorrhage into the right pleural cavity. No puncture of a large blood vessel could be made out, and there was no laceration of the lung tissues, as the specimen presented showed. Another fatal sequence to an exploratory puncture came under the writer's notice fifteeen years ago, in which after puncture and withdrawal of the needle a brisk hemorrhage from the mouth took place, and the child was dead within a few minutes. Fatalities from exploratory puncture were exceedingly rare. In the annals of this society now extending over thirty years no such instances were reported. In the writer's own experience of forty years, during which many thousands of exploratory punctures were made, the two cases just reported stood out prominently. The precise conditions under which a simple puncture might be hazardous should be carefully considerd. If a highly engorged lung were punctured a localized hematoma might result, and if, in addition, the clotting time of the blood were prolonged, as it frequently was in cachectic individuals with an acquired hemorrhagic diathesis, a free remorrhage into the pleural cavity or trachea might take place. The introduction of an exploratory needle into a thorax containing a highly congested lung was attended with some degree of risk when cyanosis and other characteristic signs pointed to cardiac or circulatory failure.

Breath Holding in Children.—Dr. ISAAC ABT of Chi-

cago presented this paper, in which he stated that breath holding might lead one to believe at first glance that the attacks were associated with laryngismus stridulus, but closer investigations would show that such assumptions were erroneous. The breath holding attacks manifested no true laryngeal spasm. The breath was restive or stopped suddenly in the midst of a crying attack, but there was no inspiratory spasm. The child usually worked himself into a rage, cried for a time, and then suddenly stopped, finding it impossible for a time to make any further sound. The child threw himself about or became cyanotic or pale; then the body became rigid and the eyes turned back or became set. For a moment it seemed that the child was asphyxiated. The attack usually lasted a few seconds and then disappeared. It might, however, continue for several minutes, and was sometimes followed by convulsions. Breath holding attacks were differentiated from minor epilepsy in that they followed immediately upon severe crying, excitement, or anger, while the epileptic attacks occurred suddenly in the midst of quiet play or even during sleep. Biting of the tongue which occurred in epilepsy did not occur in breath holding. Involuntary evacuation of the bladder or rectum might occur in both breath holding and epilepsy, and a long sleep might follow in either condition. The attacks of breath holding occurred in neuropathic children and were brought on by fear, anger, fright or some other psychic trauma. As a rule children subject to such seizures were irritable and ill tempered. The condition was frequently aggravated by neuropathic parents who feared the occurrence of these attacks and humored the child in every way. Children who fell ill with acute infectous diseases, or who by reason of accident or injury required surgical treatment, might be seized with a severe breath holding attack accompanied by general convulsions as a result of fright, and under such circumstances the attack might be so severe as to end fatally. Treatment should be directed toward the general management of the child. Stimulation should be avoided and the child should be ignored as much as possible by parents and friends. When the attacks occurred there should be no hysterical manifestations evinced by the mother or nurse. Cold water dashed into the face had been recommended as a direct remedy. Finally the patient should be shown in no uncertain manner that any repetition of the attacks would meet with harsh if not painful measures.

Dr. Rowland G. Freeman of New York cited a case of breath holding coming under his observation. The parents of the child were healthy, robust people. The attacks were sometimes prolonged until the child became unconscious. Two years ago the child had a cold and got one of these attacks, during which it became unconscious and died without recovering consciousness.

Dr. Percival J. Eaton of Pittsburgh described his experience with three boys belonging to one family who were subject to these attacks. There was a fourth boy in the family who did not have these rage spasms. He found that by forcing the mouth open and drawing the tongue out and then pulling the cheeks in some reflex was excited which relieved the spasm of the glottis. There was nothing in the psychology of these children to account for the attacks, and their parents were not neurasthenic.

Dr. Henry Heiman of New York stated that some of these cases were cases of simple breath holding, but there were other cases, borderline cases, which presented a condition very much like spasmophilia or Erb's phenomenon. Dr. Abt had described the correct treatment for breath holding.

Dr. Abt, in closing, said that none of these cases occurred until about the second year, whereas spasmophilia manifested itself earlier; he therefore felt confident that these were not cases of spasmophilia. Of course one could have spasmophilia without the classical symptoms. These children described in the paper were first of all ill-tempered; would have short crying spells, and would then develop the attack. There was not sufficient ground for saying that they were cases of spasmophilia.

Dr. L. E. LaFetra said that we all met these cases and the important point was that we had assumed that we could assure the family that these children would not die as a result of their breath holding. We had now heard of an instance in which a child did die as the result of such an attack. However, he felt that they were pretty safe in making the statement that these children were not going to die as a result of these attacks; they were ill-tempered, lacked self control, and had a nervous inheritance. They were comparable to the children who could vomit at will. Neglect and punishment was the proper method of treatment.

Death from Cardiac Failure in Children, Unexplained by Post Mortem Examination.—Dr. John Howland of Baltimore read this paper, in which he said that a certain form of cardiac disturbance in adult patients had been recognized, which resulted in death with marked evidence of circulatory failure, but with no other changes to be made out other than great cardiac hypertrophy and more or less dilatation. The hypertrophy was the striking feature. The musculature was intact. The writer had not been able to find any thorough discussion of this condition in adult medicine, and none in pediatric literature. His attention was first attracted to the subject by a patient who came under his care when three months old, suffering from extreme malnutrition, largely due to the fact that she regurgitated her food. She was finally discharged in a fair condition at the age of eleven months. She continued to gain until 15½ months of age, when she began to have marked respiratory distress with an expiratory grunt. Her temperature was normal but respirations and heart action were rapid. It was made out by physical examination and confirmed by *x*-ray that her heart was greatly increased in size. She eventually died from circulatory failure without edema, one month after the onset of her symptoms. At post mortem nothing was found beyond a very much enlarged heart, which weighed 100 grams, the average weight of the heart for this age being 46 grams. All the other organs were normal. Dr. Howland reported three other somewhat similar cases. He said that an explanation for the cardiac hypertrophy had been sought elsewhere in the body, but none of the conditions with which cardiac hypertrophy occurred was present in any of these cases. The myocardium in all of the cases reported by the speaker was normal. There might have been some disturbance on the part of the nervous mechanism of the heart akin to that present in Graves' disease. There was reason for believing that as the result of some nervous or muscular disturbance there was incoordinate action of the heart, and this for the reason that loud murmurs might be heard, not as the result of valvular disease as shown by post mortem examination and apparently not due to extensive dilatation of the valvular orifices. The writer believed that in its milder grades this cardiac condition was more frequent than was suspected, for he said he could distinctly remember patients from two to four years of age with enlarged hearts and with the symptoms of acquired cardiac disease, as opposed to congenital disease, in whom it was impossible to demonstrate any etiological cause.

Dr. Charles Hunter Dunn of Boston recorded a case similar to those described by Dr. Howland. This baby suffered from marked cyanosis and cardiac insufficiency and a diagnosis of double pleurisy or hydrothorax was made. The *x*-ray showed that this was a cardiac case. It was thought to be one of pericarditis with effusion. The outline of the heart extended to the lower portion of the chest wall on both sides, being much larger in proportion to the size of the child than those shown in Dr. Howland's plates. As in Dr. Howland's cases, the heart muscle was normal and there was nothing to explain the hypertrophy.

Infantilism, with Reports of Two Cases Illustrating the Brissaud and Frölich Types Respectively.—Dr. J. P. Crozer Griffith of Philadelphia presented this paper. He expressed the opinion that the term infantilism should be applied not only to adolescents or adults who possessed in some degree the bodily and often psychic characteristics of infancy, but to children of any age in whom there was a persistence of characters, especially sexual, which belonged to a period of life decided earlier than the actual age of the patient. A sharp distinction should be drawn between infantilism and nanism. The first case reported was that of a child, seven years of age, Italian, who entered the

Children's Ward of the Hospital of the University of Pennsylvania on January 12, 1912. When one and one-half years of age she had an attack of whooping cough and since that time she had not grown any physically, although the parents thought she was normal mentally. She frequently cried and complained of pain. Physical examination showed short extremities in comparison to the size of the thorax, and the legs were slightly bowed. The child walked with a wobbling gait. She weighed 20 pounds while the normal weight for her age was 49 pounds. Her height was 29 inches, the normal for her age being 45 inches. The chest was short and full and there were slight subcutaneous fatty deposits in the supraspinous fossa. The abdomen was much distended resulting in a distinct costal flare and producing a compensatory lordosis of the spine. During the patient's five months' stay in the hospital she gained one pound and showed a slight increase in measurements, but no very material change. During her early stay in the hospital thyroid extract was given. On May 3 the thyroid extract was discontinued and pituitary given until May 27, in doses of one grain, three times daily. The suggestive symptoms of infantilism of the Brissaud type were moderate harshness of the skin, bowing of the legs, prominent abdomen and the moderate deposits of fat over the scapulæ, all of which pointed to hyperthyroidism, not of a degree to produce cretinism, but sufficient to make the cretinoid. The *x*-ray findings were negative, there being nothing in them to suggest achondroplasia, nor were there any other symptoms of this affection. The second case occurred in a male, 11 years of age, who was admitted to the hospital for excessive obesity. The tendency to undue deposit of fat had been noticed by the parents since the child was 11 months of age. This had been gradually progressive and did not seem to be influenced by diet. The boy was five feet in height, the normal for his age being four feet; he weighed 251 pounds, the normal for his age being 70 pounds. The boy walked with a distinct limp, his abdomen was very fat, and his penis was buried in fat and was very small for the rest of his development. The *x*-ray examination of the head showed the sella turcica distinctly smaller than normal, indicating a small pituitary body. The boy had a marked sugar tolerance; after the administration of pituitary extract there was a decrease in the sugar tolerance. After a little less than four months' stay in the hospital the boy was taken home, having lost only 17 pounds. This was an excellent instance of pituitarism of the Frölich type, except in certain particulars. The infantile character of the sexual organs, the great obesity and its distribution, and the tolerance to carbohydrates were positive indications. On the other hand the subjects of Frölich's syndrome often exhibited a retarded skeletal development, while this patient possessed a decided overgrowth. This might depend on excessive action of the anterior lobe combined with insufficiency of the posterior lobe. The excessive action of the anterior lobe was the condition which, if developed in later life, would result in acromegaly, but appearing earlier, as Brissaud suggested, produced gigantism.

Dr. CHARLES HERRMAN of New York deplored the loose way in which the term infantilism was employed. The term infantilism had been used for all forms of dwarfism. He thought it might be better to use the term dwarfism for retarded growth and infantilism to designate an absence of secondary sex characteristics. It was a good plan to examine the metacarpal bones. Some of these patients showed marked improvement under thyroid treatment. The tendency was to give pluriglandular extracts.

Dr. GRIFFITH said that the bones were examined and nothing abnormal found in the first case. In the second case only the bones of the skull were examined. He thought the term infantilism was pretty thoroughly defined and that it had been accepted as designating a slowness of development and not of growth.

Head Shaking with Nystagmus in Infants. A Study of Sixty-four Cases.—Dr. CHARLES HERRMAN of New York presented this communication. He stated that this condition seemed to be more common in some countries than in others and was certainly more common in large cities as was shown by a study of the statistics of both European cities and of New York and Philadelphia. The figures in New York City indicated that the condition was met with in about one in every seven hundred infants coming under treatment. The number of cases varied markedly in different years and was more common among negro than among white children in New York. This was probably due to the poorer hygienic conditions and the greater prevalence of rickets among colored children. Females were slightly more frequently affected than males, there being 29 males and 35 females in the series reported. The disease showed a distinctly season incidence, nearly 70 per cent. of the cases occurring in December, January, and February, and apparently bore a direct relation to the number of hours of sunlight. It was most common between the ages of four and twelve months, 75 per cent. of all cases occurring at that time. The writer's youngest patient was four weeks, and the oldest four years of age. In very few of the cases was there a distinct neuropathic history. The character of the feeding seemed to have no direct relation to the disease, though, as might be expected, the rachitic manifestations when present were more marked in the artificially fed infant, so that, to a certain extent, such infants were somewhat more predisposed to headshaking. Previous illness, by lowering the vitality, was apparently an etiological factor in those infants that were already predisposed. The author had not been able to convince himself that teething played an important rôle in the etiology of the disease. Trauma might be an exciting cause in a predisposed child. Hygienic conditions, social position and the location of the rooms played an important part in the etiology; head shaking in large cities had been found to be more common among those who lived in the poorer tenements and among families living in the basement and on the first floor. In 55 of the cases in this series the character of the rooms could be accurately ascertained, and in 40 of these the infant was more or less in the dark. But with reference to darkness as an etiological factor we must also assume an individual predisposition. The same predisposition had been noted in miner's nystagmus. During the past 11 years the writer had studied the same class of people at the Lebanon Hospital Out-patient Department in the Borough of the Bronx as he saw from 1899 to 1901 at the Good Samaritan Dispensary, on the Lower East Side of New York, and he found that the disease was more common in the latter section, due principally, in his opinion, to the fact that in the Bronx the majority of families lived in better lighted and ventilated rooms. Head shaking was apparently about twice as frequent among rachitic children as among others. Cases of nystagmus were rarely associated with laryngismus stridulus, facial irritability, tetany, or convulsions. The pathogenesis of the condition was still somewhat of a puzzle. The writer, in considering the pathology of these cases, accepted as a fact the obvious relation of the head and eye movements and believed that in the progress of the medullary development of the nerve supply, which was going on at great rapidity at this age, was interfered with by disturbance of nerve nutrition. In this series of cases the movements of the head were primarily horizontal in 44, vertical in 12, rotary in four, and horizontal or vertical at different times in four. In this series of cases the movements of the extremities described by Still, Thomson, and others, were not observed. In 35 of the cases the nystagmus was bilateral, in 23 unilateral. The movements of the eyes in these cases were very much more rapid than the movements of the head, about 200 to 300 per minute. The prognosis was good. The treatment should aim to improve the hygienic conditions and provide light. Any source of peripheral irritation should be removed, the diet regulated, and digestive disturbances corrected. Codliver oil and codliver oil and phosphorus should be administered to those infants presenting rachitic symptoms.

Dr. AUGUSTUS CAILLÉ of New York recalled that twenty-five years ago he had read a paper before this society on this subject in which he had demonstrated that if the child's eyes were tied up the head nodding would stop.

Dr. HERRMAN said he wished to state that he had

given Dr. Caillé credit for the point he had just made. He had found that in every instance in which the child's eyes were tied up the head had stopped nodding.

(To be continued.)

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held October 4, 1918.

DR. SETH M. MILLIKEN IN THE CHAIR.

Compound Fracture of the Tibia, Fibula, and Femur in a Young Child; Nail Fixation.—Dr. LUCIUS A. WING presented this patient, a little boy six years of age, who was admitted to St. Mary's Hospital for Children on July 18, 1918. He had been run over and in addition to minor injuries had sustained compound fractures of both bones of the leg and of the femur, three inches above the knee. The skin of the leg was badly lacerated and also the gastrocnemius muscle, and the child had lost much blood. Owing to the extensive lacerations the application of splints did not seem feasible. Dr. Farr suggested the Steinmann nail and repair was effected by the nail placed through the os calcis. The extensive lacerations prevented the use of the traction apparatus and hence the leg was lightly suspended. The lacerations were treated with Dakin's solution. The injuries were not dressed until eighteen hours after they had been inflicted. The leg was retained in suspension from July 18 to August 19. A spica was applied in such a way as to leave the leg from the knee to the ankle exposed so that it could be dressed. The *x*-ray showed that there was some actual lengthening of the limb as compared with the opposite side. *X*-ray pictures were taken ten days after the suspension was applied and last week were exhibited for comparison. The boy had made an excellent recovery and, though he was not yet walking, he would walk in a short time.

Dr. FENTON B. TURCK said he was interested in Dr. Wing's case because he had had a number of similar cases in which shock following injury was as severe as in this child. This boy had been run over and eighteen hours afterward was still in such severe shock that it was necessary to give him subcutaneous injections of salt solution and to employ extreme care in the administration of an anesthetic. Dr. Wing was very fortunate in having had such a successful outcome in this instance for where there was maceration and destruction of tissues there occurred at once autolysis, a rapid digestion of tissue substance, which on absorption of these products produced the phenomena of shock, with venous stasis in the splanchnic area, and this led to a higher viscosity of the blood. Hence thinning the blood in such cases was very useful. He had had a case with a pulse of 160 to 170 and put in 30 c.c. of a shock antitoxin serum made by injecting a horse with autolyzed human tissue, and this caused an immediate reaction and relief from the shock. The following day a second injection was given and the patient made a rapid recovery. Several other cases of a similar nature treated in this way had immediately responded to the serum, and he believed this was one of the most effective agents in rendering the blood less viscid and preventing autolysis. In a second case of gangrene, due to the *Bacillus aerogenes capsulatus*, Dr. Turck stated that he had injected a mixture of human tissue on which was cultured this organism and the colon bacillus into a horse, and this gave a different serum than the former bacillus alone, producing an antitoxin of higher potency and more readily preventing autolysis and hence preventing the gas bacillus from growing in the autolyzed tissues. He had not only used this antitoxin against gas bacilli but (by adding streptococcus cultures to the antigen) also had found it effective in streptococcic infections. He had been working on this problem for several years and thought his results would prove a most useful and valuable addition to surgical work.

Amputation of Hand Except Thumb After Compound Fracture of Metacarpals, with Gas Bacillus Infection.—Dr. WESLEY GROVE VINCENT presented this case. The patient was an automobile mechanic, 25 years of age, who was admitted to the Harlem Hospital on June 23, 1918, with the history that while repairing an automobile the screw-jack under the car slipped, catching his left hand and cutting through the upper part of the hand. The skin and tendons were cut through and the metacarpals fractured, the thumb alone escaping injury. Upon admission to the hospital the hand was very dirty and greasy and some attempt at cleansing the injured area by iodine sterilization was made by one of the house staff and a wet dressing was applied. The temperature on admission was 98° but later dropped to 97°, then gradually rose to normal and on the following day reached a degree or two above that point. It was supposed that this would be a suitable case for tendon suture, but when the dressings were removed in the operating room it was found that the blood supply to the dorsum of the hand had been almost completely cut off and that the parts below the line of compound fracture were fast becoming gangrenous and were infected with the *Bacillus aerogenes capsulatus*, as shown by the crepitation under the skin and the air bubbles at the cut surfaces, and later by bacteriological study. Consequently a palmar flap reaching nearly to the digitopalmar fold was cut and dissected up, hugging the anterior surface of the metacarpals, to the points of fracture; a few snips of the scissors then completed the amputation. With the scissors and rongeurs all frankly gangrenous and contused tissues and stumps were removed until free oozing of blood was encountered. There did not appear to be any gas bacillus infection of the proximal tissues (above the line of traumatic incision) when the field had been cleared of damaged tissues, so operation at a higher level was not considered necessary. The field was flooded several times with peroxide, the flap was left unsutured, a large wet dressing was applied, and instructions were given that the hand and arm were to be kept immersed in 1-3000 permanganate solution. The temperature shot up to 104° F. that evening, dropped to 101° the following day, and then ranged between 99.5° and 101° for the following four days; it then gradually declined to normal. By July 9 the wound had cleaned up sufficiently to allow revision of the stump and skin graft. A few necrosed spots in the skin edges were trimmed away and all unhealthy areas were excised. The entire field was then swabbed with 7 per cent. tincture of iodine, followed by alcohol and saline solution. The skin edges were freshened and the palmar flap was brought up as far as possible and tacked by two silk-worm sutures. Thiersch grafts were then applied to the remaining raw surface. These were covered with sterile rubber tissue which had been folded twice and cut with straight scissors nearly the full width of the folded piece at intervals of about one-quarter inch, so that secretions were easily absorbed by the overlying gauze, but the gauze did not come in contact with the grafts themselves at any point. Practically all the grafts took and the patient was discharged from the hospital on July 22, at which time epithelialization was practically complete.

Dr. MILLIKEN asked Dr. Vincent if a culture had been made in his case and the gas bacillus found.

Dr. VINCENT said that a culture had been made and the gas bacillus was identified. He said he wished to call attention to one point in reference to the application of the rubber tissue. He took a piece of rubber tissue, folded it upon itself two or more times, then took straight scissors and cut the rubber tissue at intervals perpendicular to the folded edge and nearly as far as the other edge, and then placed it over the graft, so that there was no point at which the gauze touched the graft and yet the openings in the rubber tissue permitted of drainage and the gauze over the rubber tissue absorbed the secretions. This point was valuable in the treatment of most ulcers, especially leg ulcers. If they were dressed in this way one did not take off part of the granulations when one removed the dressing, and the ulcer would then heal much sooner.

Echinococcus Cyst of the Liver.—Dr. JOHN COLIN VAUGHAN presented this patient, a Greek woman 35 years of age, admitted to Bellevue Hospital on November 5, 1917. She gave a history of having had a still birth one week before admission, following which she had developed a pain in the right side and shortness of breath. She came to this country about a year ago and shortly afterward developed a pain in the right

side and a cough. Her health previous to this time had always been good. A physician had introduced a needle and withdrawn a large quantity of watery fluid. Physical examination at the time of admission to the hospital showed the woman poorly nourished, dyspneic, restless, anxious, and appearing ill. Examination of the lungs showed harsh breathing on the left side, the left lung being otherwise negative. The upper right lobe of the lung was clear. Below a line extending from the inferior angle of the scapula through the nipple in front the chest was flat with the absence of fremitus, breath, and voice sounds. Over this area there was tenderness on pressure. Examination of the heart showed the apex in the fifth space, the sounds loud, clear, and booming, and the muscular quality fair. The abdomen showed an oval swelling in the right upper quadrant. The liver was four cm. below the costal margin, smooth and tender. The spleen was not felt. The uterus was palpated above the symphysis and was tender, soft, and boggy. There was a moderate purulent vaginal discharge. The lips were dry and parched, the tongue dry and coated. The temperature was 103° F., respirations 28, and pulse 130. The diagnosis was abscess of the liver, sapremia, and pleurisy with effusion; on November 7 a needle was inserted into the chest under local anesthesia in the fifth interspace and 39 c.c. of clear watery fluid was obtained, apparently under pressure. Examination of this fluid showed red cells and a few white cells. The blood culture was negative. The fluid showed no reduction of Fehling's solution and no cholesterin. The impression was that the patient had an echinococcus cyst of the liver or a subphrenic abscess. On December 6 a needle was inserted in the sixth interspace and three and one-half ounces of light greenish fluid was obtained. Hooklets were not present, nor was there any bile present. No ova were found in the stools. The patient was *x*-rayed and it was found that she had a high diaphragm on the left side. She was transferred to the medical side, where a little later hooklets were found and the fluid was seen to reduce Fehling's solution. The fluid contained no albumin and very few cells. The patient was operated upon on December 13. A part of the ninth rib was removed and the liver sutured to the abdominal wall. The liver was found smooth and tense and the wall very tough so that it was sutured with difficulty. Several quarts of cysts and daughter cysts were taken out. The cavity was thoroughly cleansed and flushed out several times. There seemed to be very little liver substance left. A pear-shaped body was found which was thought to be the gall-bladder and from which bile was obtained. Large drains were placed and the patient returned to the ward. A great deal of serous fluid and later bile was drained through the wound. The stools became light in color though they were never clay-colored. Some bile continued to be discharged until January 23 when it ceased and only a small amount of light purulent fluid drained away. No cysts were discharged after the operation. The pathological department reported that the specific gravity of the fluid was 1,096, albumin 1.53 per cent., and sugar 53 milligrams per 100 c.c., running rather high for an echinococcus cyst. The microscopical examination of the cyst wall showed a laminated appearance. It was apparently made up of granulation tissue and what appeared to be granulation tissue. After leaving the hospital the patient continued to drain until April 2, when the wound was allowed to heal. There was at the present time no enlargement of the liver and physical examination was negative.

In reply to the question as to whether he had found an eosinophilia in his case of echinococcus cyst of the liver, Dr. Vaughan said that blood counts were made but they were somewhat clouded because of the sapremia, but the eosinophile count was never very large, being below one per cent. It was said that echinococcus cysts were quite frequent in countries where the people were closely associated with dogs. The speaker had spent two years in the Arctic region where the men were constantly associated with dogs but no instance of echinococcus infection had come under his observation. He had during this experience found every kind of parasite—tapeworms, flukes, etc.—but never an echinococcus infection, so he was inclined to think that an infection of this kind derived from a dog was more or less accidental.

Dr. MILLIKEN recalled a case of echinococcus cyst of the pleura coming under his observation. The patient came into the hospital in June, 1917, and thinking that he had an empyema, the house surgeon aspirated him but got only a dry tap. Later Mr. Milliken aspirated him and said that he too obtained only a dry tap. The man's condition was not sufficiently serious to warrant an operation so he was transferred to the medical side. Dr. Henry Thatcher aspirated and obtained the characteristic fluid containing hooklets. He was then operated upon, through an intercostal incision, using the Lilienthal retractors. An echinococcus cyst was found about the size of a polo ball and a similar sized sacculated empyema next it. After the removal of these an enormous cavity was left. The lung did not expand at the time of the operation, but came down later. The cavity was drained for five weeks and then gradually healed, the patient making a good recovery.

Dr. WILLY MEYER called attention to several interesting points in connection with this case. The first point was that aspiration was always risky, though in some cases it could not be avoided. The second point was the way of attack; he thought the only proper way was to go through the pleural cavity. In doing this it was a great help to put a pillow under the patient's back so as to produce a convexity of the thorax and upper abdomen. The third point of interest in this case was the continuous discharge of bile which persisted for quite a time. It was this feature which prompted him to inquire as to the character of the cyst wall. Sometimes it was possible to peel out small cysts just as one peeled out the gallbladder from its bed, but this could not always be done with larger cysts. Dr. Meyer recalled a case of echinococcus cyst coming under his observation some years ago which was only drained and treated with antiseptics for two weeks and all seemed to be going well, when there was a rise in temperature and a few days later the cyst wall came into the wound and the entire cyst was then removed. This illustrated very nicely how nature sometimes came to the rescue. Dr. Meyer asked whether the pathological report was on the wall of the whole cyst or of one of the smaller cysts.

Dr. VAUGHAN said that the report was on the parenchymatous cyst wall. The inner wall was granular in type, but it was not granulating tissue. It was from this layer that the heads of the daughter cysts grew. It was well known that if a cyst ruptured there was rapid absorption of the toxins present in the fluid and that these toxins rapidly caused death, and the same thing had happened from aspirating through a large cyst. If one was suspicious that he was dealing with an echinococcus cyst he should use a small needle in aspirating. The operation of choice was a complete clearing out of the cyst the minute it was opened, for if a lacerated cyst were left in, absorption would take place and one would get a case of toxemia.

A Case for Diagnosis.—Dr. HENRY W. FRAUENTHAL presented a boy of Hebrew parentage, 3 years of age, who had a bilateral affection of the tips of the fingers in which the temperature of the tips of the fingers was 10 to 15 degrees lower than that of the palm of the hands. A similar condition was never seen in a child of that age, the youngest case of obliterating arteritis having been seen in a boy of 17 years. It was thought that this might possibly be an early type of Raynaud's disease, in which the finger tips had that bluish-black hue.

Dr. ALFRED F. HESS said that these cases were reported from time to time but no absolute diagnosis was made as he remembered. The first thing to think of was a lesion of the spinal cord, probably some atrophic condition. There had not been a careful enough examination of this child made to venture an opinion as to the diagnosis. If this child were placed in a hospital and tests were made as to sensation, motor power and reflexes one might then say whether or not the spinal cord was involved. Another condition to be thought of was one which occurred in young babies in which the hands, feet and nose were affected and the process went on until death occurred. In some such cases hemorrhage of the adrenals had been found. That would be a condition very difficult to diagnose; the one feature on

which to base a diagnosis in such a case would be low blood pressure. The blood pressure in babies is about 100 or 90 mm.; if it is below that one should consider the possibility of a lesion of the adrenals.

Dr. Leo Buerger said that though he had only a passing glance at the child presented by Dr. Frauenthal he felt certain that thromboangiitis could be ruled out on the absence of pulsating vessels. In thromboangiitis of the upper extremities there was always absence of pulsation of the radial artery and sometimes of the ulnar artery. If the condition were thromboangiitis one would expect to find the lower extremities involved and Dr. Frauenthal stated that there was no involvement of the lower extremities. Thromboangiitis is associated with obliteration of blood vessels. If we began to consider other vasomotor conditions in which there was no obliteration of the blood vessels as belonging to this class, the result would be such a confusion of the whole question of vasomotor vs. organic diseases of the blood vessels that differential diagnosis would be impossible.

The Etiology of Thromboangiitis Obliterans.—Dr. Willy Meyer read this paper, which was based on extensive clinical observations and a variety of laboratory examinations of patients suffering from so-called thromboangiitis obliterans. The chemical examination of the blood of these patients had shown that (1) There was no retention of waste nitrogenous constituents. (2) There was no marked decrease in the alkaline reserve of the blood, as demonstrated by the carbon dioxid combining power of the blood plasma (method of Van Slyke). (3) In all the cases thus far studied, the ingestion of 100 gm. of glucose, after a brief fasting period, had produced hyperglycemia. This observation shifted the whole question of the etiology of the disease to new ground, and the old designations appear no longer appropriate. For the present Dr. Meyer proposed naming the disease glycophilia. The similarity of the name to hemophilia was intended to point to sex limitation and other obscure features of the disease. (See Medical Record, June 29, p. 1142.)

Dr. Leo Buerger said he thought we should welcome all studies which had for their purpose the investigation of the causation of thromboangiitis and Dr. Meyer was to be congratulated upon having investigated this subject from a new viewpoint. But just how much light he had succeeded in throwing on it by his particular investigation we could not say at the present time. Dr. Buerger doubted those conclusions according to which thromboangiitis was a disease of the blood rather than of the blood vessels. A distinction should be made between thromboangiitis and the gangrene of these other diseases in which the blood vessels remained patent. Thromboangiitis was a disease in which the blood vessels were extensively closed and in which this closure of the vessels could not be attributed to traumatic or thermic causes. It was a specific disease accompanied by specific changes in the blood vessels. The fallacy in Dr. Meyer's conclusions was that he reasoned that because, after certain therapeutic measures, certain vessels had become *quasi* patent, he had actively restored their lumina and that the evidence afforded by palpation was better than that of the microscope. Personally, Dr. Buerger said he could never convince himself—though he had many cases under treatment with Ringer's solution—that pulsation was ever restored in a vessel occluded by thromboangiitis. His experience led him to believe that pulsation was never restored, if one meant thereby a restoration of the lumen of the vessel. What might happen was that there might be two portions of a vessel occluded with the intervening portion unaffected by the thromboangiitic process. Through the patent portion of the vessel, usually the dorsalis pedis and lower anterior tibial arteries, a very small amount of blood, insufficient to give a pulse ordinarily, seeped through. After raising the blood pressure by increased inbibation of fluids and subcutaneous injections, it was conceivable that this blood supply of the patent portion of the vessels could be so much enhanced by way of the collaterals as to produce the sensation of pulsation, previously absent. Thromboangiitis had two stages, an acute or inflammatory stage and a chronic or healed stage. The acute stage we often knew nothing about; it was the chronic stage that gave the trouble. In the acute stage the patient might have nodules along the superficial veins and an acute phlebitis, and if we cut out such a vessel and examined it we found it acutely inflamed, difficult of dissection, the wall infiltrated, and many polymorphonuclear leucocytes present. We would find miliary nodules containing pus cells and giant cells, looking very much like the lesions of tuberculosis. There would be also a secondary red clot which was organized and contained the usual elements found in blood clots. The former Dr. Buerger regarded as the *specific lesion of thromboangiitis* and the latter was secondary to it. Dr. Meyer had called attention to glycophilia as an etiological factor; if this were a factor on the causation of thromboangiitis, why did not diabetics give the clinical picture of thromboangiitis or why did we never find the specific pathological changes in the thrombosed vessels of diabetics? In diabetics who had vascular occlusion we found the typical bland thrombi seen in other thrombotic processes. The specific thrombotic lesions of thromboangiitis were characteristic of this disease and were dependent upon a specific organism or toxin.

Dr. Fenton B. Turck said he had recently finished some experiments on this question, and some of the protocols were exceedingly illuminating. If one took any of the tissue of a cat and allowed it to autolyze for twelve hours, then centrifuged it and put 4 c.c. in salt solution drop by drop, and then injected it into an artery, clotting would be found at the end of the arteries commencing in the capillaries. Dr. Turck said he had specimens of thrombosed vessels showing large sections of an artery involved, the thrombosis beginning at the point where the artery stopped and the capillaries began, which he had produced by introducing the autolysins in the main vessels. Doctors were agreed that there was an increased viscosity of the blood, but this was due to the effect of the tissue autolysis, the products of which entered the circulation, and reaching the periphery, produced thrombosis. Experimentally this phenomenon could be produced in animals, and it occurred in human tissues.

Dr. Henry W. Frauenthal said that there were two ways of considering a patient: one from the standpoint of scientific investigation, and the other from the standpoint of relieving the symptoms for which you were consulted, that was, relieving the pain. As to thrombo arteritis obliterans: In a paper read before the 16th International Congress, Surgical Section, at Budapest, September, 1909, Vol. 2, page 906, he reported on twenty-two cases of that disease that were treated with white light from a 500-candlepower incandescent lamp. The patient shown here tonight was one of those reported. When first being treated he was losing his little toe nail, his toe was black and promised to develop gangrene. The little toe improved and a new nail grew. The patient had, however, lost part of the big toe on his right foot. He was under treatment for three years, and had received no treatment for the past eight years showing the efficiency of the white light treatment. This same treatment had been applied in hundreds of cases at the Hospital for Deformities and Joint Diseases. The brother of the above-mentioned patient lost one leg by amputation at the age of 19, and at the age of 21 had the other leg amputated. Dr. Frauenthal said they felt that they saved from 60 to 65 per cent. of their obliterating patients from amputation by the use of white light. While treating them with the light and heat of an electric bath, the pain was relieved. Heat when applied by the Tournier baker, even tried at 450 degrees, gave no relief from pain. The use of morphine and other anodynes was contraindicated in thromboangiitis obliterans because they tended to slow down the circulation and in this way increased pain. Another case was then mentioned by Dr. Frauenthal, that of Dr. M., who had one leg amputated at the middle third of the tibia, and whom he saw the day before he was to have the other leg amputated at the Presbyterian Hospital. This happened four years ago, at which time this patient was taking three grains of morphine to relieve the pain. By the use of white light and no other form of treatment his leg was saved; he had remained well since that time and had discontinued the use of morphine. From time to time he had combined the white light treatment at

the hospital with other methods, such as organic extracts, Ringer's solution, etc. They felt that they owed their results mainly to the properties of the white light. In a number of cases he had suggested that when the opportunity afforded the patients should expose their feet to sunlight. Regarding Dr. Meyer's statement that he had found only Hebrews afflicted with this disease, the speaker said that he had seen several cases in a number of other nationalities.

Dr. Isaac Levin said the seeming disagreement between Dr. Meyer and Dr. Buerger was the usual disagreement between the anatomist and the physiologist or clinician. Some ten years ago he had the pleasure of listening to Dr. Buerger's presentation of this subject, and while he admired his work and original conclusions, he would have to state that in their study they had failed to find the specific nodule and the consistent presence of the condition described by Dr. Buerger. Dr. Buerger was right in thinking that the condition looked different from that shown in other specimens of gangrene, nevertheless, physiologically and clinically speaking, he thought Dr. Meyer was thoroughly correct in saying that there was some sort of connection between diabetes and the condition known as endarteris obliterans, and there was some relation between andarteris obliterans and Raynaud's disease. If a physiological contraction of the blood vessels happened frequently enough and lasted long enough, one might find the same anatomical condition as in endarteritis. Raynaud's disease, endarteritis obliterans, diabetes with gangrene, and diabetes without gangrene shaded into each other.

Dr. Harry Finkelstein said that after listening to Dr. Buerger tell of the inflammatory condition that existed in the acute stage of endarteris obliterans one could understand why heat was unbearable and increased the pain in such cases, and that there was nothing worse for patients suffering with thromboangiitis than baking. His experience with heat was confirmatory of Dr. Buerger's conception of the condition present in thromboangiitis. He thought that when it came to the treatment of this condition it was not wise to advocate any one method.

Dr. Meyer, in closing, said he could not and would not discuss the correctness of the pathological examination, but he would like to emphasie Dr. Levin's remark in reference to the difference of opinion that resulted from looking at the question from the pathological and the clinical standpoints. It was generally conceded that only the male sex was affected by thromboangiitis, and the instance mentioned in the discussion in which a woman developed the disease after the removal of the sex organs confirmed the theory that there was something in the female which prevented the disease or something wrong with the testicular absorption that bore an etiological relation to the condition. Dr. Meyer presented evidence to show that a return of pulsation had been observed in cases that presented the typical symptoms of thromboangiitis, and asked why, if the condition were due to a change in the blood vessels, one found an altered blood picture, as in certain of the cases considered in his paper in which the red blood cells numbered as high as 7,000,000, and there was also an increase in the blood platelets. In concluding, Dr. Meyer said the subject offered a wide field for investigation, more than could be covered by any one man, and that a philanthropist could do no greater service for humanity than to establish a fund for the study of this disease which was the cause of intense suffering to a considerable number of people.

Stated Meeting, Held November 1, 1918.

Dr. Seward Erdman in the Chair.

Rectocolonic Affections and Operations. Including (a) Colectomy for Multiple Adenomata (Polyposis), (b) Resection of the Ileocecal Angle for Neoplastic Tuberculosis, (c) Vaginal Excision of the Rectum for Carcinoma, and (d) the Technique of Anorectal Operations Performed Under Local Anesthesia.—Dr. Samuel Goodwin Gant made this presentation, which was illustrated by motion pictures. He said that surgeons were not sufficiently familiar with rectocolonic tumors, which were encountered more often in men than in women and more often in persons between twenty and forty years of age than was generally supposed. Nearly all varieties of tumors, fibroma, adenoma, myoma, sarcoma, and carcinoma, were encountered in the colon and rectum. *Colectomy.*—The first operation illustrated was colectomy for multiple adenomata or polyposis. The colon when opened showed numerous innocent and occasional growths that had degenerated into malignancy. *Resection of the Iliocecal Angle.*—This operation consisted in extirpating a large tuberculous tumor involving the cecum and lower ileum. When opened in front of the camera the tumor exhibited the characteristic appearance of hyperplastic tuberculosis occasionally encountered in this region, and which was usually mistaken for inoperable carcinoma. *Vaginal Excision of the Rectum.*—The next motion picture demonstrated Dr. Gant's method of removing rectal cancer through the vagina. This route enabled the operator to remove the growth in a much shorter time than it could be done by the Kraske method, and it restored the bowel function, which was often impossible when there was mutilation of the sacrum, as in the Kraske operation. *Anorectal Operation Under Local Anesthesia.*—The next two reels demonstrated the speaker's method of painlessly operating upon many rectal diseases, including hemorrhoids, tumors, fistula, condylomata, etc. He employed eucaine anesthesia (⅛ of 1 per cent.) in 90 per cent. of his anorectal operations. This invariably produced complete anesthesia within ten seconds and never caused toxic manifestations. He held that it was criminal to administer general anesthesia in this class of operations unless there was some unusual complication, and maintained that surgeons who did not familiarize themselves with the technique of operating under local anesthesia did not deserve to have this class of work referred to them. By watching the expression of patients during operation one was satisfied that they suffered no pain and the technique of the procedure proved that the work was thorough.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Pennsylvania Bureau of Medical Education and Licensure.

July 9-11, 1918.

PHYSIOLOGY, PATHOLOGY, AND BACTERIOLOGY.

1. Outline briefly the postmortem findings following a fatal disease in some particular case under your observation.

2. Describe bone necrosis; also, the method of repair following a fracture.

3. Name the ductless glands, giving the function of each.

4. Give the predisposing causes and the pathology (*a*) of aneurysm; (*b*) of varicose veins.

5. Explain the alteration in function (*a*) in cyanosis; (*b*) in glaucoma.

6. What is meant (*a*) by upper neuron? (*b*) lower neuron? What type of paralysis is characteristic of each?

7. What is the physiologico-pathological significance of Argyll-Robertson pupil? hunch-back? diplopia? nystagmus?

8. By what feature in the investigation are these bacteria identified: gonococci? Klebs-Loeffler bacilli? typhoid bacilli? streptococci? spirochete of syphilis?

9. Name five antiseptics, giving their strength for use and relative value in service.

10. Describe briefly the types of kidney lesions in which the functional capacity of the organ is dangerously impaired. Indicate the findings in uranalysis of each type.

DIAGNOSIS, SYMPTOMATOLOGY, TOXICOLOGY, MEDICAL JURISPRUDENCE

1. What are the symptoms of typhoid fever (*a*) in the first week, (*b*) in the second week? Differentiate typhoid fever from some one confusing disease.

2. Differentiate measles from scarlet fever and name the principal complications of measles.

3. What is meant by loss of compensation in diseases of the heart? What are its main symptoms?

4. What is the significance of bleeding from the mouth? How would you determine its possible sources and causes in three varieties of blood spitting?

5. Differentiate iritis from acute inflammatory glaucoma.

6. Give the symptoms and physical signs of lobar pneumonia and differentiate it from subacute pleurisy with effusion.

7. What are the symptoms of erysipelas? Differentiate it (*a*) from erythema simplex and (*b*) from acute eczema.

8. If poison is found in the stomach contents, what other evidence is necessary to sustain satisfactory proof of death by poisoning?

9. What are the signs of death (*a*) by strangulation? (*b*) by drowning? (*c*) by fractured skull? (*d*) by internal hemorrhage?

10. What are the early symptoms of acute poliomyelitis before paralysis? About when does paralysis occur?

ANSWERS.

PHYSIOLOGY, PATHOLOGY, AND BACTERIOLOGY.

1. *Cerebrospinal Meningitis.*—"In the early stages there is intense hyperemia of the pia-arachnoid; in fulminant cases these may be the only lesions observed. In the ordinary acute cases, there is sero-fibrino-purulent inflammation of the pia-arachnoid, especially marked at the posterior basic region of the brain, and the dorsal surface of the thoracic and lumbar cord; but the exudate may extend to the convexity of the brain, and indeed involve the entire pia-arachnoid. The cranial nerves (especially the second, third, fourth, fifth, sixth, seventh, and eighth) are often embedded in a thick, fibrino-purulent exudate, whereby irreparable damage results. In more chronic cases the pia-arachnoid is irregularly thickened, the ventricles are distended with turbid fluid, and irregular foci of hemorrhage, softening, and encephalitis are encountered. Microscopically the exudate consists largely of polynuclear leucocytes, which contain the meningococcus and certain unusually large endothelial cells; there is also leucocytic infiltration of the brain and cord, foci of hemorrhage and suppuration, and swelling of the ganglion and neuroglia cells. The lesions common to most toxemias are found in the other organs."—(Kelly's *Practice of Medicine.*)

2. "*Necrosis* is the death of a larger or smaller portion of bone. This may be induced by conditions which deprive the bone of its proper vascular supply from the periosteum and medulla. It may be associated with suppurative periostitis, osteomyelitis, and osteitis, traumatic separation of the periosteum, ulcers of neighboring soft parts, emboli, the action of phosphorus vapor, and exhaustive infectious diseases. Necrosis is a form of pure gangrene, differing from gangrene of soft parts in that the dead bone has at first, and may retain for a long time, the general outward characters of the normal bone; while in dead soft parts rapid absorption may occur, or, should bacteria of various forms be present or gain access to the dead tissue, putrefaction, with complex changes, may ensue. When a portion of bone has died, inflammation occurs at the dividing line between the dead and living bone. The inflammation has the characters of a rarefying osteitis, and finally separates the dead from the living bone. The dead bone, or sequestrum, may remain smooth and unaltered, or it may be eroded by the influence of surrounding pus or granulation tissue or osteoblasts. In this way it is possible for the sequestrum, if it be small, to be entirely absorbed. More frequently there is a production of new bone around the sequestrum, either beneath the periosteum or in the substance of the bone, and this becomes lined with granulation tissue, from which pus may continue to be formed, bathing the sequestrum. Necrosis may involve the superficial layers, or the entire thickness of the wall of a long bone, or only the spongy tissue and inner layers, or an entire bone, or a number of different portions of the same bone, but it is most apt to occur in compact bone. The death and separation of the bone may be soon followed by the growth of new bone to repair the loss. The periosteum, the medulla, and the surrounding soft tissues may all take part in this new growth. The new bone is usually irregular, rough, and perforated with openings through which pus formed around the sequestrum may be discharged. If the sequestrum be removed, healing may occur by the formation of new bone, but the bone is usually more or less distorted by the irregular new ossification."—(Delafield and Prudden's *Pathology.*)

"The broken ends of the bone are rough and irregular, and the periosteum is torn more or less, but some portion usually remains as a bridge between the fragments. The soft structures in the neighborhood are lacerated, so that the parts are infiltrated with blood-clot, which fills up the spaces between the bone ends. As in repair of any other part, the blood-clot in a few hours is infiltrated with leucocytes, whose duty it is to absorb the clot. The connective-tissue cells in the surrounding parts proliferate, and the bone undergoes rarefying osteitis, so that the place of the blood-clot is taken by granulation tissue. The granulation tissue becomes calcified, and the calcified tissues ultimately replaced by bone. The periosteum plays a large part in the ossification of the new tissue. It becomes stripped up for some distance, hyperemic, and thickened. Granulation tissue is formed from it, and unites with that which has replaced the blood-clot. This mass binds the bone together and forms the *provisional* or *ensheathing callus*, which is subsequently ossified by the growth of the periosteal osteoblasts spreading over the mass. The medulla becomes plugged with granulation tissue or *internal callus*, and this, as well as the granulation tissue lying between the fragments of compact bone, becomes ossified, the bone cells of the compact tissue probably proliferating to take part in the repair."—(*Aids to Surgery.*)

3. The *ductless* glands are: The spleen, thymus, thyroid, parathyroids, suprarenals, carotid, coccygeal, pituitary, and pineal glands.

The function of the spleen: The following theories have been held: (1) It is a source of production of the white blood corpuscles; (2) it is a source of production of the red blood corpuscles during fetal life; (3) it is a place where the red blood corpuscles are destroyed; (4) uric acid is produced in the spleen; (5) an enzyme is produced in the spleen and is carried by the blood to the pancreas, where it converts the trypsinogen into trypsin.

The function of the thyroid is not definitely settled: (1) It has some trophic function, regulating oxidation in the body, and it is supposed to have also a special influence on the vasomotor nerves, the skin, the bones, and on the sexual functions; (2) it is supposed to antagonize toxic substances, and (3) it produces an internal secretion.

The function of the thymus is not settled; it is said: (1) To be a blood-forming organ; (2) to have influence on growth and nutrition; (3) in hibernating animals it is supposed to store up materials which can be utilized during the period of inactivity.

The function of the suprarenals is not definitely settled; they produce an internal secretion which is probably necessary to life. This secretion causes constriction of arterioles, raises blood pressure, and stimulates muscle fibers which are supplied by the sympathetic system. There is supposed to be some connection between the adrenals and the thyroid and pituitary bodies.

The function of the pituitary body: Complete removal of whole gland or of anterior lobe is followed by death; the anterior lobe is connected with growth; if the gland hypertrophies there follows overgrowth of the skeleton, and partial removal leads to failure of development of the body as a whole and of the sexual glands. The posterior lobe is believed to cause constriction of arterioles, rise of blood pressure, contraction of the involuntary muscles in many viscera, increased flow of urine, an increased secretion of milk.

The function of the *other* ductless glands is unknown. They all, or nearly all, furnish an internal secretion.

4. An *aneurysm* is a pulsating sac containing blood, and communicating with the lumen of an artery.

A *true aneurysm* is one in which the sac is composed of one or more of the coats of the artery.

A *false aneurysm* is one whose sac contains no arterial coat, but is formed of condensed perivascular tissue.

Predisposing causes: Atheroma, syphilis, old age, arteritis, alcoholism, male sex.

Structure: The *sac* consists more or less evidently of a distention of all or part of the original walls of the vessel while it is small; but as the aneurysm increases, the original structure is replaced by a mass of newly formed fibrous tissue, due to a condensation and matting together of the surrounding structures, with or without an internal lining of laminated fibrin deposited on parts where the endothelium has disappeared. The *contents* of the sac depend on the character, age, and size of the aneurysm. While still small and with a complete endothelial lining, it contains fluid blood; but as the tumor grows, and especially if of the sacculated type, fibrin is deposited in layers which gradually encroach on the cavity, and may in time completely fill it, so that in rare cases a spontaneous cure results. The oldest laminæ are dry and yellowish-white in color; those more recently deposited are softer and more reddish, while the last formed is merely like ordinary blood coagulum. No single lamina covers the whole area, but layer is arranged over layer in such a manner that the oldest and necessarily the smallest laminæ are nearest to the sac wall.

Varieties: There are three forms: (1) *Sacculated aneurysm* is one in which the dilatation springs from one side of the artery only, and in which the sac communicates with the artery by a comparatively narrow opening. (2) *Fusiform aneurysm* is due to a general dilatation of the whole circumference of an artery. Its progress is slower than that of the sacculated variety, and there is little or no laminated clot at first. It usually ends in the formation of a sacculation at one part. (3) *Dissecting aneurysm* is due to blood getting into the middle coat and stripping it up. It cannot be recognized during life.

Varicose Veins.—A vein is varicose when it is dilated, elongated, and tortuous. The veins commonly affected are the superficial veins of the leg. Other common situations are the hemorrhoidal plexus—piles; and the pampiniform plexus—varicocele.

Causes.—Anything which induces prolonged distension of veins, such as long standing, pressure of tight garters, pressure in the pelvis from pregnancy or tumors, occlusion of the deep veins, may cause varix. An abnormal communication between an artery and a vein will produce distention of the vein, as in aneurysmal varix. Congenital overgrowth of veins, or tendency to the development of varix, is a contributing factor.

Pathological Changes.—Before the actual development of varicosity, the walls are weakened by chronic inflammation. The elastic coat is replaced by fibroid tissue, so that the wall is no longer able to resist the pressure of the blood from above, and consequently dilatation occurs and the valves become incompetent. The veins also elongate, and therefore become tortuous. The pressure of the column of blood from above is the chief factor in bringing about the dilatation.—(*Aids to Surgery*).

5. *Cyanosis*.—"Cyanosis commonly attends dyspnea and is due to like causes, to a deficiency of oxygen and an excess of carbon dioxide in the blood. Dyspnea, however, may occur without cyanosis, as in uremia, and cyanosis may be present without dyspnea, as in congenital heart disease. Cyanosis is common in diseases of the lungs, interfering with proper oxygenation of the blood, and may result from obstruction to the entrance of air into the lungs, to restriction of the available breathing surface of the lungs, and to weakness of the respiratory muscles and nerves. It occurs also in disease of the heart, in erythremia, in chronic acetanilide, and other coal-tar poisonings, and in so-called enterogenous cyanosis."—(Kelly's *Practice of Medicine.*)

Glaucoma.—"A current normally passes from the ciliary body, around the lens, through the pupil, anterior chamber, and ligamentum pectinati in the iris angle, into Schlemm's canal. Interference with this system of circulation, such as would be caused by blocking-up of the iris angle and cutting off the outflow, with or without increase in the secretion, will be followed by rise in intraocular tension. Upon this theory most explanations of glaucoma are founded."—(Alling and Griffin's *Diseases of Eye and Ear.*)

6. The *upper motor neuron* leaves the Rolandic area of the cortex and passes through the corona radiata, internal capsule, crus, pons, medulla, and pyramidal tracts to terminate in the posterior horn of the spinal cord.

The *lower motor neuron* begins in the cells of the anterior horn of the spinal cord and leaves by the ventral root to end in a peripheral nerve.

Hemiplegia is characteristic of the upper neuron paralysis.

Paraplegia is characteristic of the lower neuron paralysis.

7. *Argyll-Robertson* pupil generally indicates a lesion of the optic tract or Meynert's fibers.

Hunchback or kyphosis indicates disease or injury of the spinal column; it is an anteroposterior curvature.

Diplopia indicates defective action of the ocular muscles or injury at base of brain or the toxic action of certain drugs.

Nystagmus indicates bilateral spasm of the ocular muscles.

8. *Gonococci* are recognized as diplococci, generally within the pus cells, and decolorized by Gram's stain.

Klebs-Loeffler bacilli are the only Gram positive bacilli usually found in the mouth.

Typhoid bacilli will give the agglutination test (Widal's) after the tenth day.

Streptococci are recognized by the cocci being arranged in chainlike groups.

Spirochete of syhpilis is recognized by using a dark field condenser (in the living state), or by examining smears stained with Giemsa's solution, when the spirochete takes on a violet or reddish tinge.

9. Five Antiseptics: (1) *Carbolic acid,* generally used in solutions of 1 in 40 or 1 in 20; it is useful for emergency work, is irritating to sensitive skins, some people are particularly susceptible to its action, it is readily absorbed, and may produce dark colored urine.

(2) *Corrosive sublimate,* usually employed in solutions of 1 in 2000, 1 in 1000, or 1 in 500; it is reliable, has less penetration than carbolic acid, and is less roughening to the skin; it is irritant if applied for too long a time, and is not suitable for instruments.

(3) *Biniodide of mercury* is a powerful antiseptic, chiefly employed in a 1 in 500 solution in 70 per cent. methylated spirit, for use on the skin of the patient or the hands of the surgeon; it is very toxic; a 1 in 2000 aqueous solution is also used for the hands.

(4) *Boric acid* is a weak and mild antiseptic, used in saturated solution when stronger antiseptics are inadvisable; employed in the eye and for infants.

(5) *Lysol,* used in a 2 per cent. solution, used for syringing out cavities, external ear, etc.

10. Tests of the functional activity of the kidneys are of value in renal, cardiorenal, and cardiac diseases. In *acute nephritis,* frequent repetitions of the test are necessary, since marked renal functional changes occur with considerable rapidity. In *mild chronic nephritis* the excretion of the dye is but little reduced, while in *severe nephritis* it is markedly decreased or even suppressed. Marked diminution or suppression usually occurs in *uremia,* and impending uremia is frequently indicated, when routine clinical and urinary studies give no suggestion of it. *Passive congestion* only affects the phthalein output when of a severe grade, and slight circulatory improvement is associated with prompt improvement in the phthalein excreted.—(From Osler and McCrae's *Modern Medicine.*)

DIAGNOSIS, SYMPTOMATOLOGY, TOXICOLOGY, MEDICAL JURISPRUDENCE.

1. Typhoid Fever.—"During the *first* week there is in some cases (but by no means in all, as has long been taught) a steady rise in the fever, the evening record rising a degree or a degree and a half higher each day, reaching 103° or 104°. The pulse is rapid, from 100 to 110, full in volume, but of low tension and often

dicrotic; the tongue is coated and white; the abdomen is slightly distended and tender. Unless the fever is high there is no delirium, but the patient complains of headache, and there may be mental confusion and wandering at night. The bowels may be constipated, or there may be two or three loose movements daily. Toward the end of the week the spleen becomes enlarged and the rash appears in the form of rose-colored spots, seen first on the skin of the abdomen. Cough and bronchitic symptoms are not uncommon at the outset. In the *second week*, in cases of moderate severity, the symptoms become aggravated; the fever remains high and the morning remission is slight. The pulse is rapid and loses its dicrotic character. There is no longer headache, but there are mental torpor and dullness. The face looks heavy; the lips are dry; the tongue, in severe cases, becomes dry also. The abdominal symptoms, if present—diarrhea, tympanites, and tenderness—become aggravated. Death may occur during this week, with pronounced nervous symptoms, or, toward the end of it, from hemorrhage or perforation. In mild cases the temperature declines, and by the fourteenth day may be normal."—(Osler's *Practice of Medicine.*)

It may be confused with malarial (remittent) fever. The following table is taken from an elaborate one by Thayer:

TYPHOID FEVER	MALARIAL (REMITTENT) FEVER.
Blood shows no leucocytes; eosinophiles diminished or absent; serum causes agglomeration of typhoid bacilli; malarial parasites and pigment absent.	Blood shows no leucocytosis; eosinophiles not notably diminished; serum does not cause agglomeration of typhoid bacilli; malarial parasites and pigmented leucocytes present.
Fever uninfluenced by quinine.	Fever disappears under quinine.
Usually epidemic; prevailing commonly in cities.	Is an endemic disease occurring particularly in rural districts; rarely epidemic.
Anemia absent, excepting in later stages.	Anemia more or less marked early in the course.
Characteristic roseola.	No characteristic exanthem; urticaria not uncommon.
Has a fairly characteristic course.	No distinct course.
Urine high-colored; bile absent; Ehrlich's diazo-reaction present during the height of the process.	Urine high-colored; may show a trace of bile; Ehrlich's diazo-reaction rarely present.
The temperature does not reach 40° C. (104° F.) before the third or fourth day.	The temperature may arrive at 40° C. (104° F.) within twenty-four hours.
The apathetic expression of the face, the dryness of the tongue, and sordes upon the teeth are well marked and progressive.	These symptoms are not very marked.
Herpes rare.	Herpes common.

2. *Scarlet fever:* Period of incubation, from a few hours to seven days. Stage of invasion, twenty-four hours. Character of eruption, a scarlet punctate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes. The eruption is brighter, is on a red background, punctiform, and is more uniform; the temperature is higher, the pulse quicker; the tongue is of the "strawberry" type, the lymphatics in the neck may be swollen, and there is sore throat; Koplik's spots are absent.

Measles: Period of incubation, ten to twelve days. Stage of invasion, four days. Character of eruption, small dark red papules with crescentic borders, beginning on face and rapidly spreading over entire body; desquamation is branny. The eruption is darker, less uniform, more shotty; the temperature is lower, pulse slower, the tongue is not of the "strawberry" type; coryza, coughing, and sneezing may be present; Koplik's spots are present.

Complications of measles: Catarrhal pneumonia, gastroenteritis, conjunctivitis, otitis.

3. "The alteration in the systemic blood supply caused by the valvular defects of chronic endocardial inflammation are such that, if continued, the integrity of the body is threatened. To overcome the impaired functions of the valves and to maintain the general circulation, the heart increases in size and strength (*compensatory hypertrophy*). The period in which this occurs is called the *period of compensation;* its duration is indefinite. It may be recognized by the physical signs of valvular disease without any symptoms of disturbed circulation. Anything which disturbs the equilibrium as it now exists, such as acute diseases and excessive work, leads to *ruptured compensation*, a condition attended by cyanosis, dyspnea, edema, gastric, hepatic, and renal disturbances, and often death."—(Hughes' *Practice of Medicine.*)

4. *Bleeding from the mouth* may be due to:

(1) *Local causes* such as stomatitis, spongy gums, adenoids, biting of tongue, nose-bleed with escape of blood into pharynx, and certain blood affections (scurvy, purpura, etc.).

(2) *Hemoptysis*, which may be due to traumatism; certain organic diseases of the lung, especially to tuberculosis, lobar pneumonia, bronchiectasis, gangrene, infarct, and cancer. Passive congestion, the result of heart disease, especially mitral lesions; rupture of aortic aneurysm; diseases profoundly affecting the blood, such as purpura, hemophilia, scurvy, and leucemia; ulcers, traumatic, syphilitic, or malignant of the trachea or larynx.

(3) *Hematemesis*, which may be due to traumatism; gastric ulcer; gastric cancer; venous engorgement of the stomach following cirrhosis of the liver, primary splenomegaly, or chronic heart disease; acute gastritis; blood dyscrasia, as in scurvy, purpura, severe infections, and grave anemias; rupture of aneurysm; swallowing of blood from nose, mouth, or throat.

When the bleeding is due to local causes, inspection generally shows its source. Hemoptysis and hematemesis may be differentiated as follows:

HEMATEMESIS.	HEMOPTYSIS.
1. Previous history of gastric, hepatic, or splenic disease.	1. Previous history of pulmonary troubles.
2. Blood is vomited.	2. Blood is coughed up.
3. Blood is dark colored and not frothy.	3. Blood is frothy and bright red.
4. Blood may be mixed with food.	4. Blood may be mixed with sputa.
5. Giddiness or faintness usually precedes vomiting.	5. Sensation of tickling in the throat usually precedes.
6. Nausea and weight in epigastrium.	6. Dyspnea and pains in the chest.
7. Often followed by melena (black, tarry stools).	7. Is not usually succeeded by melena.

—(Hughes' *Practice of Medicine.*)

5.

	GLAUCOMA.	IRITIS.
Age	Over forty.	Any.
Tension	Plus.	Normal.
Congestion	General, especially scleral.	General, especially circumcorneal.
Cornea	Cloudy and steamy surface.	Cloudy.
Anterior chamber	Shallow.	Unchanged.
Pupil	Dilated, oval.	Contracted, synechiæ.
Pain	Severe, continuous.	Especially at night.
Vision	Much reduced.	Somewhat reduced.

—(From Alling and Griffin's *Diseases of the Eye and Ear.*)

6. *Symptoms and physical signs of lobar pneumonia:* "*Inspection* reveals during the first stage deficient movement of the affected side, due to pain. The apex-beat is normal in situation, and the interspaces do not bulge. In the second stage the healthy side rises normally, the affected side lagging behind. If both lower lobes are impervious to air, the diaphragm cannot descend and the epigastrium does not project during inspiration, the breathing being conducted by the upper part of the chest (superior costal respiration). *Palpation* during the first stage shows the vocal fremitus to be more distinct than normal, especially over the diseased portions. In the second stage, the vocal fremitus is markedly exaggerated, except in those rare instances of occlusion of the bronchi by secretion. The cardiac impulse is felt in the normal position. *Percussion*—In the first stage, the percussion note is slightly impaired at times, having a hollow or tympanitic quality. In the second stage there is dullness over the affected parts, with an increased sense of resistance. Over unaffected adjoining areas the resonance is increased (Skoda's resonance). *Auscultation*—In the first stage there is heard over the affected part a feeble vesicular murmur, associated with the true vesicular or crepitant (cracking) râle, heard at the end of inspiration only. In the second stage there is a harsh, high-pitched, bronchial respiration, at times resembling a to-and-fro metallic sound, except in those rare instances in which the bronchi are more or less filled with secretion. Bronchophony, or distinctly transmitted voice, is present and at times pectoriloquy, or distinct transmission of articulated sounds, may be heard. In the third stage the breathing changes from bronchial to bronchovesicular and the crepitant râle (crepitation redux) returns. As resolution proceeds, the breath sounds are associated with large and small moist and bubbling râles."—(Hughes' *Practice of Medicine.*)

PLEURISY WITH EFFUSION.	LOBAR PNEUMONIA.
Onset marked by chilliness persisting for a few days.	Onset acute, with rigor, lasting one hour or longer.
Cough is irritating; no expectoration, or, if present, catarrhal in character.	Cough more marked, and accompanied by rusty or bloody, tenacious expectoration.
Sputum negative; tubercle bacilli rare.	Dense aggregations of pneumococci present.
Moderate fever of continuous type; declines by lysis.	Fever, 102° to 104° F.; falls by crisis.
Prostration moderate.	Prostration extreme.
Unilateral distension of the thorax.	Absent.
Countenance pale and anxious.	Mahogany-colored flush of cheeks.
Limited expansion at base of chest on the affected side.	Degree of expansion slightly, if at all, inhibited.
Tactile fremitus diminished or absent.	Increased over area of consolidation.
Interspaces bulging at base of chest.	Absent.
Percussion shows flatness, with great resistance to the pleximéter finger.	Dullness with less resistance, and sometimes a tympanitic note.
Diminished or absent breath-sounds over effusion the rule. Respiration murmur diffuse, distant, and generally unaccompanied by râles. Bronchial breathing may be present over the entire affected side of the chest.	Harsh bronchial breathing and presence of râles in first and third stages, unless a bronchus is plugged.
Friction sound heard in early and late stages.	No friction murmur; râles present.

—(Anders and Boston's *Medical Diagnosis.*)

7. *Symptoms of erysipelas:* The disease is usually ushered in with a chill, malaise, anorexia, headache, and elevation of temperature (102° to 105° F.). The erysipelatous eruption is highly characteristic. The affected area is sharply defined, of a shining crimson or violaceous hue, elevated above the surrounding skin, and firm, hot, and tender to the touch. In addition, vesicles or blebs are prone to develop. The patient complains of pain, burning, or itching. The eruption tends to spread by peripheral extension, the older parts first undergoing involution, the maximum of inflammation being found at the periphery. In any one locality it runs its course in four or five days, ending in desquamation. The disease, however, may last for weeks, owing to constant extension. Albuminuria may be present. There is marked leucocytosis.

Erythema simplex is characterized by nonelevated, variously sized and shaped patches of redness. Redness is the essential characteristic of the disease. It may be a bright or a dull red, but always disappears upon pressure. Infiltration and elevation are absent. Mild burning and itching are usually present.

ERYSIPELAS.	ECZEMA ERYTHEMATOSUM.
1. Sudden onset with chill and marked constitutional symptoms.	1. No constitutional symptoms.
2. Eruption sharply marginated.	2. Fades into surrounding skin.
3. Glazed, shining surface; great edema.	3. Dull, scaly surface; Slight infiltration.
4. Color, violaceous.	4. Bright or dull red.
5. Burning pain.	5. Itching more marked.
6. Occurrence of discrete vesicles or blebs.	6. Vesicles occur in patches, if at all.
7. Progressive peripheral spreading.	7. Spreading irregular.
8. Runs an acute course.	8. Course, chronic.
9. Contagious.	9. Not contagious.

8. If poison is found in the stomach contents, it is also necessary to prove (1) the absence of other causes of death; (2) the presence of the symptoms, during life, known to be caused by the poison; and (3) the presence, on autopsy, of such lesions as are known to be produced by the poison. Without these, death by poisoning cannot be proved.

9. *In death by drowning:* The surface is pallid, the face appears tranquil, the eyes and mouth being partly open. The skin often has the appearance known as gooseskin, and, if the body has lain upwards of twelve hours in the water, that of the hands and the feet is sodden by imbibition. The most important external sign is the presence on the mouth and nostrils of a fine froth (possibly blood stained), composed of air, mucus, and the medium in which drowning took place; if the body remains three or four days in water, the froth disappears. Exceptionally, fragments of weeds or other small objects may be found tightly grasped in the hands. On opening the thorax the lungs, gray in color, with reddish staining, are seen to be very voluminous, a condition known as ballooning, partly due to infiltration of the lung tissue with some of the medium in which drowning took place, and partly to true edema. The lung substance is inelastic and pits on pressure. On section, fluid and froth resembling that found on the lips exude from the divided air passages. Minute subpleural hemorrhages are not infrequently present, and the pleural cavities may contain fluid. The stomach often contains water or other liquid which was involuntarily swallowed during attempts at respiration. Occasionally some of this fluid is forced by vital action into the intestines. With one exception, the remaining appearances are those met with after death from asphyxia. The exception is constituted by the blood, which is not only dark colored and fluid, as is usual after death from asphyxia, but is also diluted by the imbibition of water from the stomach and lungs.

In death by strangulation: The blood is of a dark color, owing to complete reduction of the hemoglobin. The proportion of carbonic acid is increased, and owing to its excess the blood coagulates slowly or imperfectly; hence it remains fluid or forms few and soft coagula. The large veins, the pulmonary artery, and the cavities of the right side of the heart may be distended with dark fluid blood, but this is by no means necessarily the case. The left side is usually empty or nearly so.

The lungs may be congested, but are often pallid and anemic, though the dependent parts usually exhibit appearances of hypostatic engorgement. The abdominal viscera, especially the kidneys, are often congested. The appearance of the brain varies; it may be anemic or more or less congested. Special signs characterize special modes of causation of asphyxia. Very commonly punctate ecchymoses are visible on the conjunctiva, face, neck, and chest. They are considered by Tardieu to be more frequent in strangulation than in asphyxia from other causes, or than in cases of overstraining, which likewise may lead to them. In the subcutaneous cellular tissue, and in the fascia of the muscles above and below the hyoid bone extravasations are frequently found, as well as on the external surface of the thyroid cartilage and trachea. The lungs vary as regards their vascularity; but on the surface it is common to find pseudomembranous patches, which are due to the rupture of some of the superficial air cells and collection of air bubbles under the pleura. In the substance of the lungs congested patches, or apoplectic extravasations, are often found, varying in size, but larger than those usually found in suffocation.—(From Quain's *Dictionary of Medicine.*)

In death by fractured skull, signs of a recent fracture will be found, with blood in the site of the fracture; possibly there will be blood or cerebrospinal fluid escaped into tissues, under eyes, in nose, behind ears, etc.; signs of cerebral compression will also be found.

In death by internal hemorrhage, there will be found a wound in a vascular part or in several vessels or in a large vessel, and the veins in the neighborhood will be found empty. There will be absence of signs of fatal disease; and blood will be found in the body cavities and tissues.

10. *Acute Poliomyelitis.* The onset is sudden, and is marked by fever, vomiting, convulsions, headache, restlessness, pain in the bones and muscles. Paralysis sets in in the course of a day or two; the lower extremities are chiefly affected.

(*To be concluded.*)

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

THE SURGICAL CLINICS OF CHICAGO, August, 1918. Volume II., No. 4. 893 pages. Illustrated. Price, $10.00 a year. Published Bi-Monthly by W. B. Saunders Company, Philadelphia and London.

ROENTGEN DIAGNOSIS OF DISEASES OF THE HEAD. By Dr. ARTHUR SCHÜLLER. 305 pages. Illustrated. Price, $4.00. Published by C. V. Mosby Company, St. Louis, Mo.

DISPENSARIES. By MICHAEL M. DAVIS, JR., Ph.D., and ANDREW R. WARNER, M. D. 438 pages. Illustrated. Price, $2.25. Published by The Macmillan Company, New York.

ABSTRACTS OF WAR SURGERY. Prepared by the Division of Surgery, Surgeon-General's Office. 434 pages. Price, $4.00. Published by C. V. Mosby Company, St. Louis, Mo.

TUMORS INNOCENT AND MALIGNANT. By SIR JOHN BLAND-SUTTON, LL.D., F.R.C.S. 790 pages. Illustrated. Price, $7.00. Published by Paul B. Hoeber, New York.

THE NEWER KNOWLEDGE OF NUTRITION. By E. V. MCCOLLUM, M.D. 199 pages. Illustrated. Price, $1.50. Published by The Macmillan Company, New York.

HÆMATOLOGISTS' AID TO MEMORY. By HENRY HAROLD SCOTT. Price, 5 shillings. Published by John Bale, Sons & Danielsson, London.

THE EFFECT OF DIET ON ENDURANCE. By IRVING FISHER, Ph.D. 54 pages. Price, 60 cents. Published by Yale University Press, New York.

GUN-SHOT FRACTURES OF THE EXTREMITIES. By JOSEPH A. BLAKE. 136 pages. Illustrated. Price, 4 francs. Published by Masson et Cie., Paris.

Miscellany.

An Italian Hospital Journal.—Periodicals devoted to the activities of hospitals are by no means new but for the most part they are devoted to statistics, case histories, and the like, differing much in other ways from the ordinary medical periodical. For some years past the Ospedale Maggiore of Milan has conducted a monthly periodical under the title of the institution (*L'Ospedale Maggiore*) devoted in the main to hospital practice in all its aspects, irrespective of locality and published by the Council of the Milan Hospitals. Beginning with the March number the subject matter is classed as follows: a main section on the most urgent of hospital problems which is followed by an article on the instruction of students from study of the wounded soldier. These two papers correspond to original matter in the average journal. The second rubric deals with anniversaries in which we read that on March 9, 1618, one Isabella Varesi, married name Castano, bequeathed 16,594 lire in property to the hospital. This rubric is followed by the monthly current chronicle of events in hospital life in Milan. Incidentally we note many medical data in reference to suicidal attempts, the movement of tuberculous cases, the out-patient services, etc. The entire monthly report of the Maggiore is given. The next rubric refers to legislation as it affects hospital existence. This is followed by a forensic department and this in turn by the proceedings of various hospital councils and their results.

The Federation of University Students in South America.—In Argentine and Uruguay the undergraduates of all universities are said to possess an organization which includes students of medicine, law, engineering, agriculture, veterinary medicine, philosophy, literature, economic science, and presumably others not mentioned. Each class of students has its own center which sends delegates to a central body. The students are also classed by their years of graduation. Club features are numerous, such as libraries, museums, vaccination and medical consultation facilities, university extension, athletics and sports, social gatherings, etc. A correspondent of the *Journal de Médecine de Bordeaux* for August mentions the publication maintained by the university medical students under the name of *Revue du Cercle Medical Argentin et du Centre des Etudiants en Médecine;* he neglects to state whether this periodical is published in French or whether the name is a French translation of the Spanish original. The periodical appears monthly and the number for last October which he reviews contains 236 pages. In addition to numerous original articles on medical subjects there is a department on "University Life" through which the "medic" is kept in touch with all of the activities of students of other subjects. One learns that the medical men won the annual football championship over the legal and other student bodies. Among miscellaneous subjects agitated was one in reference to the propriety of admitting foreigners to the hospitals. There was an account of a journey of students of Buenos Ayres to Montevideo, as guests of the Uruguayan students.

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Original Articles.

NERVOUS DISTURBANCES OF THE CIVIL POPULATION IN WAR TIME.

BY J. LEONARD CORNING, M.D., LL.D.

NEW YORK.

ALTHOUGH much has already been said and written concerning the mental and physical sufferings of the civil population in those countries overrun by the enemy in the great war, there appears to be a scarcity of commentary regarding the nervous disturbances more or less prevalent among the inhabitants of those allied countries wherein the Central Powers have been unable to set foot.

True, there have been sabotage, intrigue widespread and disquieting, petty treason, enough to provoke lynchings here and there, and a propaganda at once so insolent and insidious as to engender a sense of exasperation that neither ultimate victorious peace nor yet the flight of many years is likely to dull, much less eradicate.

These disclosures of low cunning and cruelty near at hand with the chronicle of perfidy and oppression characterizing the advance of the armies of the Central Powers abroad have aroused in the breasts of the people of this country a degree of detestation and loathing impossible to exaggerate; so that, at the present time, it has been aptly said that only knaves, traitors, or flabby-witted visionaries are to be caught mumbling a stealthy extenuation.

While these feelings of abhorrence not unmixed with a vehement desire for retribution pervade the nation as a whole, their effects are by no means everywhere the same. Upon the vigorous young men of the country, more especially those who have volunteered or been drafted into the service afloat or ashore, there is unmistakable light-heartedness, tempered, it is true, with a certain seriousness, offspring of a realization of the tragic elements of the enterprise to which they are committed. Not in a single instance have I heard a regret expressed at the imminence of the departure for France; all, so far as my observations extend, are fired by a single desire: to be off and doing as quickly as possible, or as they spice the vernacular, to "get a crack at the Hun."

Of a distinctly different character are the psychical phenomena observable in those of middle age or advanced life. Among these individuals, especially those of a high degree of emotionality and intelligence and well-informed, perhaps, as to the past and contemporary history of Prussia, indignation at her barbarities and ruthless spoliations attains such intensity as to amount to something not far removed from obsession. Some of them seek relief in war work, through the Red Cross and other recognized agencies; while others, innocent theretofore of creative endeavor, busy themselves with contrivances to circumvent the submarine, or cause the undoing of the enemy on the battlefield by inventions impracticable, more or less.

It is both idle and pedantic to endeavor to build up a novel clinical entity from the neurotic phenomena disclosed by these persons. The symptoms found in them are, on the whole, those met with wherever a powerful emotion fails of appropriate motor realization. Unable to get to the field of combat; debarred from delivering a thrust or firing a shot, their indignation pent up, futile, they become the victims of morbid brooding, depression, irritability, and insomnia, to which the varying fortunes of battle and the uncertainties of business or the economic situation as a whole lend a further and by no means insignificant aggravation.

This enhancement of erethism, though not identical in all respects with that found in gamblers, bears a sufficient resemblance to it to suggest some measure of analogy.

In the gambler the rapidity of the alternation between hope and fear is the chief source of the pernicious excitement; whereas in war the lapse of time between a victory and a defeat is incomparably longer, and the duration of exhilarating or depressive emotions proportionately lengthened. Moreover, there is the added, and continuous, suspense consequent upon the question as to the final issue of the war as a whole, and this to some extent, if not entirely, irrespective of the individual victories or defeats.

The subjoined diagrams will help to an appreciation of what is meant.

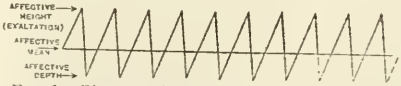

FIG. 1.—Diagram showing suspense curves in gambling. Note that the height is somewhat greater than the depth, and that there is no logical termination, the erethism continuing after cessation of play.*

FIG. 2.—Diagram showing suspense curve in war. The curve, following the infrequent rotation of mood, is longer, and, at the same time, more flattened. It is, moreover, necessarily irregular, in accordance with the vicissitudes of the conflict.

No comprehension of the nervous disorders of the civil population during war is possible without some

*Taken from the writer's paper on "The Psychology of the Gambling Habit—A Study of Suspense in Gaming, the Drama, and the Experimental Sciences," MEDICAL RECORD, November 30, 1912.

understanding of the major emotions involved in its pursuit. Without question, anger is the emotion that looms high above the rest. Whether one party to the conflict, the most uncouth, the most egoistic, the most mendacious in all Europe, be bent upon the domination of its more civilized neighbors, while these, outraged by the wholly unwarranted aggression, take up arms in the defence of their invaded territories, the result in both instances, so far as this emotion is concerned, is the same.

True, in the first event the arousement of the passion springs from an ignoble motive; while, in the second, its genesis is justified a hundred fold. Still, whether engaged in by a bandit nation, supporting its greed and aggression by turning in its own behalf the elementary principles of morality upside down; or whether undertaken by civilized peoples resisting such a barbarous attack upon their liberties and territory to the uttermost, anger as a major constituent of the mental state of both the civilians and soldiery is never lacking.

Regarded as an internal and purely psychical phenomenon, anger is refractory to retrospective analysis. Though largely painful, it does not belong wholly in the category of the painful emotions. At its inception, no doubt, it is entirely painful; but, with the coming of the offensive (motor) reaction it is rather pleasurable than the reverse. This is important in a clinical sense; for, as already intimated, it is the indefinite prolongation of the first or painful stage of anger, coupled with the consciousness that the realization of the second, or aggressive stage is impossible, which constitutes in such full measure the nervous strain borne by the civil population in time of war.

Being inaccessible, or largely inaccessible, to retrospection, it is obvious that the psychology of anger is to be sought for in its evolution.

In animals, especially those who live by tooth and claw, there are no inhibitory forces. Here, if anywhere, the emotion occurs in its purity, its physiological incentive being, for the most part, the appeasement of hunger involving the capture and killing of prey. Linked with, or rather dependent upon, an instinct so rudimentary as nutrition, the feeling is characterized by amazing violence, a violence which has been well compared to some titanic outbreak of nature, sudden, irresistible, like the eruption of a volcano.

Something of the kind is also seen in undeveloped human beings—children and savages, uncouth peoples, and idiots—in whom the outburst, with consequent acts of cruelty, is accompanied by feelings of pleasure. Instances of this kind of unbridled cruelty and anger disclosed by the *adult* have been afforded by the present war, especially during its initial stages, at the time when hordes of brutal, degenerate Teutonic soldiery overran Belgium and northern France. These outrages, for the most part, were perpetrated against the defenseless—old men, women, children. (See the Bryce report and other authentic evidence.)

The anger typical of civilized peoples is, on the whole, radically different from all this. Beginning in hatred or resentment at insult or outrage, the aggressive act, through the inhibitory intervention of the intellect, is postponed until judgment proclaims the time favorable for fulfillment. An instance in point is seen in the recent advance of the Belgian army. The last forlorn remnant of the military forces of a brave little country treacherously overrun; its inhabitants subjected to pillage and unutterable outrage, there arose and grew in the breasts of this soldiery a rancor that neither time nor the hardships of the trenches could allay.

Deliberately, tirelessly, they prepared themselves for the reckoning, increasing their numbers as they could, and adding little by little to their equipment. At length there came a day when Retribution, held back through all the years, leaped from the trenches. A call from their king, and these Belgian heroes fell upon the enemy, to overcome in a kind of frenzy of valor obstructions heretofore deemed impassable. Onward, mile upon mile, they fought their way, wreaking bloody vengeance; while their captives, sodden-faced, thick-jawed louts, shuffled in thousands to the rear.

Various attempts have been made to differentiate normal from pathological anger. It has been said, on the one hand, that normal anger as we see it in civilized races is a fugitive phenomenon, unaccompanied by detriment to the organism; while, on the other hand, its pathological manifestation is the direct reverse of this. Such distinctions are obviously difficult to draw in practice, although the extreme cases are easily recognizable. Of greater value is the test based on the presence or absence of adquate motive. Judged by this standard, the indignation of Belgium had a sufficient motive, and the like may be said of Servia and France.

While anger in its usual manifestations is of brief duration, the same, as we have seen, cannot be said of the feeling when aroused in war time. Hence, to apply at such a crisis the test of duration, with a view to determining whether anger is "normal," or the reverse, seems far-fetched, to say the least.

The physical manifestations of anger—distention of the veins of the face, increase of the cutaneous circulation (or sometimes extreme pallor); dilated nostrils, with labored circulation; violent, disordered acts of aggression; clenched teeth and increased salivation, are familiar to all. Pulmonary or some other form of hemorrhage may in extreme cases result in death.

Various writers have set down their observations as to pathological phenomena directly traceable to anger. Mention here of the more striking effects must suffice. These are demonstrable more especially in the secretions. Thus the lacteal secretion may be so modified as to exert a poisonous effect upon the nursing infant; or again, the saliva may be altered in such fashion that a bite from an enraged animal or human being may be followed by infection of a serious character, or even death.

One other effect of anger, a psychical one, I venture to mention, the fact that this feeling, more especially as exhibited in war time, exerts a disastrous effect upon creative effort, save in so far as this bears upon the conflict; tends, in a word, to give expression, active more or less, to the dominant emotion. Hence literary, artistic, and even scientific endeavors show remarkable shrinkage in breadth, their votaries finding, for the most part, the themes of their activities in various phases of the struggle. The same may likewise be said of

invention and the application of knowledge in general. However regrettable all this may seem from a purely artistic or idealistic standpoint, its immediate political advantage to the State is undeniable.

Biologically considered, anger is intimately associated with, and, indeed, has its origin in, the instinct of self-preservation, appearing, according to Darwin, as early as the tenth month. With the intellectual inhibitions, and the delegation of certain individual privileges inseparable from liberty with law, the arousement of this feeling with systematized aggression has, by common consent, become more and more associated with the defense and preservation of society as a whole. To imagine that anything so fundamental can be set aside by the shallow mouthings of pacific doctrinaires is to assume that men are quite different from what they are. The most that can be hoped for is that progressive enlightenment shall cause the relegation of the passion to the attainment of justice and right.

Besides the various factors already enumerated that tend to cause neurotic disturbances in the civil population during war time, there are certain others of undeniable significance in the genesis of these disorders.

First among such causative elements is the emotional effect upon parents and relatives, and indeed upon the nation as a whole, consequent upon the sending to the battle fields of Europe of vast numbers of the youth of the country. While the composite populations of the United States have always, under adequate provocation, disclosed martial characteristics of a high order, the spirit of militarism has never been rife among them. Indeed, the fact is well attested that here, as in England, greater store is set by life than in most of the continental countries. Because of this, and thanks to idealistic altruism, so plainly seen to be one of the distinguishing marks of American character, the emotional impact consequent upon the imminent sacrifice of their sons in the flower of manhood is more poignant than in a people of gross, uncouth, and sodden make.

There is, however, one mitigating circumstance peculiar to this war: the consciousness, now virtually universal, that kindliness, justice, freedom, even the most elementary decencies, are at stake; that civilization, laboriously perfected through the centuries, is everywhere threatened, and that death is preferable by far to the domination of a bloated barbarism which neither philosophy, literature, science nor art has been able to soften.

Finally, there is the thought of the morrow—the economic question: What has Fate in store for us at the end of the conflict? Shall we have trouble with the stock market? How are we to make ends meet? And business—shall we have expansion or decline? And so forward through the somber catalog.

It is evident that the nervous disturbances frequently encountered among civilians in this war—the insomnia, irritability, depression, morbid anxiety—demand a certain amount of medical attention. To go forward with intelligence in their management, however, presupposes an adequate acquaintance with the confluence of causes that evoke, perpetuate, and aggravate them. For this reason it has been necessary to go into the etiology of the subject in considerable detail. While the derangements of the nervous system previously noted are those most frequently met with among the civil population in time of war, other and more serious difficulties are not uncommon. Prominent among them is insanity, usually of a depressive type, but not invariably so; and, among somatic symptoms, anorexia with sudden and considerable loss of weight.

In conclusion, the significant fact should be recalled that during the years immediately preceding the entrance of the United States as an active participant in the war mental and nervous disturbances analogous to those occurring among the noncombatants during the course of the subsequent conflict were quite common among the more intelligent elements of the population. Keenly aware that the rights and established institutions of this country were threatened, both from within and without; exasperated beyond endurance by the brazen propaganda, intrigue, and sabotage, as well as by the slaughter of men, women, and children on the high seas, the absence of retributive action at that time wrought havoc with cherished ideals of national honor and esteem.

Only the dauntless valor of our troops in France and the colossal preparations for war now making in this country have served to mitigate in men of vision and understanding the recollection of those days of poignant humiliation.

53 West Thirty-eighth Street.

DEMONSTRATION OF DIPLOCOCCUS MENINGITIDIS IN THE ADENOID TISSUE OF THE NASOPHARYNX.

By J. D. ARONSON, Capt. M.R.C.,

AND

S. A. FRIEDBERG, Major M.R.C.,

BASE HOSPITAL, CAMP DONIPHAN, FT. SILL, OKLA.

AN investigation of an epidemic of cerebrospinal meningitis revealed so many points of interest that, in the opinion of the writers, a detailed report of the findings is warranted.

During the months of November and December, 1917, January and February, 1918, a small epidemic of meningitis developed among the troops stationed at Camp Doniphan, Ft. Sill, Okla. The first five cases occurred in the 110th Ammunition Train within a period of fourteen days. A second focus of the disease manifested itself about three weeks later in the 137th Infantry, an organization located about one and one-half miles from the Ammunition Train. Careful investigation showed that the development of this second focus could be attributed to the frequent visiting of the non-commissioned officers of the Ammunition Train to the 137th Infantry, the organization to which they were originally attached.

A consideration of the aobve circumstances led to the conclusion that the dissemination of the disease was probably due to the presence of a carrier or carriers in the Ammunition Train and a systematic study was undertaken to determine the fact.

Following suggestions made by Drs. Jordan and Mathers, the men of the caisson in which two cases of meningitis had but recently occurred were cul-

tured. The cultures were obtained from the nasopharynx by means of a sterile swab placed upon a wire which was bent at an angle of about 45 degrees. This was introduced through the mouth and passed backwards and upwards into the nasopharynx, care being taken not to touch the tongue or fauces with the swab. Plates of horse blood agar were then inoculated from these swabs and the plates streaked by means of a platinum wire. The inoculated plates were incubated for twenty-four hours at 37° C., and suspicious colonies were picked and stained by Gram's method. Colonies which showed the presence of Gram-negative diplococci were transplanted to tubes of horse blood agar and after twenty-four hours' incubation were emulsified in normal salt solution and macroscopic agglutination carried out, using a polyvalent antimeningococcus serum for that purpose.

The caisson cultured consisted of 126 men and of this number five were found to harbor the meningococcus in the nasopharynx. Of the five found positive, three were found in one tent, while the remaining two were found to be quartered in adjacent tents. The following questionnaire was then prepared and data obtained from meningitis cases upon their admission to the Base Hospital and from carriers and contacts in the field:

BASE HOSPITAL, CAMP DONIPHAN.
Fort Sill, Okla.
....., 1918

Name Color Nativity
Age Organization Date of Joining
Previous organization Date of Joining
Date when taken sick
Date admitted to the hospital
Symptoms
Previous cases in same organization and date of occurrence
Proximity to any previous case
Location of tent
No. of squad No. of platoon
Messing arrangement
Sleeping arrangement
Drilling arrangement
Fomites used in common
Names and addresses of friends
Names and addresses of friends in common with previous case of meningitis
Condition of nasopharynx
Home address.
Date when last home
Cases of meningitis in home town
Proximity to cases in home town
Laboratory results:
Spinal fluid
Nasopharynx

As a result of a study of these questionnaires it was found that Pvt. R. R. (one of the carriers found on January 4, 1918) was a friend in common of the following men who developed meningitis on the dates indicated:

Pvt. R. V., November 6, 1917.

Pvt. C. C., November 9, 1917.

Pvt. B. C., November 13, 1917 (in the same drill squad).

Pvt. A. C., November 20, 1917 (quartered in a nearby tent).

While this study was being made, Pvt. H. F. developed meningitis on December 24, 1917, and it was found that he was a tent mate of Pvt. R. R. It was at this time that the entire caisson was cultured, with the result that Pvt. R. R. and two of his tent mates were found to be meningococcus carriers.

In view of the foregoing findings it was considered probable that Pvt. R. R. was the source of the meningococcus infection. This was further borne out by the fact that following his removal from his organization on January 6, 1918, no new cases appeared until February 1, 1918, at which time the last case that occurred in his organization developed.

The following data has been collected as a result of our studies:

Pvt. R. R., age 23, white, farmer by occupation.

Now attached to Caisson F, 110th Ammunition Train.

Previous Medical History: Had measles at age of 11 and pleurisy at 22. His health had otherwise been good with the exception that he had always been subject to catarrhal affections of the respiratory tract.

Family History: Negative.

Personal History: He was born at Carthage, Mo., in 1894, where he attended public school until he was 16. In 1900 he went to Butler, Mo., where he remained until 1906, when he removed to Garden City, Kans. From 1912 to 1914 he worked on a farm at Ft. Collins, Col. He returned to Garden City in 1914, where he remained until he was drafted into the army on September 18, 1917.

During his stay at Fort Collins, Col., he made the acquaintance of a family, which he visited frequently. About one month after his first visit two children in this family developed meningitis and died. These are the only cases of the disease of which he has knowledge prior to his entry into the service.

In September, 1917, he was sent to Camp Funston, Kan., where he was assigned to Co. I, 353d Infantry. While there he was quartered in a barrack with about 150 to 200 men. According to statements made by comrades who were quartered with him, cases of meningitis developed in his barrack as well as in some of the adjoining barracks.

Present History: He was transferred to Caisson F, 110th Ammunition Train, stationed at Camp Doniphan on October 18, 1917. About two weeks after his arrival he complained of weakness in his legs, backache, anorexia, tinnitus aurium in the left ear and pain radiating from his neck to his head. This headache was increased by lateral movement of the head. The backache was relieved by medication, but the headache was persistent. After about three weeks the symptoms disappeared with the exception of the tinnitus. The Regimental Surgeon did not consider his condition serious enough to transfer him to the Base Hospital, nor to keep him in quarters. From the foregoing symptoms one would be hardly justified in the belief that Pvt. R. R. suffered from an attack of meningitis which resulted in his becoming a persistent carrier.

Physical Examination: General inspection showed a fairly well developed male weighing about 140 lbs. and measuring 67 inches. His facial expression was rather dull and apathetic. Examination of the chest, abdomen, and extremities revealed nothing abnormal. Upon examination the right naris was found to be free, but the left was obstructed by a deflection of the septum, which reduced the size of the passage to about one-third of the normal. The

tonsils were moderate in size, submerged and pus was forced out on pressure. The nasopharynx showed the presence of a small amount of adenoid tissue. There was no pus in the nose or nasopharynx nor was there any other clinical evidence of accessory sinus disease. With the exception of a retraction of the left drum membrane nothing abnormal was found in the ears. Roentgenographic examination of the sinuses was negative.

A culture taken from the nasopharynx on January 4, 1918, according to the method described above, yielded a pure growth of meningococcus which was agglutinated by a polyvalent antimeningococcus serum in a dilution of 1:400, which was the highest serum dilution used in that test. He was transferred to the Isolation Camp, where local treatment was instituted. Dichloramine-T in paraffin oil and oil of eucalyptol was applied to the nasopharynx and later local applications of silver nitrate were made.

Cultures taken from the nasopharynx on January 10, 14, 19, 22, and 26 were negative, but became positive on January 28, February 2 and 5. Cultures were again negative on February 9, 13, 17, 20, and 27, and again positive on March 2, 1918.

On March 6 he was transferred to the Base Hospital. A culture from the nasopharynx the next day was found positive.

On March 8 the tonsils and adenoids were removed under local anesthesia. Examination of the tonsils after removal showed them to be somewhat hypertrophied, with distinctly enlarged crypts from which pus could be expressed. No meningococci were found in cultures made from the tonsils.

Several small masses of adenoid tissue measuring about 1.5 cm. in diameter were fixed in Zenker's, embedded in paraffin, sectioned and stained with eosin-methylene blue and by Gram's method. Microscopic examinations of the sections of adenoid tissue revealed masses of bacteria upon the free surface of the tissue and small scattered clumps of bacteria throughout the cortex. Upon the free surface were noted areas of superficial ulceration, located about the masses of bacteria, and numerous

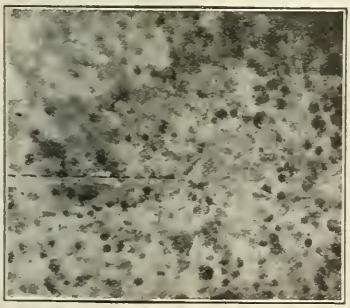

Fig. 1.—Low power photomicrograph showing masses of bacteria deep in adenoid tissue.

newly formed blood vessels were seen at the periphery of the ulcerated areas. The capsule and the trabeculæ were thickened. Tissue surrounding the masses of bacteria deeper in the structure stains uniformly pale and does not show any evidence of inflammatory reaction (Fig. 1). Under higher magnification the masses of bacteria were found to be Gram-negative diplococci with flattened approximating surfaces, resembling morphologically and in their staining reactions the meningococcus (Fig. 2).

Fig. 2.—High power photomicrograph showing a large nest of bacteria and a small clump of bacteria about a blood vessel.

Following the removal of the tonsils and adenoids, no local treatment was instituted, so that the result of the operation could be properly controlled.

The following indicates the result of post-operative cultures:

	Nasopharynx.	Nose.
March 12, 1918	Positive	Negative
March 17, 1918	Negative	Negative
March 20, 1918	Positive	Negative
March 23, 1918	Positive	Negative
March 25, 1918	Negative	Negative
March 27, 1918	Positive	Negative
March 30, 1918	Positive	Negative
April 1, 1918	Negative	Negative
April 5, 1918	Negative	Negative
April 7, 1918	Negative	Negative
April 10, 1918	Negative	Negative
April 14, 1918	Negative	Negative
April 18, 1918	Negative	Negative
May 5, 1918	Negative	Negative

All cultures were made upon horse blood agar, using six plates at each examination. A study of the nasopharynx on several occasions following the operation, while positive cultures were still found, showed an unhealed surface covered by a mucopurulent secretion. The complete healing of this area was followed by constantly negative cultures.

Study of the Cultures: After 24 hours' incubation at 37° C. the cultures obtained from the nasopharynx planted upon defibrinated horse blood agar showed discrete and confluent colonies. The colonies varied in size from 1 to 3 mm. in diameter. They were elevated, moist, round and opalescent in the center, while the margins were clear. The margin of the colony was regular in its outline and sharply limited. After 48 hours' incubation the tendency of the colonies to become more confluent and opaque was noted.

Microscopic examination of the cultures showed them to be Gram-negative diplococci with the morphology of the meningococcus. The organisms showed distinct variation in size and in staining reaction, this being especially marked in 48-hour old cultures.

Agglutination of the organism was carried out, using serum obtained from Pvt. R. R., antimeningococcus serum No. 1, No. 10, No. 30, No. 60, from the Rockefeller Institute and polyvalent antimenin-

gococcus serum. Control tubes were set up using normal horse serum and normal salt solution.

The serum was so diluted that the desired dilution was present in 0.8 c.c. of salt solution and to each tube of diluted serum was then added 0.2 c.c. of an emulsion of a 24-hour old culture obtained from the nasopharynx of Pvt. R. R.

The tubes were well shaken, placed in an incubator at a temperature of 55° C. overnight and readings made the next morning.

The results of the macroscopic agglutinations are here tabulated:

Dilution	Pvt. R. R.	Sera				Controls.		
		No. 1	No. 10	No. 30	No. 60	Polyvalent	Nor. Serum	Salt Sol.
1:10	x	x	x			x	—	
1:20	x	x	x			x	—	
1:10	x	x	x	—	—	x	—	
1:20	x	x	x	—	—	x	—	
1:40	x	x	x	—	—	x	—	
1:80	x	x	x	—	—	x	—	
1:160	x	x	x	—	—	x	—	
1:320	x	x	x	—	—	x	—	
1:640	x	x	x	—	—	x	—	
1:1280	x	—	x	—	—	x	—	
1:2560	x	—	s	—	—	x	—	
1:5120	x	—	d	—	—	s	—	

x—Positive. s—Slight agglutination. d—Doubtful agglutination.

Summary.

1. History of cases of meningitis in a community where Pvt. R. R. resided.

2. Sudden outbreak of meningitis in the organization to which he was attached.

3. Close association with four out of a total of six cases of meningitis in his organization.

4. Isolation of a pure culture of an organism showing the cultural, morphological, tinctorial and serological reactions of the regular type of meningococcus.

5. Sudden cessation of cases following his removal from the organization.

6. Demonstration of masses of bacteria in the adenoids removed from the nasopharynx showing the morphological and tinctorial characteristics of the meningococcus.

7. Persistent negative cultures from the nose.

8. Persistent negative cultures from the nasopharynx following the healing of the operative wound.

Conclusions.

1. That the epidemic which made its appearance in the 110th Ammunition Train was due to a carrier, who was identified as Pvt. R. R.

2. That proper isolation methods being instituted, the epidemic was checked.

3. That the organism was harbored in the nasopharynx exclusively.

4. That the persistence of the carrier condition was due to the localization of the organism in the adenoid tissue.

5. That local medicinal remedies were effective in obtaining negative cultures only while they were being used, but had no value in the relief of the carrier state. On the contrary, their employment could very easily have led to a false conclusion which might have proved dangerous.

We desire to thank First Lieut. Newton Stern, M. C., for the photomicrographs of this case.

SPLENECTOMY FOLLOWING RADIUM TREATMENT FOR MYELOCYTIC LEUKEMIA.*

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The first case of splenectomy for myelocytic leukemia was reported in 1866 by Bryant.[1] His patient was in poor general condition and the spleen was very large; death occurred two and one-half hours after the operation. Bryant reported a second fatal case in 1867. The spleen in this instance was again very large and the general condition of the patient poor. Death occurred immediately after the operation.

The history of splenectomy for myelocytic leukemia is a repetition of the history of Bryant's cases and is extremely tragic. From 1866 to 1900 the operation was not infrequently performed. Approximately 86 per cent of the patients on record died within a few hours of the operation. The patients for the most part were weak, toxic, and anemic, with huge spleens and high leucocyte counts, and had insufficient vitality to respond favorably at a time when surgical treatment could be suggested and accepted. It is true that they were operated on when least could be expected. The experience of various surgeons was similar, and the conclusion naturally followed that splenectomy for myelocytic leukemia was in no sense a justifiable operation.

Bessel-Hagen,[2] in 1900, was able to collect forty-two cases of splenectomy for leukemia in which four patients temporarily recovered. Johnston,[3] in 1908, collected seven cases that had been reported between the years 1900 and 1908, with the temporary recovery of two patients. The total number of splenectomies for leukemia to the year 1908 was, therefore, forty-nine, with the temporary recovery of only six patients. It is known that of the six patients who withstood the operation, four died later. One lived as long as eight months, another lived three and one-half years. From a practical standpoint, this experience meant a very prompt mortality of at least 96 per cent. Since the appearance of Johnston's paper, the surgical treatment of myelocytic leukemia has received almost no attention. McCowan[7] (1915) reported two cases in which operation was done after preliminary treatment by means of arsenic and the *x*-ray. There was marked improvement in these patients three months after operation. The total number of cases reported in the literature to Jan. 1, 1918, is, therefore, fifty one, with eight temporary recoveries, an operative mortality of 86 per cent; four of the eight patients are known to have died later, giving a total known mortality of 93 per cent. Carstons has collected abstracts of all cases of splenectomy up to the year 1915. His article forms a complete and instructive résumé of the subject; he presents protocols of many of the published cases of splenectomy for myelocytic leukemia.

The remarkable remissions in the course of myelocytic leukemia, which can be produced by

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means of the exposure of radium element, or radium emanations, over the enlarged spleen, have been recently discussed by Ordway, Peabody, and the writer. The fact that the improvement following radium exposures occurred as a result of treatment over the spleen only, and not over the long bones or over any other structures, led to the inference that possibly a malfunction of the spleen might have more to do with the general condition of the patient than had been supposed. Moreover, if the spleen could be removed at a time when it was small and freely movable, and when the general condition of the patient was good, the operative mortality would doubtless be much less than it had been formerly. Again, the elimination of the spleen as a mechanical factor would remove one of the most troublesome features of the disease, and add to the patient's comfort. Naturally, in the light of the fatal former experiences, it was with considerable hesitation that splenectomy for myelocytic leukemia was resumed. The surgical treatment of leukemia has been discussed recently by W. J. Mayo and D. C. Balfour.

CASES.—In August, 1909, at the Mayo Clinic the spleen was removed in the case of a man aged 45 (Case 27,414), whose leucocyte count was 11,000, and whose differential count showed no myelocytes. In August, 1911, two years later, the leucocytes were 64,500, with 14 per cent. myelocytes. The patient died Dec. 27, 1914, five years and four months after the operation, with the symptoms of cardiorenal insufficiency. The spleen in this case weighed 2500 grams. This was evidently a leukemia of a more chronic type, as splenomegaly had been present four years preceding the operation. The total length of the history was, therefore, at least nine and one-half years. In view of the condition of the patient at the time of the operation, it is possible that life was prolonged and the patient made more comfortable by splenectomy.

Sept. 2, 1916, a spleen weighing 1100 grams was removed from a woman aged 56 years (Case 171,009). There had been no previous treatment by means of radium or the *x*-ray. The leucocyte count was 203,000 with 4.7 per cent myelocytes. Thirteen days after splenectomy the count had become reduced to 47,400 with 15.7 per cent myelocytes. The leucocytes rose to 113,800 with 36 per cent. myelocytes, 2 months after operation. The patient was in good general condition up to three hours prior to death, which occurred one year and three months after operation and was probably due to cerebral hemorrhage. The duration of the history in this case was approximately 3.5 years.

Twenty patients with myelocytic leukemia have been splenectomized at the Mayo Clinic. The two patients just discussed did not have preliminary treatment by means of radium. The remaining eighteen patients, however, were treated by means of radium exposures over the spleen prior to splenectomy. The details of this method of treatment have been discussed in a former paper.[5] The spleen in each case of this series of eighteen was very much reduced in size and the general condition of the patient was very much improved as the result of radium treatment. The eighteen patients have been operated on within the last eighteen months; the last one Jan. 21, 1918.

The operation itself has not proved difficult in cases of leukemia when the spleen was only moderately large; there have been few adhesions and but little embarrassment from hemorrhage. Postoperative complications have been absent save in one patient who died with peritonitis. Postoperative transfusion was necessary only once.

The operative mortality for the entire group of twenty cases was one death, or 5 per cent. The operative mortality in the reported cases was 86 per cent. It is clearly demonstrated, therefore, that the operative mortality need not be high with proper preliminary preparation of the patient by medical means. A mortality of 5 per cent is lower than the average for splenectomy in general. Patients in remissions with only moderately large spleens are not serious operative risks, even though they had formerly had various forms of hemorrhage.

Of the remaining nineteen patients who recovered from operation, nine have since died, from two months to one year and three months after operation (leaving out of account the early chronic case in which the patient lived five years and four months, with a total duration of history of nine years and six months). The total duration of history in eight of the nine fatal cases was from nine months to three years and six months. In seven of the eight it was more than two years.

The length of life following splenectomy seems to vary most closely, with the total duration of the disease. Eight of the nine patients dying subsequent to operation presented a duration of the disease of over two years, while six of ten living patients presented a total duration of disease of less than two years. Two living patients had a chronic type of the disease, and presented a duration of symptoms of over ten years and over six years respectively. Aside from the chronic cases, then, when splenectomy has been performed there is no reason to infer that the disease runs more than its usual course of two or three years.

Seven patients were operated on early in the disease, that is, less than six months from the time of definite onset; six of these are alive, five are in excellent, or very good condition. It is possible, though not likely, that in these early cases the results will be better than in the later ones; four of the six patients have already lived more than one year. Nothing, however, of a definite nature can be inferred from the fact that six of the seven are alive, inasmuch as the total duration of the disease in all of them is less than two years.

It is worthy of note that in two cases of a chronic type the patients are alive ten months and one year and seven months respectively after splenectomy. The total duration of disease in these two patients has been six years and ten months and ten years and seven months respectively. The spleens were large and fibrous, and the leucocyte counts were not very high. Indeed, splenectomy may prove warranted in the very chronic types of the disease, from the standpoint of the patient's comfort, even though it be ineffectual in the prolongation of life.

The ages ranged from twenty-four to fifty-six years and seemed to make no difference in mortality. In general, patients with the largest spleens at the time of operation have died first. This would probably indicate that these patients represented a more severe type of the disease. The average weight of the spleens of the patients who were first treated by radium, and who have died since splenectomy was performed, was 975.6 grams. On the other hand, those with the smallest spleens at the time of

operation have, in general, lived the longest. The average weight of the spleens of these patients was 722.5 grams. Of twelve patients who lived one year or more after splenectomy, the average weight of the spleen at the time of operation was 800 grams; in nine patients who had had a very thorough course of radium treatment it was 498.3 grams.

A period of improvement in the patient's general condition followed operation in all cases save three. This general improvement consisted of a feeling of well being, which may have been psychic, of an improvement in the appetite and the anemia, of a gain in weight, and a definite loss of the icteroid tint when it was present. The general condition in most instances was quite satisfactory before operation, so that one can not say definitely that splenectomy was the factor responsible for immediate improvement. Marked gain in weight was, however, almost a constant postoperative feature. The period of improvement was not of definite duration.

The blood, after splenectomy, showed no definite alteration, with the exception of an increase in the relative percentages of both small and large "lymphocytes." This was apparently not secondary to the fluctuation of the leucocyte count itself. Its significance is undecided and the characteristics of these mononuclear cells require further study. It is to be learned whether they are of bone marrow origin or whether splenectomy in reality stimulates the activity of lymphopoietic structures. In some instances there is a very marked decrease, temporarily in the number of myelocytes found after splenectomy.

Two patients returned for observation after operation, and on examination were found to have enormously enlarged livers, which, however, gave no discomfort. The general condition and color were quite good in one of them.

One patient (Case 180,499), who died two months after operation, and who had presented very slight enlargement of the glands, developed a remarkable glandular hypertrophy immediately after the operation, which persisted to the time of his death. The leucocyte count rose to 466,000, of which 63 per cent. were small lymphocytes and 18.7 per cent. were large lymphocytes, with only 3 per cent. myelocytes. Before operation the small lymphocytes were as low as 3 per cent. with 28.3 per cent myelocytes. The small lymphocytes rose steadily, however, after radium treatment, to the time of operation, when they were 39 per cent. with 0.3 per cent. myelocytes. Two weeks after operation the small lymphocytes rose to 61.7 per cent, and the case if then seen for the first time would doubtless have been diagnosed as a lymphatic leukemia. Examination for oxidase granules in these cells was not made. A gland examined microscopically after death showed lymphocytic hyperplasia.

Summary.—1. Twenty patients with myelocytic leukemia have been splenectomized; eighteen of them after preliminary treatment by means of radium exposures over the spleen. The spleen and the leucocyte count were, by means of radium, very much reduced and the general condition of the patients was greatly improved.

2. One patient died, an operative mortality of 5 per cent. The operative mortality of cases reported in the literature in which little or no preliminary medical treatment had been given was 86 per cent.

3. Ten of the twenty patients are living in good general condition from nine months to one year and seven months following splenectomy. However, these patients have not yet outlived the life expectancy for the disease.

4. Of seven patients operated on within six months of the time of the onset of the disease, six are alive.

5. It is probable that, at least in certain chronic types of myelocytic leukemia with fibrous spleens and relatively low leucocyte counts, splenectomy may be justifiable for the comfort of the patient.

6. A review of the cases at this time reveals no evidence that the duration of the disease is altered in any definite way by splenectomy. A detailed conception of the results following splenectomy may be obtained from an examination of Tables 1 and 2.

Table 1.—Splenectomy for Myelocytic Leukemia.

Case.	Age.	Sex.	Leucocytes Time of Operation.	Date of Operation.	Weight of Spleen.	Death Time After Operation.	Duration of Disease.
OPERATIVE MORTALITY.							
216648	36	F	22000	1-21-18	1705	6 days	1 yr.
SUBSEQUENT MORTALITY.							
27414	45	M	11000	8-11-09	1514	5 yrs. 4 mos.	9 yrs. 6 mos.
171009	56	F	203000	9- 2-16	1100	1 yr. 3 mos.	3 yrs. 6 mos.
173772	35	M	7800	12- 8-16	740	1 yr.	2 yrs. 6 mos.
175791	24	F	9000	1-18-17	750	4 mos.	2 yrs.
176684	26	F	13200	2-28-17	560	1 yr. 2 mos.	2 yrs.
162899	32	F	37900	3- 8-17	1000	3 mos.	9 mos.
188262	50	F	22000	4-10-17	1340	8 mos.	3 yrs.
180499	42	M	5600	5-11-17	1300	2 mos.	2 yrs.
204838	53	M	11400	8-17-17	410	3 mos.	2 yrs. 3 mos.

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Table 2.—Splenectomy for Myelocytic Leukemia: Subsequent Condition of Living Patients.

Case.	Age	Sex.	Leucocytes Time Operation.	Date of Operation.	Weight of Spleen, Grams	Condition.	Time After Operation.	Duration of Disease.
168742	46	M	16400	9-19-16	2500	Good	1 yr. 7 mos.	10 yrs. 7 mos.
173312	33	M	3800	11-24-16	890	Excellent	1 yr. 6 mos.	2 yrs. 6 mos.
160937	37	F	68000	12-13-16	338	Good	1 yr. 5 mos.	3 yrs. 5 mos.
175574	37	M	15200	1-13-17	500	Excellent	1 yr. 3 mos.	1 yr. 5 mos.
169876	36	F	8400	1-27-17	220	Fair	1 yr. 3 mos.	1 yr. 6 mos.
177183	28	F	54400	2-17-17	440	Good	1 yr. 2 mos.	1 yr. 8 mos.
181494	19	F	7500	3-15-17	410	Excellent	1 yr. 1 mo.	1 yr. 7 mos.
186558	50	F	7200	4- 9-17	387	Good	1 yr.	1 yr. 6 mos.
193829	29	M	17000	6- 4-17	1320	Good	10 mos.	6 yrs. 10 mos.
199386	29	F	26000	7-26-17	220	Excellent	9 mos.	11 mos.

May 1, 1918.

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ANTHROPOMETRY OF SOLDIERS.

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An old European military saying is, to study the enemy, know all about him, his weak and strong points, if you wish to conquer him. As we are not a military people by nature, we are prone to be too sentimental in regard to knowing the enemy. But this attitude does not help toward winning the war. Since now we are at war, we should be more military and look at the matter like soldiers.

All knowledge about soldiers, whether of our enemies, our allies, or ourselves, is power, and will help indirectly and often directly toward winning the war.

It is in this spirit, as well as with a scientific purpose, that the author is attempting to give the results of measurements of soldiers of the different countries of the world.

The difficulties of such a task are many. Since in almost all European countries military service is compulsory, each country has recorded the physical status of all its men. Anthropologists in studying their own people, and sometimes other nations, have been given access to the measurements of the soldiers, and so most of our knowledge must come from their figures, which as far as they go, are usually from official sources.

The purpose of this article is not to go too much into details, but to give such data as will furnish the general reader as well as the specialist with sufficient information to pursue such studies more in detail with the different nations. The bibliography at the end of this article will give the main sources of such work.

We are now beginning in our country for the first time on a large scale to take a physical, mental, and moral status of our men, especially young men, and it should be done as well and as thoroughly as possible. It is the hope, therefore, of the author that this effort may help toward this end, by learning what other countries and more military nations have done.

Purpose of the Measurements of Soldiers.—The measurements of soldiers are necessary as tests of efficiency and for means of identification. They also have great scientific value for purposes of race analysis and classification combined with data as to color of hair, eyes, and skin.

Many of the results of investigations of races and nations are based upon measurements of conscripts. The upper classes are not so fully represented as the peasantry, as they are better able to evade military service. It is the proletariat which reflects most the influence of race and of environment.

Practical Importance of Head Measurements.—The author has treated in another article[1] of the practical importance of head measurements, especially for identification of soldiers after death in cases where bodies are in such a state of decomposition that finger prints and other methods would be useless in determining to whom the body belonged and for whom insurance should be paid. If a tag, by mistake or with design, should be placed on a body decomposed beyond recognition and sent back to this country, insurance might be paid upon it to the family. The soldier might be missing, or a prisoner, or might have changed his name. If the head measurements (constituting the cephalic index) of the soldier in question had been made, it would in many instances help toward his identification, and thus not delay just payment of insurance to the parents, or on the other hand prevent fraudulent insurance, and thus protect the Government from loss. Also, if it were known that head measurements had been made of the soldiers, this fact alone would have great influence in preventing attempts at fraud.

It has been officially stated that the bodies of our soldiers will be exhumed after the war. This will increase the importance of identification by head measurements. In comparing the measurements of the skull, where the soft parts are decayed away, with the measurement of the head of the living person to whom the skull is supposed to belong, 5 millimeters is added to the maximum length and 7 millimeters to the maximum width. Also 2 units can be added to the cranial index of the skull for comparison with the cephalic index of the head of the living person. The time necessary to take these two head measurements is one minute. There are also additional aids to identification after death, as the teeth; also by synostoses; thus if the sagittal suture is entire, the individual is about 35 years of age or less. The condition of the skeleton also would serve as collateral evidence. Thus the calcaneum is ossified throughout at the age of 16; at 19 the epiphyses of the metatarsal bones are united to the body; at 45 the xiphoid cartilage is ankylosed to the sternum.

The head measurements, combined with the physical examination of our soldiers, would establish on a large scale the physical status of the American people, who are paying and sacrificing for this war and are entitled to such knowledge.

Scientific Importance of Head Measurements.—The measurement of the soldiers in Europe has made it possible for anthropologists, sociologists and other specialists to study their peoples, the results of which are of great benefit to the people themselves. Measurements and other data collected for military purposes become a secure basis for the investigation and understanding of important social phenomena among the people. Thus there is a long-headed type of persons, generally blonde, who have been dominant in Europe. All the leading dynasties of Europe (Ripley*) have long been recruited from its ranks. This type for years has been predominant in high political and especially military circles, which is significant, rather, than among the intellectual classes.

One specialist (Ammon) divided his conscripts into three classes: (1) The urban, those whose

1. MacDonald, Arthur: "Identification of Soldiers After Death by Head Measurements." *Boston Medical and Surgical Journal*, pages 807-809, June 13, 1918.

*See Bibliography, where the work of each authority mentioned is given.

fathers were born in the city; (2) semi-urban, those born in the city, but whose fathers were from the country, and (3) semi-rural, who, born in the country, had come to the city. Comparing these three classes with those in the country, a regular increasing long-headedness (dolicocephaly) was evident.

The shape of the head is primarily the expression of racial difference, for the head in its form seems to be uninfluenced either by food, climate, or social status, so that it is the best exponent of permanent hereditary characteristics. It appears also very probable that neither artificial selection nor environment affect the shape of the head. The other factor that might do this is chance variation. This can be determined, however, by measuring many heads so that variations above and below the average may counterbalance each other. Thus the measurement of heads on the living rather than the dead should be pursued with large numbers to assure rigid scientific results, eliminating mere chance, as may occur with small numbers. The living are much more accessible than the dead; also we know more about them than about the dead whose skulls are studied, but necessarily in limited numbers.

Pure types of head are found outside of great geographical centers of population. Africa is as uniform racially as Europe is heterogeneous. When races meet and competition is intensified, and the type best fitted to survive increases, this tends to eliminate extreme types and to produce an average type, that is, long and short heads blend, and we have medium types, that is, mesocephalics predominate.

Thus a large proportion of the residents of cities in Europe are from the country towns, at least one-half (Hansen) are of direct country descent. There is a difference in shape of head of the upper and lower classes (Ammon), that is (as already noted), the city people are more dolichocephalic than those living in the country. Lapouage of France finds, with Muffang and Collignon, that this dolichocephalic blond type with political and military prestige have a marked tendency toward living in cities.

The association of a tall person with a narrow nose is almost a law. As we go from north to south in Europe blondness decreases and brunetteness increases. According to Ripley there are three European racial types:

1. *Teutonic:* Long head and face, light hair and eyes, and tall, aquiline nose = Dolichocephalic, Germanic, Kymric, Nordic, English, French.

2. *Alpine:* Round head, broad face, light chestnut hair.

Celtic: Hazel eyes, medium (stocky) stature, variable, rather broad nose = Celtic, Slavic, Sarmatian.

3. *Mediterranean:* Long head, long face, dark hair and eyes, medium (slender) stature, broad nose: Iberian, Ligurian, Atlanto-Mediterranean.

Long head, oval face; short head, round face. The long, narrow heads, as a rule, have a smaller capacity than those in which the breadth is considerable, but the exceptions are numerous. As already noted, the shape of the head is one of the best available tests of race we have. The form of head is best designated by the cephalic index, which is the greatest breadth of the head expressed in percentage of its greatest length from forehead backward. As the head becomes broader, the cephalic index increases, if 80 or more the head is called brachycephalic; if below 75 it is named dolichocephalic, between 75 and 80 it is called mesocephalic.

Stature.—As to stature, the aristocratic classes in the cities are found to be taller than the working classes. The well-to-do are taller than the poorer classes. Also, it has been determined that brunettes are more frequent in the well-to-do classes of the cities than in the poorer city classes. Baxter found that brunettes were more resistant to disease than blondes.

Italy was one of the first countries to enter into the path which is humanitarian, patriotic, and scientific, which consists in a fundamental study of the man who is in the army with a view to knowing all his aptitudes and qualities, that he may be better trained to serve his country.

The average height of the Italian in general is 1.645 meters, that of recruits 1.624. In France (Chervin) the average height of recruits is 1.646, being 22 millimeters more than in Italy. Austria and Hungary are about the same as Italy. Venice and Tuscany have the greatest heights, while the countries in the south and the meridional provinces of the Adriatic have the lowest statures. Latitude, place of birth and economic condition from which the recruits come show differences in height.

In times of peace height is more a recognized standard for recruits; a tall man is more imposing than a short man. A man may be called tall when his height is say four inches greater than the average of his countrymen; and he may be designated short when his height is a similar number of inches below the average. We have the tall Russian and the short Japanese, which suggests the influence of race. Physiological reasons show, especially for present war methods, short men quite as well fitted for military service and probably better than tall men. It appears that the standard height of the Japanese soldier is 5 feet 3 inches, but in emergencies it is as low as 5 feet. Hence "Bantam" regiments, so-called, are desirable.

According to several older authorities, the average height of soldiers in some of the European countries was as follows:

	Centimeters	
Norwegian soldiers	169.6-169.8	(Retzius, 1902)
Danish soldiers	162.2	(Baxter)
British soldiers	169.0	(English)
" "	170.8	(Scotch)
" "	169.0	(Irish) Beddoe
French soldiers	164.9	
Russian soldiers	168.4	(Westerlund)
Italian soldiers	164.5	(Livi)
Baden soldiers	165.2	(Ammon)
Alsace-Lorraine soldiers	166.67	
Württemburg cities soldiers.	166.1	
Schleswig soldiers	169.2	(Meismer)
German Switzerland	162.9	(Kummer)
French Switzerland	164.6	(Kummer)
Italian Switzerland	163.5	(Kummer)

The average height is 8 per cent. less than the average arm-reach of men in Sweden (Retzius).

Statistics of the Measurements of Soldiers.—These measurements of soldiers, in the tables which follow, are based upon the leading authorities (see bibliography) of different European countries, especially in Sweden and Italy, where more thorough study of soldiers has been carried out.

As far as the author knows, this is the first attempt in English to present anthropometrical statistics of soldiers of different countries. The results are very variable and necessarily incomplete, and for this very reason all such data as to soldiers available should be published, so that eventually more systematic work may be done, and the data be made more useful in gaining an insight into the condition of armies, showing both the weak and strong physical characteristics of the soldiers, and thus we shall be helped to prosecute this war with maximum efficiency.

Table 1.—Cephalic Index.

Name Country.	Year.	Dolichocephalic. No.	Dolichocephalic. %	Mesocephalic. No.	Mesocephalic. %	Brachycephalic. No.	Brachycephalic. %	Total No.	Authority.
Sweden	1902	13,493	30	25,544	57	5,863	23	44,900	Retzius
Italy	1896	10,947	4	65,327	22	217,997	74	294,271	Livi
*France	1894	119	4	865	29	1,926	67	2,910	Collignon
Spain	1894	1,064	13	5,090	61	2,214	26	8,368	Oloriz
Total		12,130	4	71,282	23	222,137	73	305,519	
China Northwest Siberia	1903	79	8	372	40	491	52	942	Kozaoei
	1914	69	27	50	19	137	54	2 6	Roudenko

In Table 1 will be found the number* and per cent. of the cephalic indices of several European nations. For Sweden and Italy the numbers studied are much larger than those for the other countries and have more weight; yet the smaller numbers indicate a probability. The table shows the Swedish soldiers to be distinctly dolichocephalic (30 per cent.), as compared with Italy and France, which are only 4 per cent. dolichocephalic, but 74 and 76 per cent. brachycephalic. China and Northwest Siberia are also brachycephalic, but not in so high a degree as Italy and France.

Table 2.—Heights of Soldiers in European Countries in Centimeters.

Country, Time Published.	No.	159 and Less	160	161	162	163	164	165	166
1902	%	2	1	2	2	3	4	5	5
Sweden	No.	847	623	821	1,072	1,269	1,340	2,120	2,118
1896	%	25	5	6	6	6	6	6	6
Italy	No.	77,354	16,540	17,148	18,255	18,483	18,172	19,163	17,435
1905	%	.....	.....	.....	.....	.....	.....	.....	.....
Denmark	No.	2,948	1,422	801	2,248	1,402	3,036	1,613	3,580
1912	%	.....	.....	.....	to 162	6	6	7	6
France	No.	.....	.....	.....	77,154	16,606	17,891	20,565	18,027
1891	%	25	5	5	5	6	6	6	6
Switzerland	No.	46,821	8,614	8,892	10,058	10,442	10,642	10,889	10,373
1909	%	12	5	5	6	6	7	7	7
Bulgaria	No.	11,774	8,003	8,520	10, 32	10,753	11,371	12,840	12,173

Country, Time Published.	No.	167	168	169	170	171	172	173	174
1902	%	5	6	6	8	7	7	6	6
Sweden	No.	2,494	2,844	2,752	3,456	3,060	3,061	2,593	2,532
1896	%	5	5	4	4	3	3	2	2
Italy	No.	16,728	15,239	12,702	11,324	9,151	7,846	6,609	4,816
1905	%	.....	.....	.....	.....	.....	.....	.....	.....
Denmark	No.	1,957	3,655	1,699	3,477	1,442	1,464	2,461	1,024
1912	%	167+)	.....	.....	.....	.....	.....	.....	.....
France	No.	125,891	.....	.....	.....	.....	.....	.....	.....
1891	%	5	5	4	3	3	2	2	2
Switzerland	No.	10,029	9,474	8,208	7,564	6,245	5,501	4,425	3,605
1909	%	7	6	5	6	4	4	3	3
Bulgaria	No.	11,954	11,179	9,592	9,842	7,565	6,814	5,234	4,510

*The percentages only for each index and total number for all were given by the specialist. The absolute number of each index were calculated by the author from the percentages. In this and all tables which follow, fractional percentages are usually omitted; when more than one-half, one is added.

Country, Time Published.	No.	175	176 and More.	Mean Height.
1902	%	6	20	.....
Sweden	No.	2,518	9,309	171
1896	%	1	4	.....
Italy	No.	4,122	12,141	166
1905	.....	.....	.....	.....
Denmark	No.	1,775	4,446	169
1912	%	.....	.....	.....
France	.....	.....	.....	166
1891	%	1	4	.....
Switzerland	No.	2,784	7,507	166
1909	%	2	5	.....
Bulgaria	No.	3,528	9,753	.....

Table 2 shows the heights of the soldier of five countries of Europe, two in the north and three in the south. It is evident that the northern soldiers are taller than those in the south, as indicated by the mean height in the last column of the table. The great uniformity of the figures should be noted; thus Italy, France and Switzerland have the same mean height.

Table 3.—Mean Heights. Danish Committee.

Anglo-Saxons	172	Alsace-Lorraine	169	Belgium	166
Schleswig	172	Baden	169	Autsria	166
Sweden	171	Würtemburg	167	France	166
Norway	171	Switzerland	166	Italy	166
Denmark	169	Savoy	166		
Holland	169	Saxony	166		

In Table 3 is given the mean height of the soldiers of some 16 European countries, arranged in order of superiority. In general as we go south the height of the soldier decreases. The heights are in centimeters. In both tables fractions are omitted. The authorities are: For Sweden, Retzius; Italy, Livi; France, Collignon; Switzerland, Rosenfeld; Denmark, Danish Committee on Anthropology, and Bulgaria, Official Commission. (See Bibliography.)

Table 4.—Sweden. Cranial Index.

Prehistoric Periods.	Dolichocephaly. No.	Dolichocephaly. %	Mesocephaly. No.	Mesocephaly. %	Brachycephaly. No.	Brachycephaly. %	Total No.	Total %
Stone age	21	50	18	43	3	7	42	100
Bronze age	13	65	4	20	3	15	20	100
Iron age	32	63	15	29	4	8	51	100
Total	66	59	37	32	10	9	113	100
Modern times	13,493	30	25,544	57	5,863	13	44,900	100

We have constructed Table 4 so that prehistoric Sweden may be compared with modern Sweden, as to the cephalic index. The table shows that the inhabitants of Sweden, hundreds of thousands of years ago, were much more dolichocephalic than they are to-day; the percentage is almost double (59 to 30). While immigration (near the cost especially) has probably reduced the number of long-headed, the dolichocephalic type has been preserved.

That there is a distinct relation between height and cephalic index is shown in Table 5. Dolichocephaly increases as height increases in soldiers, while mesocephaly and brachycephaly decrease. These increases and decreases are quite regular and suggest a general law, that tall men are usually

long-headed (dolichocephalic) and short men round or broad-headed (brachycephalic).

Table 5.—Height and Cranial Index (Retzius).

Height in Centimeters.	Dolicho-cephalic.		Meso-cephalic.		Brachy-cephalic.		Total.
	No.	%	No.	%	No.	%	No.
159 and less	208	25	508	60	130	15	846
160-164	1,369	26	3,147	59	806	15	5,322
165-169	3,460	28	7,059	58	1,703	14	12,222
170-174	4,505	31	8,327	57	1,852	13	14,685
175-179	2,429	33	4,784	55	999	12	8,612
180-184	896	34	1,418	54	309	12	2,623
185+	206	36	301	53	63	11	570
Sum of indices and average per cent	13,493	30	25,544	57	5,863	13	44,900

Table 6.—Color of Eyes and Hair (Retzius).

Countries.	Eyes of Soldiers.			Hair of Soldiers.			
	Light.	Mixed.	Dark.	Light.	Brown	Black.	Red.
	%	%	%	%	%	%	%
Sweden	67	29	4	75	22	1	2
Baden	64	23	13	42	39	18	1
Italy	10	21	69	8	60	31	1

It will be seen from Table 6 that soldiers with light hair and light eyes decrease in Europe as we go south, letting Sweden represent north, Baden middle, and Italy south Europe. That is, blondes increase as we go north and brunets increase as we go south.

Table 7.—Height and Chest Girth in Italy.

Stature in Centimeters.	Total No. of Observations.	Circumference of Chest in Centimeters.			
		Less than 80.	80 to 85.	85 to 90.	90 and More.
Less than		1%	40%	48%	11%
160	54,537	381	21,905	26,435	5,816
160 to 165	104,632	1% 427	31% 32,454	50% 52,990	18% 18,761
165 to 170	87,372	230	22% 19,094	50% 43,469	27% 24,079
170 and more	52,764	94	12% 6,550	43% 22,870	44% 23,220
Total	299,305	1% 1,132	26% 80,033	49% 146,264	24% 71,876

In order to show the relation between the height and circumference of chest of Italian soldiers, we have formed a table based upon Livi's study of Italian recruits. The table (7) gives the figures for different heights in centimeters in connection with chest girths of certain limits. In general it will be seen that the chest girth varies with the height, that is, it is greater as the height is greater, but with some limitations.

The circumference of the chest is of great importance for the military surgeon; it is a valuable criterion of fitness for service as index of resistance to fatigue of military life.

From a careful study of Table 8 a general law is established between birth above sea level and height; that is, short men increase in number as the height of their birthplace above the sea level increases (columns 3 and 4 of table 8), and on the other hand tall men decrease as the height of their birthplace increases above the sea level (columns 5 and 6, table 8). The causes of this are complex. It is doubtless true that the deficient nutrition of men living in high altitudes has some effect on growth.

Table 8.—Sea Level and Height of Soldiers (Livi).

Distance Above Sea Level in Meters.	General Total of Observations.	Height in Centimeters.			
		Less than 160.	160 to 165.	165 to 170.	170 and More.
		15%	33%	31%	21%
0 to 50	74,659	11,330	24,754	22,929	15,646
		17%	34%	30%	18%
51 to 200	77,063	12,945	26,147	23,198	14,773
		18%	35%	30%	17%
201 to 400	72,908	13,299	25,693	21,378	12,538
		23%	37%	27%	13%
401 and more	74,725	16,970	28,042	19,889	9,824
		18%	35%	29%	18%
Total	299,355	54,544	104,636	87,394	52,781

Table 9 gives absolute numbers and percentages as to shape of forehead, nose, and face generally, and as to size of mouth, in connection with certain heights of Italian soldiers. It will be noted from careful examination of the table (83 that as to foreheads (columns 2 and 3) the high ones are more frequent in tall men and the low are more frequent in short men. The aquiline nose is also more frequent in tall men, while the flat and snub nose more often accompanies short stature (all numbers and percentages in columns 4, 5).

From columns 6 and 7 it will be seen that small mouths go more frequently with superior stature, and large mouths are more frequent in short people. The long face goes more frequently with superior height, while a projecting, flat or short face is found more frequently in short persons. Briefly, the tall soldiers are more favored with facial characteristics than the short soldiers. But as we have seen, for military purposes the short soldiers appear to have the advantage.

Table 9.—Height in Relation to Physical Characteristics of Face in Italian Soldiers (Livi, 1896).

Height in Centimeters.	Forehead.		Shape of Nose.	
	Low.	High.	Flat and Snub.	Aquiline
Less than 160	19%	19%	22%	12%
	10,343	10,191	11,928	6,688
	17%	20%	20%	14%
160 to 165	18,223	20,709	20,877	14,507
	17%	21%	18%	15%
165 to 170	14,636	18,011	15,824	13,414
	15%	22%	14%	17%
170 and more	8,179	11,789	7,318	9,051
	17%	20%	19%	15%
Total	51,381	60,700	55,947	43,660

Height in Centimeters.	Size of Mouth.		Shape of Face.			
	Large.	Small.	Projecting.	Flat.	Long.	Short.
	12%	12%	3%	7%	11%	4%
Less than 160	6,740	6,836	1,549	3,690	5,871	2,486
	11%	13%	2%	6%	13%	3%
160 to 165	11,427	13,528	2,633	6,325	13,638	3,478
	10%	13%	2%	6%	15%	2%
165 to 170	8,483	11,710	2,092	5,080	13,558	2,183
	9%	13%	2%	5%	17%	2%
170 and more	5,036	7,069	1,201	2,885	9,121	1,024
	11%	13%	2%	6%	14%	3%
Total	31,686	39,173	7,475	17,980	42,188	9,151

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THE CONGRESSIONAL.

OBSERVATIONS ON HYPERTROPHY OF THE PROSTATE GLAND.

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SOME one has said that the function of the spleen, in malaria, is to enlarge. The same might be said, with equal truth, of the prostate gland in old men, as sixty-five per cent. suffer from varying degrees of enlargement. The derivation of the word, from the original Greek, is to *stand before*, and this is literally what the gland does before the urethral orifice.

Gross Anatomy.—The prostate gland is made up of two lateral and one middle lobe, surrounding the neck of the bladder, and forming the prostatic portion of the urethra. The gland is composed of muscle, glandular tissue, and stroma, all of which tissue is very susceptible to hypertrophy and growth. Some have contended that this enlargement comes mostly from the suburethral gland on the vesical side of the ejaculatory ducts—a neoplastic adenomyoma or fibromyomatous tumor, very similar to the fibroids of the uterus, originating in the walls of the sinus procularis. These tumors may be single, but are often multiple, and may be shelled out of their beds in operating very much as an onion is peeled out of its rind.

There are three clinical varieties of hypertrophy; adenomatous, fibrous, and malignant. The first type causes the greatest enlargement and mechanical obstruction to the urinary flow, which necesitates the surgical removal of the gland in the great majority of cases. The malignant type may be either epitheliomatous, carcinomatous, or scirrhous, and constitutes about ten per cent. of the cases. Occasionally prostatic tumors are pedunculated. When the enlargement is confined to the lateral lobes the obstruction to the flow of urine is greatest; the enlargement of the median lobe puts a barrier across the urethra, converting the meatus into an upward-shaped crescent. All three lobes enlarging simultaneouly push the meatus into a Y shape. If one bisects the average enlarged prostate gland, one will find that it is composed of numerous prostatic tumors and muscular tisue, that have made a capsule for themselves either out of the surrounding stroma or of the mucous membrane of the bladder wall. The normal prostate, in the average adult at twenty-one years of age, should weigh a little less than an ounce. The average weight of tumors removed is about three ounces, while in some cases they have weighed as much as twelve ounces. The tendency of the tumor is to grow upwards and backwards under the vesical mucous membrane, causing a considerable lengthening of the urethra, so much so that the length (of eight inches) of the normal urethra may be increased to sixteen inches.

Causes.—The causes of enlarged prostate are sexual excitement, age, horse-back and other rough riding, infections (gonococci), exposure to cold and damp, stone in the bladder, and other irritations and pathological developments of tumors in the prostate gland from constant sexual congestion. While the enlarged prostate is mostly confined to men passed fifty years of age, young men, who are high livers and of bibulous habits, constantly infecting themselves with gonorrhea, may also have their prostates enlarged. Occasional acute causes are abscesses and cystitis.

Symptoms.—The growth of the tumor up and under the mucous membrane of the bladder produces a pouch, which contains residual urine, and in many cases is the seat of a beginning cystitis. The straining effort to get rid of the residual urine causes the bladder muscles to thicken at first, but afterwards atrophy of these muscles may occur as a result of the continuous dilatation of the bladder. Incontinence of urine may also be expected after the bladder has been dilated to the utmost for a long period. This residual urine undergoes ammoniacal decomposition, which irritates the bladder wall, causing a constant desire to pass urine, especially at night,. while in the recumbent position. Sleep is interfered with, and more than this—the back pressure from the distended bladder and ureters causes a reverse current and dilatation in the ureters, carrying infection and congesting the kidneys, and sometimes producing pyelitis.

Phosphatic calculi may form and become encysted in the bladder or prostatic wall and produce no particular trouble, beyond adding to the vesical irritability, but if the stone remains loose in the blader, it adds more obstruction to the outflow of urine. The bladder wall, as a result of its distention, may lose all its propulsive power, causing the urine to be voided very slowly or to dribble away. If chronic nephritis results from the infection, the amount of urine is increased, and the necessity of voiding it more frequently seems to add insult to injury. The stream of urine may not be smaller than normal, but there is less force to propel it. The residual urine is alkaline from phosphates; and muco-pus, if it extends up to the kidney, is a common cause of pyelitis or uremia. Overindulgence in drink, abuse of the sexual function, and exposure to cold and damp may bring about a crisis in which the urine is suddenly stopped. Straining opposes, rather than helps, the expulsive effort. We cannot always determine the amount of obstruction by the size of the prostate. Obstruction of the rectum and constant straining, while urinating, causes hemorrhoids; and very large prostates may so press upon the rectum as to retard its function.

Diagnosis.—A patient having to void his urine six times, or more, during the night, and as often during the day, if passed the age of fifty, comes either in the nephritis or enlarged prostate class. This frequency may not be so noticeable during the day, due, of course, to the upright position. The enlarged prostate can always be felt by a thorough digital examination of the rectum. Dullness on percussion over the pubis, caused by a distended bladder, indicates prostatic obstruction. (Enlarged prostates are often responsible for a *vicious circle* established in old men and evidenced by priapism, sexual perversion, and gross indecency.) Relaxing the sphincter is necessarily slow at the beginning of urination; acute retention makes catheterization imperative. Cystitis and renal symptoms soon follow in close succession. The last urine squeezed out of the bladder usually contains pus and blood, also albumin from the prostatic fluid with which it is mixed. Casts will also be found if the kidneys are involved. A cystoscope occasionally aids in diagnosis.

When urinary expulsion is impossible, and a catheter life becomes necessary, the patient, before being permitted to catheterize himself, should be carefully instructed in asepsis and the use of a web or rubber catheter. The gum or web catheter is preferable for the patient, but the doctor usually prefers the metallic instrument, as it serves as a long finger to help him diagnose a stone in the bladder, the amount and extent of obstruction, together with increased length of the urethra In order to enter the bladder, the doctor very frequently needs a variety of catheters, bent at different angles at the end (coudé), of unusual length, and small in size, in order to relieve the distended bladder, and, even then, it sometimes becomes necessary, in emergency cases, to use a suprapubic trocar and cannula With the best instructions, in the hands of the patient, the use of the catheter very frequently leads to a regretable infection. The chill and fever which may follow the introduction of the catheter are due to the absorption of the bacteria if the mucous membrane of the bladder is traumatized. A hypodermic of atropine and morphine is the prophylactic remedy for urethral chill. However, we have known of many patients who have been carefully instructed in the methods of keeping the instruments sterile and properly lubricated, living comfortable lives for many years by this palliative treatment alone The use of the catheter should be limited to the preparation of the patient for an operation, and for the immediate relief of a distended bladder, and should not be recommended as a curative measure at all. As the doctor and nurse cannot always be present when it becomes necessary to void, it is important that the patient be carefully instructed in asepsis and lubrication of instruments, as just mentioned. In evacuating the bladder (in cases of enlarged prostate) the long curved silver catheter is preferable, but the stem has to be long and pressed far down between the thighs before the urine will flow, on account of the increased length of the urethra If a patient can pass eight ounces of urine without a catheter, every four hours, his kidneys and blader may be considered functioning very well.

Treatment.—This is prophylactic, palliative (catheter and suprapubic drainage), and radical, or removal of the gland. The usual internal remedies are five grains each of boric acid, salol,. and hexamethylenamine. Rest, which is very important in all bladder affections,. is classed among the best palliative measures in the treatment of hypertrophied prostates The catheter treatment is recommended only for the age-infirm and diseased, who cannot undergo an operation but must have their bladders emptied. Patients requiring a prostatectomy are usually advanced in years, with a trinity of diseases—cardio-vascular-renal; hence, are bad subjects for any operative procedure. Residual urine, diseased bladder wall infection and resultant cystitis add other serious obstacles to the operation. Septic catheter, stone in the bladder, pyelitis, and other complications, all taken together, do not present a very promising picture for recovery after operation The percontra of these unfavorable conditions, which weigh in the balance on the operative side, is that operations drain the infected bladder, relieve the pain and back pressure from the ureters and kidneys, and get rid of the residual urine, pus, and stone, if present. Bladder irrigation can be done effectually, and all sepsis washed away, through a large drainage tube; and the constant risk of infection through a septic catheter is eliminated. We know of no desperate condition in surgery, for which more prompt relief can be obtained, than is afforded by a suprapubic drainage of these foul bladders.

As a preliminary to any operation, rest in bed must be enjoined, and a diet of milk, cereals, vegetables, and fruit instituted; all meats, condiments, salt, coffee, tea, and alcohol should be avoided, the same as in kidney diseases. Many patients eighty years old have been operated upon successfully, and days of prolonged pain and inconvenience relieved, with many happy years added to their lives. The operative mortality, even in these old cases, should not exceed four per cent. in the hands of competent surgeons. Irrigating the bladder with two ounces of

one to five thousand nitrate of silver solution, introduced into the empty bladder and allowed to remain, though painful, often works wonders in these cases; but this should be followed by daily injections with two per cent. solution of some of the organic silver salts, or with warm two per cent. boric acid solution, until the bladder is relatively clean, before any operation is undertaken. Remember that ether, shock of operation, or absorption of bacteria may unbalance diseased kidneys which are functioning sufficiently well to keep elimination ahead of the production of waste. Do not allow yourself to be hurried into operating upon these cases until they are thoroughly prepared, as only fools rush in where experienced surgeons hesitate. It is usually preferable to make two stages of the operation rather than to attempt to do too much at one sitting on these bad surgical subjects.

Operation.—After antiseptically preparing the patient, an incision about two or three inches long is made in the median line just above the symphysis pubis, being careful not to open the peritoneal cavity. After the incision is made through the fat, the bladder wall can be seen in the space of Retzius; if the peritoneum encroaches upon the upper bladder wall, it should be held out of danger with a retractor. Two silk sutures are inserted, on either side, into the bladder to support its wall in position while the viscus is opened and drainage tubes put in. If the bladder is not to be opened at the first operation, the wound is packed with plain or iodoform gauze, and left for from twenty-four to forty-eight hours, when, after local analgesia, it is opened and a large drainage tube is inserted through this opening and held in place by sutures. Through this tube, or tubes, the bladder may be irrigated with hot boric acid solution, or sterile water, leaving the removal of the prostate gland to a later period, when the bladder is free from sepsis and the kidneys are relieved of congestion. The condition of the patient is much more favorable for the second stage of the operation. To raise up the peritoneal membrane in this operation, the bladder should be distended either with air or with twelve ounces of boric acid solution, or by inserting a Peterson bag into the rectum and moderately distending it. The Trendelenburg position also assists in raising the peritoneum. The enlarged prostate can usually be shelled out by the finger, breaking through the mucous membrane at the meatus, following the line of cleavage with least resistance. For the removal of the gland, the finger serves a better purpose than cutting or gouging instruments, which increase the risk of hemorrhage. A silver catheter should be held in the urethra by an assistant, as this enables the surgeon to determine the mouth of the urethra, which should be enlarged by the finger tip, while determining if the prostatic portion is yet intact. Among the chief dangers of operation at this period are shock and hemorrhage: the former should be blocked by a preliminary dose of morphine and atropine, and hemorrhage checked by direct pressure, a suture, or packing with gauze. The end of the gauze should protrude through the external opening, and may be removed whenever we are positive the hemorrhage is checked. On the other hand, the introduction of the finger into the rectum, and the application of direct pressure with gauze in a sponge holder, will usually prevent the necessity of using either sutures, packing or styptics, which might irritate the bladder. Cuts into the prostate with Bottini's galvanocautery, double castration, vasectomy, and ligating the internal iliacs to starve the growth of the gland, are now very rarely resorted to. Some surgeons prefer a horseshoe perineal incision to remove small and fibrous prostates, on account of leaving the drainage in the most dependent portion of the wound, at the same time being able to use instruments in removing the gland.

In operating upon the glands, as suggested above, we have had successes, and but few failures to relieve these old men.

Medical Building, New Orleans, La.

PURPURA RHEUMATICA.

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NEW YORK.

ALTHOUGH the old view that simple purpura, purpura rheumatica, and purpura hemorrhagica are distinct diseases has been largely abandoned, it is necessary for the purpose of description to retain these terms. According to Osler's definition purpura rheumatica (peliosis rheumatica of Schönlein) is in reality a simple purpura with arthritic manifestations.

The clinical classification of acute and chronic is also applicable to purpura, though the latter condition is not so frequently seen. The more appropriate term for chronic purpura is chronic recurrent, because of the intermittency of the symptoms. The case which I shall describe below belongs to the latter classification and it is on account of its infrequency that I am reporting it.

Etiology: Johnson[1] claims to have isolated diplococci from lesions in cases of purpura rheumatica. A. Ernst[2] reported epidemic purpura in barracks and other over-populated confines. Cowel,[3] on the other hand, failed to produce purpura experimentally. Stephen MacKenzie found a history of rheumatism in 61 out of 200 cases of purpura. In my case of chronic recurrent purpura I could elicit no history of rheumatism or of an infectious process existing prior to the first appearance of the symptoms. It is possible that a disturbance in metabolism may have been responsible for the original attack and the subsequent recurrences. Magnus-Levy[4] found serious disturbances in metabolism in a case of purpura hemorrhagica.

CASE.—L. E., male, aged 20, single, wood carver by trade. Father died from pneumonia, mother and a sister living and are well. He had measles, chickenpox, and whooping cough during childhood. Venereal history, negative. Has had an occasional epistaxis during the past few years, of a very mild character. Has been in perfect health otherwise, until April, 1914, when he first noticed a few small purpuric spots about 3 to 10 mm. in diameter, mostly on the lower limbs, accompanied by pain and slight swelling of the knees. The attack was not severe enough to incapacitate him from work. This condition lasted about a week, and then subsided to recur two or three weeks later. The purpuric eruption in the subsequent attacks appeared in different areas, and other joints, such as the wrists, metacarpal, phalangeal, etc., would become slightly swollen and tender. Another condition brought out on

questioning was that the least amount of trauma to any part of the body produced a purpuric eruption.

He appeared to be a youth of average size and weight; mucosa normal; nasal, oral, and aural cavities showing no defects. Heart and lungs negative. He had a few purpuric spots on the arms, forearms, buttocks, and thighs. Some of the extravasations were in the process of absorption. His right wrist and left knee were slightly swollen and painful on motion. On testing the coagulability of the blood by Millian's test, I found it coagulated in 12 min. The urine was negative.

The treatment which I thought of based upon Johnson's infection theory was autohemotherapy. The technique employed was the drawing of 5 mils of blood from the median basilic vein and then injecting it intramuscularly. After I had tried this method three times in the course of twelve days, the patient objected to further injections. There was to my mind a visible improvement, though it was too soon to state definitely as to the value of this kind of therapy. I have subsequently tried the usual list of preparations recommended for this affection by Osler and Forschheimer, with only temporary relief.

Calcium lactate is less irritating to the alimentary tract than the chloride and therefore preferable. Arsenic can be given as Fowler's solution, but in order that its full therapeutic effect be obtained, it should be given to toleration. Sodium cacodylate can be given intramuscularly in 3-grain doses for several days in succession, omitting three days, recommencing, and so on.

After several months of treatment and intervals of quiescence of symptoms the patient discontinued seeking relief, and I have eventually lost sight of him.

Since reporting this case I read that J. A. Sincord[5] noticed good results from homohemotherapy, which consisted of subcutaneous injections of 80 to 120 mils of blood taken from a healthy individual.

Until the etiology of purpura is well understood it is difficult to treat this affection, except empirically as heretofore, hoping for an amelioration of the symptoms.

REFERENCES.

1. W. B. Johnson: *Miss. Med. Monthly*, Jan., 1912.
2. A. Ernst: *Medizinische Klinik*, Aug., 1912.
3. Cowels: *Brit. Med. Jour.*, Oct. 26, 1912.
4. Magnus-Levy: Osler's Text-book, p. 751.
5. J. A. Sincord: *Press Médicale*, June 13, 1918.

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Medicolegal Notes.

Insufficient Evidence of Malpractice.—In an action by a patient against a physician for a tort to the person the jury gave a verdict for both actual and punitive damages. The physician appealed. The appellate court said: "The alleged tort arose out of the treatment of the plaintiff by the defendant for piles. The charge is that the treatment was both negligent and wilful. We have considered the testimony, and there is no room to infer from it that the defendant was either negligent or wilful in what he did. The only negligent act suggested by the plaintiff's counsel at the bar was the persistent treatment of the patient, notwithstanding the pain which the treatment gave the patient. The defendant offered no testimony to prove that piles could be treated without pain. Negligence is not a reasonable inference from the bare fact that pain accompanied treatment.

"There was no testimony tending to prove that the compound injected, or that the instrument used for the injection were unfit. On the other hand, one of the plaintiff's expert witnesses testified that he 'had heard of treatment by injection, and that some reputable physicians use the same now.' Counsel for the appellant was unable to suggest at the bar any act or any utterance of the defendant which pointed to his wilfulness, and the testimony shows none such. The court ought to have directed a nonsuit, and must yet do so.

"The court furthermore excluded all testimony to show specific instances in which other persons had been benefited by the treatment which was administered to the plaintiff. The complaint alleged 'that the defendant is commonly called and designated as a quack and ar impostor, and that he is unskilled and unlearned in his profession, and was and is wholly incapable of relieving or curing piles in and by the manner of treatment which he applied to the plaintiff, and that the defendant well knew such fact.' The issue then which the plaintiff tendered by his pleading was that the remedy was specious, and the defendant knew the fact. If it be true that the defendant applied the same remedy to others than the plaintiff, which others had a like affliction, and with helpful results, that would tend to disprove the plaintiff's allegation. The testimony was competent."

The judgment was reversed, with directions to enter a nonsuit for the defendant.—Thomas v. Register, South Carolina Supreme Court, 96 S. E. 517.

Practising Without License.—In a prosecution against a chiropractor for practising medicine without a license, as required by the Missouri statute, it was held that requested instruction to acquit, if the defendant treated a patient at her request and without reference to her ailments was properly refused, in view of evidence that the patient knew the object of the treatment was to give her such relief as it might afford. The court said that if such a mental attitude on the part of the defendant could be tortured into a defense to the charge of treating the sick and infirm without complying with the law regulating the practice of medicine and surgery, then the law would be practically a nullity. The court quoted from State v. Smith, 233 Mo. 252, 135 S. W. 466, as follows: "In actual practice the chiropractor makes no physical examination outside of the spinal column. He does not feel the pulse, take the temperature, prescribe any diet, or use any instruments. He simply examines the spinal column, determines whether or not a subluxation, as he calls it, exists, and if he finds it, adjusts the same. . . . The Legislature thought, perhaps, that this act (that of 1901) was necessary to protect credulous sick people from injury at the hands of charlatans and quacks, with their specious promises of a sure cure without drugs; or, it may have been thought necessary to forbid harmless practices in order to insure protection against those that are dangerous and hurtful. Sick people sometimes grow desperate in their search for a cure, or their judgment becomes weakened, so that they fall an easy prey to the ingenious and varied devices of the pretended healer. We know that some people are prone to give more weight to a skillfully worded advertisement than to the advice of a competent physician. The Legislature, no doubt, thought that, in view of all these considerations, the welfare of the people required the sweeping law of 1901."—State v. Fenter (Mo.), 204 S. W. 733.

Expert Testimony—Range of Bullet.—In a prosecution for murder a surgeon and an expert, who attended the deceased from shortly after the shooting until his death, and who testified as to the wound, the range of the bullet, and the place of entry, was permitted to testify as an expert that a bullet, if fired into a man lying on a fence, could have taken the range taken by the bullet that killed the deceased.—Houston v. State, Texas Court of Criminal Appeals, 204 S. W. 1007.

Prescriptions of Intoxicants.—In a prosecution of a physician for prescribing liquor without good reason to believe the patient to be actually sick or that liquor was required for medicine, the evidence of five other prescriptions each for one quart of whisky given to such patient at the same time was held competent by the Washington Supreme Court on the question of the physician's good faith; the prescriptions obviously calling for more liquor than the patient needed if taken as directed. They were not incompetent as proof of independent crimes; the gravamen of the offence being the faith in which the prescription was given, and not the act of prescribing. Such evidence was held sufficient to sustain a conviction.—State v. Raub, 173 Pac. 1094.

Military Medicine.

Period of Latency of Shock.—Baruch, in the *Archives Médicales Belges* for October studies the phenomena of shock from this special viewpoint. Initial shock is extremely rare or in other words nearly all traumatic shock is delayed and has a period of latency, which may be two or three or more hours and is of great interest. Unfortunately the complexity of the phenomena in this interval is very great. Quénu would restrict the term shock to what transpires immediately after a wound. If there is an inhibition of the nervous system due to the injury it cannot be that it only manifests itself 3, 4 or 5 hours later. If by dilatation of a fissured anus we can produce an arrest of the respiratory centers this arrest occurs at once and not after an interval of latency. When the testicle is crushed a disturbance of arterial tension occurs at once and not hours afterward. The author insists, however, that the wound can produce a loss of nerve tonus, the effects of which are not at once manifest. Shock seems to represent an inactivity of the nervous system which affects especially the vegetative centers—medulla, cord and ganglia—and incidentally the vagus nerve. An analogue to shock may be seen in the oculocardiac reflex. The varying behavior of the latter also suggests varying predisposition to shock. Many components enter into shock, such as injury, loss of blood, infection, anesthesia, etc., which are of course absent in this reflex. In both the latter and in shock-states a certain laboratory test gives the same result—the faradization of a centripetal nerve causes a rough outline of the vascular reaction of deep shock. The milder the shock the more marked is the reaction. While shock d'emblée occurs after wounds the ordinary sequence is a retardation due to a cellular inhibition of the cells of the vegetative centers.

But whatever the nature of shock the clinical picture is dominated by two factors, hemorrhage and infection. What then is the relation of these to the period of latency? Both of these conditions profoundly modify the disease picture. In regard to blood pressure it is known that the greatest rises—40, 50, 60—mean death, while if the return toward the normal is less marked—20, 30—the prognosis is excellent. This teaches that the subject is not one of blood pressure alone. The response to cardiac stimulants may for the same reason be misleading.

Certain early deaths may be explained by acute anemia alone without any component of shock, and in general the status post-hemorrhagicus differs radically from shock yet may closely resemble it. In regard to infection it does not of course, develop at once but several hours later. Death in from 3 to 6 hours must be set down to shock. Infection then does not tend greatly to complicate the latent period of shock.

Intravenous Injections of Camphor in Shock.—In the October 5 number of *Le Progrès Médical* there are two articles on this subject, one clinical, while the other is concerned with the behavior of the blood pressure in this form of treatment. The paper by Ferrari refers to the variety of substances tested for this purpose. Some of them, including camphor, received experimental laboratory tryouts. Since camphor is injected in oil, a special problem is involved which merges into that of the lipovaccines. The pioneer work along these lines was reported by Le Moignic before the *Académie des Sciences* last February. Soon after this period the author began to use the camphor injections on the battlefield. It was at the time of the great German offensive and the afflux of wounded was so great that there was no time for systematic studies. The author, however, is able to present six cases which could be followed up. The first was in a man with multiple gunshot fractures, who was badly shocked. The pulse was 138 and thready. The blood pressure was not taken. The treatment consisted of heat, alcoholized drinks, and intravenous injection of camphorated oil. Under this management the improvement was such that it was decided to operate. The intervention, which included primary resection of the left knee, several removals of bone fragments and the laying open of a seton wound, lasted 65 minutes. The patient was now once more in shock with pulse of 140 and thready, and received more camphor, with the other shock treatment. On the following day he was better but extremely weak and a third injection was administered. After this he was well .enough to be evacuated to the interior. The other five cases were similar in character and result. No other medicament was used in these cases, but one received a blood transfusion. The author who saw no untoward result, nevertheless hesitates to recommend the remedy for routine usage because the material is so limited. No one knows what a fourth injection might do or what the limit of tolerance is. One injection before and one after the operation with a third if the response is incomplete are good as far as they go. There should be a favorable reaction after half an hour. The dread of pulmonary oil embolism seems unwarranted. As adjuvants the toxic factor, which Quénu has proved to exist, must be disposed of by operation, while transfusion may be demanded as a result of loss of blood.

In the other paper by Jeanneney, blood pressure finds before and after camphor injections are given on four soldiers. The shock in these cases seems to have been entirely postoperative. The camphor, used as a last resort, gave wonderful results in reanimation and the blood pressure curves show that the heart is given a notable push. A slight fall sometimes seen after injection may be due to capillary embolism.

Vegetable Ration of the British Army in India and the Far East.—During the first Burmese war, British troops suffered considerably from scurvy. In cantonments, in after years, garden allotments were sanctioned, and the soldier was encouraged to cultivate vegetables. Experience in the Mesopotamia campaign early pointed to the necessity of vegetable diet, and resulted in the despatch to that area, in March, 1917, by the Madras War Fund of a body of men 256 strong, known as the Madras Gardeners' Corps. The corps largely extended a garden already in existence at Sheik Saad; they made a new garden at Bagdad, and

according to a report published by the Madras *Mail* last spring, they "helped to start numerous gardens all over the country, by supplying hundreds of packets of seeds and scores of baskets of seedlings to various units." At Bagdad the estimated output of vegetables was 413,820 lb., at Sheik Saad, 701,224 lb. The general verdict is that the soil of Mesopotamia possesses extraordinary fertility. A body specially organized to secure cultivation of vegetables is an innovation in the modern hygiene of armies that is likely to be held in mind in future campaigns. Nor in cantonments in India will the nature of vegetables used by soldiers be in future so greatly subject to local meteorological and communication difficulties. The following scale for British troops in India has recently been ordered: Potatoes, 035.6; fresh vegetables other than onions, 03.8. The scale will be varied by the issue of substitutes as circumstances may permit. When substitutes are issued the following scale of equivalents will apply: 1 lb. potatoes, 1½ lb. onions, or 2 lb. fresh vegetables other than onions, or 4 oz. unsplit dhall germinated. The direction to employ germinated dhall would seem to be the outcome of recent work by Miss Chick, Lister Institute, in connection with the recognition of vitamines. It may be here remarked that although the consumption of legumes in a germinating condition is not followed by Indians, it is an established custom with the Burmese; beans in a sprouting condition being specially prepared and sold for food purposes in the bazaars.—*Tropical Diseases Bulletin, October* 15, 1918.

Health of American Army Excellent.—Major-General William C. Gorgas, in his annual report as surgeon general, made public on December 6, states that the health of the American Army both at home and abroad has been excellent, and the mortality rate from disease probably lower than in any similar body of troops in the history of warfare. Complete statistics of deaths in army camps are not included in the report, which covers only the fiscal year to June 30, 1918. In 1917 total deaths from disease were 2,984, and the death rate per thousand 6.3; the seven-year average has been 4.9. General Gorgas points out that had the morbidity of typhoid fever been the same as in 1898, there would have been 1,400 deaths from that disease alone, whereas there were only 23. Measles is placed at the head of diseases causing death, although the records show that 65 per cent. of these deaths were due to resultant pneumonia.

Distribution of Wounded Soldiers.—The War Department has announced plans under which all wounded men returning from France will go to hospitals within three hundred miles of the homes of their nearest relatives. To this end, base hospitals at training camps have been turned over to the surgeon-general providing seventy-five hospitals with facilities to care for 104,231 men. Fifty thousand men are expected to be sent to these institutions within the next four months. The seventy-five hospitals do not include those at the ports of debarkation, New York and Newport News. At these ports the wounded will be received on their arrival from France in fifteen institutions now ready for them, with a bed capacity of 22,068. From the ports the men will be taken in specially fitted trains to one of the sixteen localized hospital groups, where assignments will be made in such a way that wounded men will go back to the region from which they entered the service. It is estimated that increased hospital facilities costing $26,000,000, and providing 13,000 beds, will be necessary to make full provision for the returning wounded. Assistant Surgeon General Stimson of the Public Health Service has asked the House Buildings Committee for an initial appropriation of $10,000,000 to provide the first 5,000 beds. New hospitals are planned at Norfolk and Seattle, and at sites yet to be selected in the Massachusetts Berkshire Hills and in North Carolina. Additions also are planned to the marine hospitals at Boston, Chicago, Cleveland, Detroit, Evansville, Louisville, New Orleans, San Francisco, St. Louis and Wilmington, N. C., and at the Fort Stanton (N. M.) Sanitarium. The use of the training-camp facilities will make possible the return to their owners immediately of the following properties which were to have been converted into general hospitals: New Field Museum, Chicago; Exposition Park, Rochester, N. Y.; State School for the Deaf, Columbus, Ohio; Richman Bros. Building, Cleveland, Ohio; Deutsches Turnverein, Cleveland, Ohio; High School, Cincinnati, Ohio; City Sanitarium, St. Louis, Mo.; Ford Building, Milwaukee, Wis.; Brockman Stores, Milwaukee, Wis.; Badger State Sales Company, Milwaukee; Woodstock Apartment, Milwaukee; State School for the Blind, Nashville, Tenn.; Sophie Newcomb School and Tulane University Buildings, New Orleans; Byberry Farms, Philadelphia; Elks Hospital, New Orleans; Sea View Hospital, New York; Ford Building, Des Moines; St. Catherine's Home, Des Moines; North Brother Island Hospital, New York; Catholic Orphan Society, New York.

Relief Fund for Italian Blind Soldiers.—The Permanent Relief War Fund for Soldiers and Sailors of the Allies, having its office at 590 Fifth Avenue, New York, has cabled 100,000 lire to the Italian Ministry of Foreign Affairs. It was requested that this donation be handed to King Victor Emanuel for distribution as he thought best among his sightless subjects who have been victims of the war.

Red Cross Work in Palestine.—A report recently received from Dr. W. S. Dodd, working at Mejdel, near Jerusalem, records some of the difficulties that confront the workers in that locality, and described some of the results accomplished. With two capable English trained nurses and three native helpers, Dr. Dodd, in his hospital housed under tents, performed 252 operations in seven weeks, besides giving medical examinations, treatment, and counsel to hundreds of destitute inhabitants and refugees. While they had all classes of cases in medicine and surgery, far the larger proportion of their patients were eye cases—222 of the 252 operations were upon the eyes. Trachoma and its consequences accounted for most of the eye cases seen in this land. He found that even under the difficulties of the situation he was able to save a number of eyes from partial or total blindness. The report refers to unspeakable

conditions due to lice and maggots, which are a daily terror; many wounds and injuries come filled with maggots.

Red Cross Plans Permanent Service.—In a statement recently issued to the 3,854 chapters and the 22,000,000 members of the American Red Cross, Henry P. Davison outlines the future plans whereby the organization built up during the war will devote itself to relief work throughout the world. Study is being given not only to problems of international relief, but to plans for this country for enlarged home service, the promotion of public health education, development of nursing, the care and prevention of accidents, and other correlated lines which may contribute to the health and happiness of men, women, and children. The international relief work will be done in cooperation with the National Red Cross and other relief agencies of other nations. The task of fighting tuberculosis, promoting child welfare, and caring for refugees, with which the American Red Cross has concerned itself in France, Belgium, and Italy, will at an early date be assumed by the governments, the Red Cross organizations, and the relief societies of those countries. From a financial standpoint the American Red Cross announces that it is in a thriving condition.

Health of the Navy.—Surgeon General Braisted in his annual report, presented on December 9, says that the health of the navy during the past year has been excellent, and he attributes this largely to the increasing appreciation by commanding officers of the rules of hygiene and sanitation. Compared with an annual death rate of 2.7 a thousand for the ten preceding years, the rate rose during the first quarter of this year to 8.9 a thousand a year. This, Dr. Braisted finds, was "due to the unfortunate and unavoidable combination of circumstances brought about by the rapid expansion of the navy and the unusual weather conditions in the first quarter of the year. The death rate for the second quarter was low, 3.3, a figure closely approaching the average for peace times." During the year 193 men were drowned, 30 died from exposure, and 47 were killed by gunshot wounds. The war has served, Dr. Braisted says, to clear the reputations of the men of the army and navy of the impression in the public mind that venereal diseases were more prevalent in the service than outside.

Deaths in the Service.—Captain Halstead Robert White, M. C., U. S. Army, of Columbus, Ohio, a graduate of the Ohio State University, Columbus, in 1910, died at Base Hospital No. 14, Fort Oglethorpe, Ga., from pneumonia following influenza, on October 17, aged 42 years. He was a member of the American Academy of Ophthalmology and Oto-Laryngology, and formerly instructor in physiology and pathology of the eye in his alma mater.

Major Shadworth Oldham Beasley, M. C., U. S. Army, of San Francisco, Cal., is reported to have been killed while on duty with the American Expeditionary Forces in France, on October 14. Major Beasley was 42 years of age, a graduate of Cooper Medical College, San Francisco, in 1897, assistant clinical professor of obstetrics and gynecology in Leland Stanford Junior University, and a major of volunteers during the war with Spain, on service in the Philippine Islands.

Lieut. Samuel Lewis, M. C., U. S. Army, of Brooklyn, N. Y., a graduate of the Long Island College Hospital in 1917, aged 22 years, is reported as having been killed while in service with the British Expeditionary Forces in France on August 28.

Captain George Edward Farr, M. C., U. S. Army, of Shelbyville, Mo., a graduate of the University Medical College of Kansas City, Mo., in 1906, died from pneumonia at Brownsville, Texas, while on duty on the Mexican border, October 30, aged 39.

Lieut. Arthur McQuaid, M. C., U. S. Army, of Chicago, a graduate of Loyola University, Chicago, in 1915, on duty at British war hospitals in England from October, 1917, to July, 1918, and since that time serving with the British Expeditionary Forces in France, is reported to have been killed in action on October 15, at the age of 28 years.

Lieut. Harry Shaler Matcley, M. C., U. S. Army, a graduate of the University of Syracuse in 1911, aged 32 years, formerly anesthetist to the Hospital for Ruptured and Crippled, New York, died while on duty at Camp Eustis, Va., November 18.

Captain Joseph Dudenhofer, M. C., U. S. Army, of Erie, Pa., a graduate of Jefferson Medical College in 1911, aged 30 years, was killed in action on September 17, with the American Expeditionary Forces in France.

Lieut. Malcolm Cunningham, M. C., U. S. Army of Chicago, a graduate of the Chicago College of Medicine and Surgery in 1917, aged 25 years, died from pneumonia following influenza, while on duty with the Seventy-sixth Spruce Squadron, Astoria, Ore., on October 8.

Lieut. Grover Carlisle Price, M. C. U. S. Army, of Judson, Ind., died from bronchial pneumonia while on duty with the American Expeditionary Forces in France, on October 30, aged 30 years.

Lieut. Timothy Gibson Sellew, M. C., U. S. Army, of Marietta, Ohio, a graduate of the Medical College of Ohio in 1901, died from heart disease while on duty at Camp Grant, Rockford, on October 20, aged 43 years.

Lieut. Clinton Virgil Reed, M. C., U. S. Army, of Three Forks, Mont., a graduate of Rush Medical College in 1914, died of pneumonia following influenza, recently, while on duty with a medical unit in England, at the age of 29 years.

Lieut. Millard Cressy Clark, M. C., U. S. Army, of Bethlehem, N. H., a graduate of Tufts Medical College in 1917, died from bronchopneumonia at Camp Gordon, Ga., on September 29, aged 25 years.

Lieut. Leslie James Phillips, M. C., U. S. Army, of Weyerhauser, Wis., a graduate of Queens University, Kingston, Ont., is reported to have died recently in France from pneumonia, at the age of 30 years.

Lieut. Alfred Johnson, M. C., U. S. Army, of Clyde, Kan., a graduate of the St. Louis College of Physicians and Surgeons, 1907, on duty at San Francisco, died at his home, of influenza, on November 6, aged 39 years.

Lieut. Albert Frederick Ostwald, M. C., U. S. Army, of Buffalo, N. Y., a graduate of the University of Buffalo in 1911, died at his home on November 18, aged 35 years.

Lieut. Arthur Hastings Wheeler, M. C., U. S. Army, of Albany, N. Y., a graduate of the Albany Medical College in 1912, died in California on October 26, aged 30 years.

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New York, December 14, 1918.

CONCERNING FELLOWSHIP WITH GERMAN PHYSICIANS.

THE war will probably soon be over, unless the Germans by some new act of treachery force the civilized nations to go in and beat them to the ground. When it is over the question will come up as to what we are going to do with the German medical men. Are we going to admit them to fellowship again as though nothing had happened? That is unthinkable, for the physicians of Germany have vied with the other professional classes and university men in spewing out their hatred of the decent nations and in gloating over the barbarism and unspeakable cruelty of their ruling classes and the army. We have been accustomed to think that the collective soul of the medical profession is farther along than those of most other professions and avocations—more altruistic and more humane. But we have left out of our thinking the brutalizing effect of Teutonic environment. We have forgotten our student days when we shuddered at the inhumanity displayed in their clinics by the leaders of the medical profession in Germany—the brutal disregard of the feelings, mental and physical, of the patients driven by their sufferings to seek relief even at a university clinic.

The German physicians are, just as we should have expected to find them, much of the same material as their military masters. When the German brutes were bombing hospitals and torpedoing hospital ships, did any German physician raise his voice in protest? Not one, or if there was one his feeble note failed to carry across the water. The German medical journals not only published no protests but even expressed approval in some cases of the vilest atrocities. In the *Deutsche medizinische Wochenschrift*, the leading German medical weekly, for example, the editor, Dr. J. Schwalbe, wrote exultingly of the work of the submarine pirates in sinking the *Lusitania*, and sneered at President Wilson's mild remonstrances against a repetition of the crime. The editor of the *Münchener medizinische Wochenschrift* was also well pleased with this infamy. But the German doctors were not content with a passive approval of their country's disgrace, they were actively inhuman—looters and worse. The reports of their crimes are piling up, especially now that the prisoners are getting back from the hells of German cruelty and are relating their sufferings—tales of desertion of German doctors when epidemic disease appeared in the prison camps, of neglect in many cases to care for the prisoners' wounds, of incredible brutality in other instances in the treatment of the sick and wounded, of jeering at the sufferings of English officers weakened by loss of blood, blows, and starvation, of the theft of instruments from Belgian surgeons in whose homes they were billetted—but the list is too long. There is material for a large black book of medical crimes, less coarse, perhaps, but almost as cruel as those of the Bryce report.

Of course, every medical man in Germany is not a brute, for there are some exceptions to all rules, but all must expect to be accounted such so long as by silence they acquiesce in the brutal acts of their colleagues. Until the German medical profession as a whole repudiates those who have disgraced their calling we can have no dealings with any of the breed. The French scientific societies, including the Paris Academy of Medicine, have voted not to hold any intercourse with the scientists of Germany and Austria, and their example should be followed everywhere. We should go further, however, and refuse admission to fellowship to the present generation of German doctors. The State Boards, fortified by an act of legislature if necessary, should refuse to grant a license to practise to any man applying with a German diploma during the next twenty-five years, and even after that if those of the new generation still defend the crimes of their fathers.

THE "FEBRILE PANDEMIC."

SOME of the Italian authors are evidently not satisfied as to the identity of the present epidemic with influenza, as shown by the term "febrile pandemic" in current use. Thus Professor Minerbi in *La Riforma Medica* for October 19 makes some fundamental differences between the present pandemic and the accepted picture of influenza. The first, which refers to a peculiar incidence, attacking some while sparing other classes, may have only a local bearing and may be passed over. The second refers to the peculiar throat of the present pandemic —a punctate eruption in the velum, a redness of the cavum pharyngis, and edema—which apparently was never before noted. The third point of difference is in the absence of infection of the sinuses of the nose, which is a very common and burdensome complication of influenza, but scarcely present in the present pandemic. The fourth point is the notable difference between influenzal pneumonia of the textbooks and the severe types of the present pandemic. The differences are not alone in virulence but in anatomical type. Again, excepting these pneumonias, the present pandemic is singularly free from complications, while in influenza complications are extremely numerous and varied, in contrast with the monotonous character of the former. In the author's experience, at least,

the latter has never shown the enlarged lymph-nodes of the nucha and carotid sulcus which used to serve as a mark of recognition of beginning influenza.

If, however, we disregard the isolated epidemic of 1889 and study all of the recorded pandemics, the case is different; for, as shown by Professor Bozzolo in the same journal, in some of the older ones (beginning in 1585) there are unmistakable references to the complication of an asphyxiating pneumonia and other severe or unusual behavior not supposedly seen in influenza, as hemorrhagic rhinitis and other hemorrhagic manifestations. Despite this avowal the professor uses the expression "febrile pandemic" like his colleagues. The lesson here seems plain, for we must never base an account of a disease on a single pandemic but on all accessible records of like affections. The dualism of influenza was a trying problem before the pandemic of 1918, and certain textbook writers have felt obliged to give separate accounts of influenza and grippe. One author limits influenza to the effects of Pfeiffer's bacillus only—a doctrine which has now been superseded in all likelihood.

Sampietro in the *Annali d'Igiene* for September 30 states that the mortality from influenza in Italy was for 1890 0.389 per 1000 and in 1892 0.653 per 1000. The present epidemic in comparison with the old one is monosymptomatic for its own locality, yet the picture varies in different countries. In Italy exanthems were seen, in England polyadenopathy, and in Switzerland the Manchurian pneumonic plague was almost suggested. A study of old epidemics throws some light on this various behavior. Thus the author finds an account of a rheumato-catarrhal epidemic in Rome in 1782 also present in 1831 under the name "krip," which presented affinities with smallpox and especially with measles. Not only were symptoms of constitutional infection similar, but an exanthem was in evidence which was quite characteristic of the disease. In subsequent epidemics of influenza eruptions are sometimes mentioned.

As bearing on the question of contagion the author notes that grip patients from St. Petersburg who journeyed to Paris on express trains conveyed the disease from city to city in three days. This speed may of course be otherwise explained, but as far as the vitality of the germ is concerned its survival in the air is practically nil. During an epidemic of grip in Rome in 1709, the medical men were assembled to discuss it. The agreement was reached that the poor children of the city should be well nourished as a prophylactic measure, with milk, eggs, and meat. It is not recorded whether the recommendation was acted upon. The author is one of the first to note that no epizootic has yet accompanied the present pandemic. Epidemics affecting man and beast simultaneously have been recorded in 1693, 1732, 1767, 1775, and 1890. Despite the use of the term "febrile pandemic," there is nothing in the article which opposes a belief that the disease is influenza.

TYPHOID LESIONS OF THE CIRCULATORY SYSTEM.

Of recent years instances of embolus occurring during convalescence from typhoid fever have been reported with, it would seem, an increasing frequency. As an embolus must be preceded by an arteritis, phlebitis, myocarditis, or endocarditis, these lesions should always be looked for in typhoid cases. Typhoid arteritis, rare in children, is more common in subjects of from twenty to thirty years of age, and makes itself manifest at a time when recovery appears nearly complete, by a sudden severe pain in a limb, usually the right leg. By pressure over the internal malleolus, when the lower extremity is involved, a painful spot can be elicited which is of considerable diagnostic importance. Any movement of the limb is impossible without a recrudescence of the pain, while tingling or shooting pains are complained of. At the same time the local temperature is lowered. The vessel becomes more apparent and offers an exaggerated amplitude of the beats with each systole, contrasting with the local decrease of the blood pressure that is noted by the sphygmomanometer. These exaggerated beats indicate a paralysis of the vessel and loss of its elasticity. Then the blood pressure and amplitude of the beats progressively decrease and in some instances completely disappear. These signs indicate that a clot has formed and obstructs the lumen of the artery.

Palpitation of the vessel reveals a hard, painful cord, and in order of frequency come the posterior tibial, femoral, popliteal, anterior tibial, dorsalis pedis, arteries of the upper limb, the iliacs, and external carotid. A certain discordancy exists between the condition of the patient, who constantly complains, and the general temperature, which is not raised.

When acute arteritis involves the aorta the symptoms assume a special behavior. The patient complains of a sensation of retrosternal constriction of a painful type, with dyspnea and a dry cough. The carotids pulsate violently and sometimes the radial pulse is unequal. Dilatation of the aorta is made evident by an increase of dullness and an elevation of the upper border of the right subclavian. The second heart sound is doubled or there is a diastolic murmur at the base. The first sound is prolonged. Finally, signs of dry pericarditis may be detected at the base.

Phlebitis, like arteritis, occurs at the time of convalescence, while acute myocarditis occurs at the end of the second or at the commencement of the third week of the disease, its first manifestation being an erethism of the circulatory apparatus, soon followed by cardiac insufficiency. The pulse is small and compressible, the systolic wave is short, dicrotism is exaggerated, while at the same time there is tachycardia. The blood pressure falls. Another important sign is embryocardia, while a mitral systolic murmur may be detected due to functional insufficiency. There is cyanosis and the urine becomes dark and scanty.

Acute endocarditis following typhoid fever usually is ushered in by chills, a rise in temperature, restlessnes, and delirium. Auscultation reveals systolic or diastolic murmurs due to insufficiency or to stenosis of the orifices. They are remarkable for their early appearance in the evolution of the cardiac process. The murmur often assumes a musical tone, which has been attributed to vegetations or to floating tendinous cords which are put in vibration by the blood wave.

THE PSYCHOLOGICAL PERNICIOUSNESS OF PENSIONS.

When we come to consider a pension system for disabled soldiers, we have at once two diametrically opposed views. One is the popular, political, diplomatic, philanthropic, humane view of the masses, and can be expressed somewhat as follows: "Let us pension every soldier who has a genuine disability, and if in any cases there is doubt as to the genuineness of the disability, let us give him the benefit of the doubt and pension him too." Or as it was expressed by a famous Senator lately, "Perhaps they are not entitled to pensions, but I had rather grant six unjust claims than run the risk of letting one just one be denied." A fine statement. A heroic, noble, altruistic sentiment! But like some other fine things, just a little foolish. And, like most happy generalizations, not bearing the test of close examination very well. Suppose, for example, the six men in question are granted pensions. They know, deep down in their hearts, that they are not entitled to them. Furthermore, these gratuities are not enough to let them live comfortably, but merely enough to support them in semi-idleness, to enable them to support themselves at the homes of relatives, to engage in desultory occupations, and drift at last into an old age with no competence, no trade, and no stability of character. The soldiers' homes, the almshouses, and the insane asylums are full of veterans of the Civil and Spanish Wars, victims of just such circumstances. A life-long parasite on the public bounty does not go down to a green and honored old age.

It is a matter of general knowledge and comment, although few have dared, on account of the well-known American sentimentality, to call public attention to it, that the Confederate veterans, who had no pensions, did very much better in the world than the Union ones. The former were obliged to fall back upon themselves, to develop their own resources to the utmost, to overcome handicaps, and compensate for disabilities, so that they as a rule became self-supporting and have done well in the world, while north of the Mason and Dixon line the spectacle has largely been otherwise.

By all means, let us pension our soldiers who are really incapacitated, but where a doubt exists, let us examine the case fairly and carefully, always remembering that if the man is at all able to earn his living, we are bestowing a curse on him by pensioning him. It is far better to reconstruct or reeducate him so as to fit him to take his place in the world again. This may not be a popular view, but then the truth seldom is.

Quinine in the Prevention of Influenza.

With the menace of a return of the pandemic, like a wind which has veered to the opposite quarter, the question of prophylaxis becomes all important. It concerns the army surgeon in a manner seldom thought of in that all of his wounded under treatment may be unfavorably affected through the wounds going bad. The pregnant and puerperal woman is similarly menaced, and of course the great army of latent consumptives may be hurried along to the grave. Influenza has been styled a "pitiless Malthusian," a term perhaps previously applied to other maladies as well. Tricoire, a French army surgeon, says in an article in *Le Progrès Médical*, that with many wounded to care for he took up incidentally the subject of quinine prophylaxis of grippe. Naturally camps, boarding houses, convents, etc., are ideal for this study. Behind this is the prevention of commensal living when this is practicable, and even mere temporary assemblies. In a "planetary epidemic," as the present has been styled, a prophylaxis could hardly be too watchful and timely. In regard to quinine, he says, a dose or two, however large, is not to be thought of. The subject must become mildly saturated. In one barracks in which three soldiers came down with influenza the quinine prophylaxis was begun with one set of men, leaving an equal number of controls. Beginning with June 19 the first set received 50 cgm. daily for four days. Of unprotected men in the command, who numbered 53, the number stricken was 31, with average duration of 7 days and a fever of 38° C. average. Of the cinchonized men, who numbered 45, but 13 were attacked and laid up on an average of 3 days, while only 7 of the 45 ran a temperature which reached 38°. Long ago, in the laboratory, animals infected with Pfeiffer's bacillus were previously immunized with quinine sulphate injected into the veins; this experimental work suggested to the author the clinical application to his soldiers.

A Warning Against German Drugs.

The American Defense Society has given warning of the recent importation into the United States of $12,000,000 worth of drugs of German manufacture. The first lot came in at about the time that some German-made toys were sent over here, and since then other lots have arrived at various Atlantic ports, some being shipped in bond to interior points. Steps are being taken looking to the placing of an embargo, if possible, on future importations, and meanwhile physicians and druggists are urged to abstain from the use of any of these drugs already in the country. The reason for such action is twofold. In the first place, there is the natural repugnance of loyal Americans to have anything more to do with German goods; and secondly, American houses, having some time since begun, at considerable initial expense, to manufacture these drugs, we cannot, in fairness to them, permit the Germans to seize the market again and

by underbidding ruin this nascent industry. American chemistry in the process of emancipation from German dominion must not be allowed to fall again under subjection to the Teuton firms which fattened so long on American physicians and the American public.

News of the Week.

The Influenza Pandemic.—According to the estimates of the United States Public Health Service there have been, since September 15, 350,000 deaths from epidemic influenza and pneumonia among the civilian population of the United States. The records of the War Department show about 20,000 deaths from these causes in the army camps throughout the country. A comparison of the statistics of a number of the large Eastern cities shows that the death rate from influenza was less in New York than in any of the others, the rate being 27 per 1,000 population. The rate in Philadelphia was 54 per 1,000; Baltimore, 47 per 1,000; Boston, 41 per 1,000; Buffalo, 34, and Newark, 32 per 1,000. While the epidemic stage of the disease has long been passed, the number of cases belonging to the "grippe" group continues higher than the average of other years. A message recently received from Iceland declares that conditions on that island were never equaled since the black plague, and that 65 per cent. of the population of Reykjavik are down with influenza, the disease having apparently assumed its most severe and fatal form. The State Department has learned through its consul at Papeete, capital of Tahiti, in the Society Islands, that influenza has created a grave situation, and that the authorities have sent out an appeal for assistance.

Association of Life Insurance Presidents.—This organization held its annual meeting at the Hotel Astor, New York, on December 5 and 6, under the presidency of Henry Moir. In his presidential address, Mr. Moir stated that from a study of statistics he had reached the impression that the deaths resulting from the influenza epidemic approximated 400,000, which he said meant an economic waste of 10,000,000. The clear indication is that the deaths from influenza alone are but a fraction of the total caused by this epidemic. The average of all the companies was 13 per cent. from influenza alone, and 87 per cent. of deaths from pneumonia following influenza. This proportion is different from that indicated in the census bureau statistics. The average of all cases submitted was 33 years; in a well-established company the average age may be taken at 55 to 60 years. Major General Gorgas prepared a paper for the association, which was read by Col. William D. Wrightson, in which he pointed out the lessons in sanitation that the soldiers of the United States had gained in their camp life. He thought it was going to be very much easier in the future for communities to get appropriations for water and sewage systems. When soldiers get back home they will be desirous of applying what they have learned in their own communities so far as such application is possible. The greatest lesson of the war is the effect of crowding in large units. This is an important lesson, and will have its application in civil life. Crowding, and crowding in large units, play a capital rôle in the spread of septic pneumonia. Both overcrowding and segregation could be avoided by constructing the huts in cantonments 20 feet by 20 feet in plan and allowing not more than 20 feet to a hut. Compulsory health insurance was discussed by Dr. Frederick L. Hoffman, third vice-president of the Prudential Insurance Company, who stated that compulsory health insurance had been a complete failure in Germany. There its most lamentable consequences were a measurable lowering of the social and moral ideals and the individuality of the German people.

Lieut.-Col. Raffaele Bastianelli, professor of surgery in the University of Rome, has been elected an Honorary Fellow of the New York Academy of Medicine.

Dr. Edward H. Ellis has been elected a member of the Board of Health of Marlboro, Mass.

Dr. Harry Feagles has been nominated mayor of Morton, Wash., without opposition.

Charitable Bequest.—The will of Clara Sutton Macy bequeathes to St. Luke's Hospital and the Society of Hospitals, New York, $17,436 each.

The New York Academy of Medicine, at its anniversary meeting on December 6, elected the following officers: *President,* Dr. George David Stewart; *Vice-President, one-year term,* Dr. Reginald H. Sayre; *Vice-President, three-year term,* Dr. Charles H. Peck; *Recording Secretary,* Dr. Royal S. Haynes; *Trustee,* Dr. Walter B. James; *Member of Committee on Admission,* Dr. Frederic E. Sondem; *Member of Committee on Library,* Dr. Frederick Tilney.

Paris Pasteur Institute.—Dr. Pierre Roux, director of the Pasteur Institute of Paris for many years, has resigned, and will be succeeded by Dr. A. C. Calmette, director of the Pasteur Institute of Lille.

The Pasteur Institute of New York has been closed. This was the Pasteur pioneer on this side of the Atlantic, having been founded nearly thirty years ago. Dr. George Gibier Rambaud, who has been the head of the institute for some time, was a Major in the National Army and was ordered to France on active service. In his farewell address he stated that the reason for closing the institute was that it had fulfilled its purpose by introducing the Pasteur treatments which were now given in all well appointed hospitals. Since 1910 the institute has treated more than 10,000 patients, four-fifths of them without charge.

Effects of Poor Food in Austria.—According to Dr. Clemens von Pirquet, head of the Government Institute for Children in Vienna, the birth rate of the former empire of Austria-Hungary fell 50 per cent. during the war. The poor quality of the food has cut the total weight of the population one-third. It is common to find the weight of an average man reduced from 170 to 120 pounds. Dr. von Pirquet finds in his investigations that the big mistake of the entire world has been to waste food by misunderstanding its values. He has worked out a system by which to get practical results. He takes milk as the standard with a value of 1; on this basis dry flour has a food value of 5, which is the same as meat. Bread has a value of 3.3, and cabbage and vegetables only four-tenths. By apply-

ing his food system in the hospitals under his charge he has been able to feed children at a cost of 30 cents per child a day despite war prices. The rations provided by the food cards in Austria have permitted the population to get only one-third of the necessary nutrition. In Austria during the war all diseases have increased, but more particularly the lung diseases.

Deaths of Foreign Medical Men.—Dr. GAETANO RUMMO of Naples is dead. He was born in Naples, and after a brief sojourn in Genoa, following his graduation in medicine, he became associated with the chair of pathology in his alma mater. In 1885 he founded *La Riforma Medica*, and when we consider that this periodical was long issued daily, and was the only successful medical daily ever issued, we can reckon something of the personality of the editor. Rummo also collaborated in a number of other journalistic ventures. He left Naples to assume the chairs of pathology and clinical medicine in several of the smaller Italian universities, returning eventually to the medical clinic of Naples in 1894. Here he remained until his death. The sphere of his activities could hardly be exceeded. He was a laboratory man as well as a clinician and teacher, a sanitarian, publicist, practitioner, consultant, editor, statesman, and therapeutist, for unlike many scientific physicians he devoted much time to the study of the cure of disease. He made at least 120 contributions to current medical literature. These cover the entire field of internal medicine, neurology, and therapeutics.

Dr. KEY-ABERG, whose death was recently announced, was a well-known Scandinavian physician and scientist. He was born in 1854, and was graduated in medicine in 1887, his graduation thesis being devoted to endarteritis deformans. In 1889 he took up the practice of otology, rhinology, and laryngology. His writings deal largely, however, with medicolegal subjects and medical economics. For 30 years past he had held the chair of legal and forensic medicine in the Caroline Institute.

Obituary Notes.—Dr. SAMUEL ABBOTT GREEN died at his home in Boston, Mass., on December 5, at the age of 88 years. Dr. Green was born on March 15, 1830, in Groton, Mass. He was graduated from Harvard in 1851, and from the Harvard Medical School in 1854. He served as a surgeon in the Civil War, and was breveted lieutenant-colonel of volunteers for distinguished service. After serving as city physician and holding a number of city offices, Dr. Green was elected Mayor of Boston in 1882. He was a member of the board of overseers of Harvard for twenty years, librarian of the Massachusetts Historical Society for 30 years, a trustee of the Peabody Memorial Funds, and a member of various State boards. Dr. Green was the author of a number of books on the history of Massachusetts as well as a writer on a variety of medical subjects.

Dr. SAMUEL HOWARD MONELL, a graduate of Bellevue Hospital Medical College in 1890, died suddenly of pneumonia at his home in New York City, on December 5, aged 62 years.

Dr. RAFAEL RUBIROSA, formerly a well-known surgeon of the Dominican Republic, died in the Manhattan State Hospital, New York, on December 3, aged 33 years.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE PSYCHOLOGY OF PEACE—DEATH UNDER INTRAVENOUS INJECTION—THE LUNACY PATIENT AND THE OUTSIDE DOCTOR—ANOTHER STRIKE AT A LUNATIC ASYLUM—MINISTRY OF HEALTH BILL—THE INFLUENZA EPIDEMIC—DEATHS OF LT.-COL. E. F. HARRISON AND MEREDITH TOWNSEND.

LONDON, November 15, 1918.

THE psychology of peace is showing itself in London as I write, to be marked by features which are as distinct in their way as the psychology of war. As viewed in the streets, all the differences, and they are many, which mark the attitude and demeanor of the population can be summarized by saying that before eleven o'clock on the eleventh day of the eleventh month of the year everyone was braced against the shock of something that might be going to happen; after that hour no one cared what might be going to happen—at any rate it was not war. Although to-day is being held in peaceable revelry, young and old, man and woman, girl and boy, soldier, sailor, and civilian, all wandering in merry throngs about the streets, as they did yesterday and the day before yesterday, the celebrations of peace are all quite purposeless. Processions take no particular route; movements have no definite object; busses do not start where they should start from or arrive where they are expected; songs are begun but seldom finished; orators are hoisted to posts of vantage but what they say is not heeded. In every recurring phase of action and inaction among the crowd a complete lack of responsibility has taken the place for a brief time of the general mood of concentration which has marked the populace of London for four years. It is certain that most of the wild and happy revellers will return quite soon and with pleasure to their various avocations, for nothing is being done by the relaxed crowd that will unfit them for work at any moment when the call of duty makes a clear appeal. Vicious license, drunkenness, savage horseplay are all quite absent, or absent as any purposive attempt to celebrate peace in accordance with some large scheme of rejoicing. Everyone is just *déboutonné*.

A verdict of death from heart disease was recently returned at an inquest held on the body of a man who died at the Hampstead Military Hospital while undergoing an intravenous injection for trench fever. The particular procedure, it was stated at the inquiry, had been pursued with good success and without accident in 2000 cases, but as the syringe was being inserted, the patient suddenly collapsed and died almost immediately from heart failure. It is unnecessary to say that the death was chronicled in some newspapers as due to medical experimentation. These cases when a trivial operation is viewed by a patient with extraordinary apprehension, and endured by him with real and great pain, are a perpetual puzzle to those who always try to find a commensurate cause for every physical phenomenon in man. Why do many strong subjects faint during vaccination?

A case is attracting a considerable amount of attention in the medical world where the incidents

wear quite a sinister appearance, though no such interpretation of them would be in the least just. Dr. Lionel Weatherly is a well-known expert in lunacy, the proprietor at one time of a lunatic asylum, and the author of a breezy book upon the management of the insane. Dr. Weatherly was asked to visit a patient who was an inmate in a private capacity of a public or county lunatic asylum, that is, an institution where the regulations are in the hands of the Board of Control (Lunacy), a standing committee of the Home Office. Dr. Weatherly wrote to the superintendent of the county asylum and was refused permission to visit the patient. The relative who had given instructions to Dr. Weatherly, and Dr. Weatherly on his own account, then wrote to the Board of Control, both pointing out that under a section of the Lunacy Act such a permission to visit the inmate of an asylum could not be refused, save to an undesirable person, the same argument being advanced to the superintendent. Thereupon the Board of Control sent the necessary order of admission to the superintendent. But the visit, when made, turned out of little clinical or scientific value, as the superintendent and doctor in charge of the patient failed to meet Dr. Weatherly, who was also not supplied with the case-notes. Dr. Weatherly then wrote to the Board of Control asking for a second order of admission, together with special instructions that the patient's notes should be at his disposal. Whereupon the Board replied that there could be no need for Dr. Weatherly to see the patient again. The patient's friends are meditating legal action, or so it is announced in the press, but legal actions against Government Departments are apt to be costly futilities. But the official attitude has given the public every right to harbor all sorts of vague suspicions, none of which probably has any grounds whatever.

At the time when strike fever was running high all over England and Ireland, and appearing in a particularly ominous form in Scotland, I noted in one of my letters that in two cases the attendants at lunatic asylums had "downed tools," leaving two or three doctors responsible not only for the health and feeding of a singularly helpless and disease-ridden class, but for the discipline of a crowd who were in confinement exactly because discipline had no meaning for them. There was real apprehension in official circles lest the movement should spread, but so bitterly was popular sense against the strikers that no other instances than those which I recorded have since occurred until this week. But now 180 attendants at the large Irish lunatic asylum at Ballinasloe have gone on strike, with the result that 1,500 lunatics were left unguarded, just about one-quarter of whom were definitely homicidal, suicidal, or both. Fifty lunatics, including some of the most dangerous classes, escaped, and as I write some of these are at large. The attendants resumed work after a six hours' strike, and no doubt their financial grievances will be met. But who will meet the grievances, financial or worse, that may be inflicted on the community by the wandering lunatics?

The Ministry of Health Bill has arrived at a most unfortunate juncture so far as its immediate prospects are concerned, and no one is surprised that after having been read and printed, the House, or rather the Government, resolved not to proceed with it this session. With the sudden ending of war, and the vast problem of reconstruction awaiting solution, it was clearly inconvenient to engage upon the setting up a brand new State Department. The various processes of reconstruction may in themselves effect some of the reforms or remove some of the anomalies which in the Bill it was intended should be carried out or abolished, leaving for the immediate future more clear-cut issues for discussion. Nevertheless it is a disappointment to all those who have worked so hard to institute the new and necessary State Department to have their work so promptly set aside. All the work, however, has not been wasted. The proposals of many thoughtful men, arrived at by taking counsel of the recognized authorities, have been sifted, codified, and brought for discussion into the pages of a Parliamentary Bill. This Bill has been printed and therefore becomes available for study by both public bodies and interested individuals. When the measure, or one of similar scope, again comes up before the House of Commons, the criticism upon it should be enlightened, instead of merely eulogistic or destructive, and a really good bureau of national health should result.

The influenza epidemic is declining, but not so rapidly as the epidemiologists predicted. At many provincial centers, and some camps, the incidence remains severe; and if London is obviously recovering, Dublin and Belfast are in the throes.

The country owes much to the valuable and even unique work of Lieutenant-Colonel Edward Frank Harrison, whose death occurred just before the end of the war in which his service as a chemist proved so valuable. By his assiduous study of the poisonous gases used by the enemy and the means of protecting our own and our Allies' soldiers against such attacks he was instrumental in saving thousands of lives, devising masks containing an effective antidote. He was responsible for the admirable organization of the anti-gas section of the Chemical Warfare Department of the Ministry of Munitions, and he applied himself so thoroughly to the task that millions of respirators, the design of which was based on accurate chemical reasoning, were supplied to the Forces. This was no mean accomplishment when regard is had to the complex characters and the varieties of the poisonous gases employed. In pre-war days Colonel Harrison rendered valuable service by the work he undertook on behalf of the British Medical Association in the analysis of nostrums. This work resulted in the publication of two most valuable reports, "Secret Remedies" and "More Secret Remedies," in 1909 and 1912 respectively. In this work he evinced conspicuous analytical skill, justifying the responsibility of committing the results to publication. His evidence on these points was greatly appreciated by a Parliamentary Committee appointed to inquire into quack wares, and the report subsequently issued contains very valuable material available for useful reference at the present time. He possessed remarkable powers of organization and directed with great success a staff, mainly selected by himself, who were glad to work under so able a director. His death at a comparatively early age is much regretted by all who were associated with him, and

his valuable services to his country during the great struggle were recognized by the military honors accorded at the funeral. Harrison was gazetted a major-general just before his death, with complete control of his department, having thus had the remarkable record of enlisting four years ago as a private soldier at the age of 47 and reaching brigadier rank at 50.

The death has occurred of Dr. Meredith Townsend, who was recently Master of the Apothecaries' Society of London, which corporation he represented on the General Medical Council. Dr. Townsend was an active member of the Belgian Doctors' and Pharmacists' Relief Committee and initiated a successful collection of surgical instruments for the ruined Belgian doctors, housing the collection at and distributing it from the Apothecaries' Hall, City.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

REPORT OF THE COMMISSION APPOINTED BY THE ACADEMY OF MEDICINE UPON THE EPIDEMIC OF GRIPPE—NEW BELGIAN FIRST LINE HOSPITAL—ACTION TAKEN BY THE ACADEMY OF SCIENCE REGARDING FUTURE RELATIONS WITH GERMANS AND AUSTRIANS.

PARIS, November 11, 1918.

THE Under Secretary of State for the Sanitary Corps has requested the Academy of Medicine to study the question of the prevailing epidemic of influenza and recommend means to prevent it spreading to the army. The commission named by the academy was headed by Dr. Besançon, who has made his report. After showing that the incubation of the disease is of very short duration, he states that it would appear that one attack gives comparative immunity, and advises the quarantine or isolation of each case as it appears. In the family this is generally possible, but in the hospitals this is difficult, and the large number applying for entrance makes these centers a danger in spreading the disease. As a rule, there are insufficient rooms in which to isolate these patients. The next best precaution is to surround each bed by a framework at least 6 feet 6 inches high, from which sheets can be hung to entirely close it in. The patients should be evacuated the moment they are convalescent, and one should guard against overcrowding, which is the greatest factor of contagion. It is well also to consecrate a certain number of ambulances for the transportation of these cases and use them for no other purpose during the continuance of the epidemic. The public should not be permitted to visit patients except in rare circumstances. The grippe is most frequently taken in the common transport lines; and all of these conveyances ought to be disinfected at the end of each day. The public should be instructed during the continuance of the epidemic to rinse the mouth with antiseptic solution and carefully brush the teeth after each meal; the hands should be washed frequently during the day, and one should not remain long in the presence of a sufferer from the disease. All soldiers returning from furlough ought to be carefully inspected, with the fear that they could bring the contagion into the midst of their company; and finally, soldiers attacked by the disease ought to be placed in hospital where they are, and not sent to the interior, for traveling is as dangerous to them as if they were wounded, and equally dangerous for the public. Many of these precautions can be applied to the civil population, as, for example, the isolation of the sick, creation of special wards in a hospital. The precautions prescribed for individual hygiene, the disinfection of the different means of transportation, and especially is it recommended to the civil population to remain away from the theaters, cinemas, and all large public gatherings, and avoid, as far as possible, traveling in crowded conveyances.

Dr. Vincent, medical inspector of the army, followed the report with a paper in which he ascribed the contagion of the disease as attributable to the following causes: direct contact with the person, the linen worn by such a person, handkerchiefs, hairpins, hatpins, or anything that has come in contact with an afflicted person, and particularly the atmosphere which has been contaminated by one afflicted, the act of talking, coughing, sneezing, impregnates the atmosphere with the steam and saliva which carry the pathogenic microbes, and these find entrance into the system of the healthy person by way of the conjunctiva, the nasal fossa, the pharynx and larynx. To avoid the possibility of the contagion, Dr. Vincent proposes the wearing of a mask formed by five layers of gauze, covering the nose and mouth, contained in a transparent vizor which can be adjusted to the head, and possesses the advantage of cheapness and is easily sterilized. With respect to this recommendation, Dr. Bar said that in the Farnier clinic at least a third of the patients and hospital personnel had been attacked by the grippe; all of the others who in any way came in contact with the disease were furnished with a mask, which immediately checked the spread of the disease. Another curious fact which he observed was that out of 22 babies nursed by mothers who were suffering with the grippe, not one of them took the disease.

Drs. Schauffard, Ménétrier, Marphan, Ribemont, and Dessaiges believed that in infants under six months of age there was present, as in the very aged, a sort of immunity from the infection. Dr. Marphan stated that in his hospital service, in the wards reserved for nursing mothers there was not a single case of grippe among the children, whereas there were many cases in the other wards among the children from 1 to 15 years of age.

Explaining before the French Academy of Sciences the influenza discovery of two Tunis scientists, Dr. Roux, head of the Pasteur Institute, said that bronchial mucus taken from the sufferer and injected under the skin of a healthy man produced influenza in six days, but injections directly into the blood had no effect. It therefore appears that during the acute stage the bronchial secretions of patients are virulently infectious. The influenza germ, Dr. Roux added, is distinct from Pfeiffer's microbe. Dr. Legroux of the Pasteur Institute said that it may lead to the preparation of a preventive vaccine, which would be a protection both against influenza itself and the dangerous complications that so often follow. Its preparation, however, would involve long and difficult researches, so that there was no hope that it could be produced during the present epidemic.

"Send 100,000 yards of gauze and 2,000 pounds of cotton batting, also 25,000 enameled cups and plates" was one message received by the Belgian Commission on the morning the second lap of the Belgian offensive was started. They were started forward that night. Anticipation of a Belgian offensive led the Red Cross to prepare to meet every possible emergency. Five hundred thousand francs were contributed to help establish a modern hospital for Belgian soldiers at Vinckem, about five miles from the front. This is the main first-line hospital to which the wounded are taken in the present offensive on the Belgian front. Dr. De Page, the famous Belgian surgeon, and the Red Cross authorities cooperated in the construction of this hospital along modern lines. Wide corridors that could be turned into wards were a feature that proved serviceable when the capacity jumped from 250 to 1,500 beds.

The Academy of Science, by unanimous vote, has categorically declared that after the close of the war they will appeal to the Government to refrain from accrediting any savant of France to any scientific gathering or congress taking place in Germany or Austria-Hungary, and that their action be communicated to the scientific bodies of the allied countries. By unanimous vote the Academy of Medicine associated itself with the action of the Academy of Science.

146 Avenue des Champs Elysées.

Progress of Medical Science.

New York Medical Journal.

November 30, 1918.

1. A New Method of Making the Gonorrheal Complement Fixation Test. R. B. H Gradwohl.
2. The Detection and Measurement of Latent Ocular Deviations. F. W. Marlow.
3. Clinical Observations in Splanchnoptosis. George L. Lambricht.
4. Nonsurgical Treatment of Exophthalmic Goiter. Israel Bram.
5. Congenital Fistula of the Lacrymal Sac. Walter Baer Weidler.
6. Mechanics of Defecation. C. D. Spivak.
7. Cerebrospinal Meningitis. A Case Treated by Ten Serum Injections. Robert W. Angevine.

4. Nonsurgical Treatment of Exophthalmic Goiter.—Israel Bram points out that since in Graves' disease irritation and hyperexcitability predominate, the most important element in the treatment is rest both of body and mind. Though opposed to hospital treatment, the author emphasizes the absolute necessity of strict discipline and considers the presence of a nurse essential in most cases. Regularity of sleep, rest, exercise, feeding, proper attention to bathing, the quality and quantity of foods and beverages, the kind of recreation to be indulged in, must all be given careful attention, and the doctor's orders carried out to the letter. Bram states that, except in cases where malignant changes are evident in the thyroid gland or where there are dangerous pressure symptoms, surgery is distinctly contraindicated. Hyperthyroidism is not a surgical entity, but is a disease which belongs strictly to the realm of the internist, for the following reasons: (1) Recent researches prove that Graves' disease is not a local condition, nor has it a local etiology; (2) though surgeons report very favorable surgical recoveries, clinical recoveries are rare, and in a vast majority of cases there is a postoperative return, occasionally with even greater vehemence of all the signs and symptoms of hyperthyroidism; (3) the patient who has been operated upon, and who does recover clinically, gets well because of a carefully outlined system of postoperative nonsurgical treatment, or because the case in question is one of those instances of spontaneous recovery and would have terminated favorably in spite of treatment; (4) internists who specialize in thyroid gland therapy cure more than 75 per cent. of their cases of hyperthyroidism by dietetic, hygienic, medicinal, and electrotherapeutic measures. The author adds that he has been able to cure nearly every case of hyperthyroidism that came under his care, and that this was accomplished by nonsurgical and remedial measures.

Journal of the American Medical Association.

November 30, 1918.

1. The Specialist's Relation to the American Medical Association and a Plea for General Gorgas' Retention in Office. Greenfield Sluder.
2. Acromegaly of the Larynx. Chevalier Jackson.
3. The Treatment of Genital Tuberculosis in the Male. William C. Quinby.
4. Some New Instruments in Operative Cystoscopy. Bransford Lewis.
5. Familial Macular Degeneration with and without Dementia; with a Report of Two Cases of the Type with Dementia. Howard S. Clark.
6. Pericholecystitic Adhesions: Their Importance and Clinical Recognition. Frank Smithies.
7. Role of Pasteurian Methods in Prophylaxis of Infectious Diseases in the Armies, Especially in the Army of the Orient at the Dardanelles and in Macedonia. P. F. Armand-Delille.
8. The Present Status of the Operative Treatment of Chronic Frontal Sinusitis. T. W. Moore.
9. The Tonsils as Foci of Infection in Streptococcus Hemolyticus Carriers. H. J. Nichols and J. H. Bryan.
10. Studies on Irritable Heart: Preliminary Report. Louis M. Warfield and Fred M. Smith.
11. The Influenza Epidemic at Camp Dix, N. J. Martin J. Synnott and Elbert Clark.
12. Lobar Pneumonia at a Base Hospital: Laboratory and Clinical Study of Fifty Cases. Leon S. Medalia and Nathan S. Schiff.
13. Toxic Gases in Modern Warfare, with Special Reference to Diagnosis and Treatment. George William Norris.

6. Pericholecystitic Adhesions: Their Importance and Clinical Recognition.—Frank Smithies points out that affections of the gallbladder commonly represent progressive infection of the structures forming the gallbladder wall, the infecting bacteria being blood borne. Pericholecystitic adhesions may be intrinsic in origin and occur as a consequence of changes primary in the gallbladder, or extrinsic and due to disease in neighboring structures. The term "pericholecystitic adhesions" signifies complications resulting from inflammatory processes arising in the gallbladder wall and involving the serous layer. The extrinsic origin of such complications is comparatively rare. Laboratory and clinical studies have shown that gallbladder disease is initiated by bacterial growth, the inflammatory reaction of the gallbladder wall being continuous and progressive (acutely or chronically) or intermittent. Pathologically, two facts are emphasized: (1) Extensive pericholecystitic adhesions may arise within a short time, should there be actively progressive bacterial invasion, or similar lesions may represent years of disease should the infecting organisms be of low virulence, the tissue defense strong or the extension of infection intermittent. (2) The clinical or histopathological study of pericholecystitic adhesions furnishes no clue as to the duration of the existing evidences of inflammatory tissue reaction. Though the author confines his remarks principally to a consideration of pericholecystic adhesions arising from disease in the gallbladder, he states that his personal observations during the past eight years have shown that lesions extrinsic to the gallbladder may be complicated by such adhesions frequently enough to render such complications important from the standpoint of diagnosis, prognosis, and therapy. Of 1,000 cases of intrinsic gallbladder disease there were pericholecystic adhesions in 489. In nearly one out of three cases these adhesions involved the bile ducts (cystic duct 24.5 per cent., common duct 5.4 per cent., hepatic duct 1.4 per cent.); in nearly one of four cases, adhesions reached the duodenum, and in more than one of ten cases they were attached to the stomach, commonly at or near the pylorus. Adhesions to the omentum, colon, and liver are frequent enough to merit consideration since they are often infected and represent bridges of inflamed serosa by which bacteria may be transplanted to viscera far removed from the initial focus. In 19.5 per cent. these adhesions involved two or more structures, the duodenum, pylorus, colon, and bile ducts being the most frequent locations of such

multiple adhesions. In 38.9 per cent. of cases the gallbladder contained calculi. The fact that in almost two-thirds of the cases stones were not found may be explained thus: that when rapid adhesions form, active, progressive infection causes exuberant inflammatory reaction in the serous coat of the gallbladder or lymph channels before great damage is done to the mucosa with consequent alteration in the gallbladder content or interference with free emptying of the viscus. In absence of the clinical history of gallstones, therefore, one is not justified in assuming that the gallbladder is not seriously at fault; in 4.2 per cent. of the present series there were no prelaparotomy symptoms or signs pointing to abnormality of the gallbladder or the digestive apparatus. The clinical symptoms and signs are briefly: Pain, which may be due to the passage of calculi or to adhesions interfering with the free emptying of the gallbladder. In both types of lesion "colics" may be severe, and there is little in the clinical history of pain to differentiate these two types. There was obstinate constipation in 62.7 per cent., diarrhea in 9.8 per cent., and normal motions in 27.4 per cent. of the author's cases. Nausea was troublesome in 18.2 per cent. and vomiting in 21.7 per cent. Jaundice was constant or intermittent in 18.8 per cent, and there was a possible history of jaundice in an additional 10.2 per cent. Abdominal tenderness was noted in 91 per cent. of cases; there was a palpable gallbladder tumor in 29 and an enlarged palpable liver in 18 cases. As to gastric function, complete test meal analyses are available in 370 cases; in 7.1 per cent. the emptying power of the stomach was interfered with. As to gastric acidity, the average free hydrochloric acid was 35.1, with a range of from 0 to 140; total acidity averaged 43.2, with range of from 4 to 146; combined acidity averaged 4.7, with range of from 0 to 19. Apparently, therefore, the gastric secretion does not vary greatly from the normal. Roentgen study of 211 cases of gallbladder disease complicated by adhesions showed that in the duodenum there was stenosis in 10, sharp permanent acute angulation of the intestine in 7, dilatation of the first two-thirds in 26, possible deformity in 49, and possible malposition or fixation in 23 cases. In this group there was gastric retention of the opaque meal in 13 instances. When the pylorus or stomach was involved there was deformity or malposition in 18 out of 32 cases, stenosis in 12, with 3 malignant cases, and six-hour opaque meal retention in 10 cases. In roentgen examination it is important to make serial plates, with the patient in different positions, before and after the administration of antispasmodic medicine. In the absence of clinical data indicating organic disease of the stomach or duodenum, roentgenograms showing gross anomalies of these viscera may be interpreted as indicating pericholecystitic adhesions.

The Lancet.

November 9, 1918.

1. The Bradshaw Lecture on Neuroses and Psychoses of War. Delivered Before the Royal College of Physicians of London on November 7, 1918. Lt.-Col. William Aldren Turner, C.B.
2. Factory and Workshop Conditions and the Presence of Pulmonary Phthisis: The Need for an Industrial Health Service. Benjamin Moore.
3. What Are the Disabilities and Compensations Entailed by the Reproductive Function on the Female? Sir W. Arbuthnot Lane.
4. The Pharmacology of Alcohol. Major Robert B. Wild.
5. A Further Investigation into the Agglutinating Properties of Certain Sera Against *B. Typhosus*, *B. Paratyphosus A* and *B.* Thomas T. O'Farrell.

1. The Bradshaw Lecture on Neuroses and Psychoses of War.—Lieut.-Col. William Aldren Turner refers to the view of contemporary psycho-pathologists that all neuroses are "reactive" disorders, or consequences of a failure of psychologic adaptation or readjustment to environment. This is true particularly of the young soldier who is unable to adjust his outlook to service conditions; a large number of these men are constitutional neurasthenics, and any abnormal latent trend is quickly brought to the surface under the stress of camp life and military discipline. The most common type of mental psychosis observed in soldiers is a confusional psychosis, which may be superimposed upon a foundation of feeblemindness, or a basic reaction attributable to cerebral commotion, shell shock, or psychical trauma occurring in soldiers with a psychopathic inheritance. In both types prognosis is good, the condition lasting from a few days to several weeks. On the other hand, a confusional psychosis may be the early phase of an underlying and more deeply rooted disorder, such as dementia precox. The author, however, gives his attention chiefly to the different types of war neuroses, among which are the young and inexperienced soldiers who have given way to fear at their first experience of bombardment; those suffering from fatigue and nervous exhaustion, who require rest to restore them to duty; the cases of anxiety neuroses which occur generally in young officers, who in spite of insomnia, loss of self confidence, headache, mental depression, fear that they may be incapable of the adequate performance of their duty, that they may be considered cowards, etc., manage to carry on until some commotional shock—such as horrible sights, partial burial through shell or mine explosion, bad news from home, or a cerebral concussion or commotion from shell shock—may precipitate a breakdown and they become incapacitated. The effect of these traumata, and particularly the last, is the onset of stupor, delirium, or amnesia "fugue." Stupor may be profound with rigidity of the limbs of the catatonic type, or in milder cases the patient may appear dazed and confused, may be easily startled and more or less indifferent to his surroundings. The stupor may be followed by mutism, deaf mutism, aphonia and stuttering; mutism has been explained as a state of functional inhibition, due to fear or horror which underlies the stupor. Astasia abasia is another symptom which may follow stupor and which is often accompanied by anxiety, the patient being obsessed by a fear that he is unable to walk. These disabilities, if left untreated, soon become "habits," develop into "war hysterias" and eventually "defence mechanisms," which though developed unconsciously, persist as reactions against various contingencies, chief of which is a desire not to return to any form of active warfare. Anxiety neuroses and anxiety depression are common symptoms of war neuroses which may occur alone or in association with mutism and paralytic symptoms, the chief feature of which are the "terror dreams," the patient going through a pantomime of fighting during sleep and waking up suddenly bathed in perspiration. Recovery in such cases may be estimated by the degree and frequency of these dreams. In a number of instances, such symptoms persist as a result of memories of experiences in earlier life which are revived in dreams, and are added to the war dreams. If such patients can be brought to realize the nature of their trouble the anxiety will lessen and frequently disappear. An objective sign of anxiety neurosis is a profound loss of body weight, associated with lowered blood pressure and an unusual degree of fatigue. Many such cases will recover with rest and quiet and attention to sleep; others require special psychotherapeutic attention, and others again—if the mental disorder has been fixed and systematized—may not recover. In a general way, it may be said that neurasthenia is more common in officers and objective symptoms of hysteria commoner in men. An explanation of this may be found in the greater responsibility of the officer. Turner points out that a sufficiently clear distinction has not always been drawn between symptoms which arise in consequence of physical and psychical causes respectively. Among earlier observers there was a tendency to underestimate the psychical factor and a school of French neurologists in particular has laid stress upon the importance of "cerebral commotion" in the causation of the psychoneuroses of war. The modern school of psychopathologists, on the other hand, may incline too much in the contrary direction. Some French neurologists draw a distinction between direct and indirect concussion. In the former, the symptoms are those of structural lesions of the central nervous system, such as muscular relaxation and hypotonia, impairment or abolition of deep reflexes, pressure of an extensor plantar response, retention of urine, hemorrhage into retina, voltaic vertigo, etc. Examination of the cerebrospinal fluid during the first two or three days following shock may exhibit blood staining, raised pressure, increase of albumin content, and sometimes a

lymphocytosis. Such signs may be transitory, but in a day or two other signs may be noted. In indirect concussion there is no visible external injury, but a cerebral commotion is produced indirectly. It is unlikely that concussion gives rise to anxiety unless this neurosis was in process of development at the time of the shock. In the treatment of war neuroses practical experience has shown that the hysterical symptoms can be cured rapidly and effectually by psychotherapy consisting of suggestion, persuasion, and re-education. Anything, however, that suggests to the patient that he is suffering from serious disability of organic nature will retard recovery—for example, repeated change from one hospital to another; treatment at spas, where too great attention to therapeutic measures tends to fix the neurosis in the patient's mind; or too much sympathy or hero worship. Experience has shown that treatment is best carried out in special hospitals under specially trained medical officers, where patients may be studied individually. It is important that symptoms should be given proper treatment while they are removable and fluid and before habit has been established. The French realized this early in the war and established neurological centers in the zones of their armies, and this example was followed by the British in the winter of 1916-17.

British Medical Journal.

November 9, 1918.

1. A Report on the Influenza Epidemic in the British Armies in France, 1918. Influenza Committee of the Advisory Board to the D.G.M.S., France.
2. "Spacing Out" in the Prevention of Military Epidemics of Cerebrospinal Fever. Captain J. A. Glover.
3. A Case of Subacute Infective Endocarditis. Major Bernard Hudson.
4. A Case of Intestinal Obstruction. J. M. Woodburn Morison and L. White.
5. Pyloric Stenosis with Accompanying Spasmodic Dysphagia. Captain E. B. Barton and Lt.-Col. H. H. C. Dent.
6. Inequality of the Pupils. T. Stewart Barrie.
7. Antistreptococcus Serum in Influenza. F. H. Edgeworth.
8. Hemorrhage in Influenza. John A. McConnochie.
9. Defluvium Capillorum After Influenza. John N. Beadles.
10. The Administration of Anesthetics to Soldiers. H. S. Gabbett.
11. Rosacea Successfully Treated by Mixed Staphylococcus Vaccine. P. W. Lam.

2. "Spacing Out" in the Prevention of Military Epidemics of Cerebrospinal Fever.—Captain J. A. Glover enumerates the main etiological factors which appear to produce military outbreaks of cerebrospinal fever, namely, (1) Season—the first quarter of the year; (2) Severe weather of all kinds and particularly sudden variations, east winds, and intense cold; (3) Antecedent epidemics of influenza; (4) Causes temporarily lowering resistance, such as antityphoid inoculation, fatigue, strenuous training, nostalgia, railway journeys, and the strangeness of barrack life to the new recruit; (5) Overcrowding; (6) A high carrier rate of epidemic strains of the meningococcus in the population at risk. He points out that while the first two factors are beyond our control, and the third and fourth largely so, the fifth and sixth are entirely in our hands and are indices of the efficiency of our sanitary stewardship. After four years of war no plea of military necessity for overcrowding can be accepted, and by "overcrowding" is meant the slightest excess over the "mobilization standard," when beds are approximately 1 ft. 4 in. apart. Overcrowding influences the incidence of cerebrospinal fever by its depressing effect, and by shortening the distance between man and man and thus facilitating transmission of infection. Captain Glover illustrates his remarks by the meningococcal history of a certain camp, where overcrowding was followed by an increase in the carrier rate, the "warning rise," to over 70 per cent., and an outbreak of the disease. The following September, prophylactic measures were put into force; beds were spaced out to 2½ ft. distance, ventilation was improved, and antityphoid inoculation postponed until the recruit's second month. As a result, the carrier rate fell steadily throughout the winter and in February, 1918, was 4 per cent. compared with a maximum of 72 per cent. twelve months previously. When overcrowding again began in April, the carrier rate rose from 1 per cent. on April 10th, to 31 per cent. on May 2nd. It is significant, however, that cases which then occurred were due to Types I and III, whereas the previous outbreak had been due to Type II of the meningococcus. Captain Glover sums up his conclusions as follows: (1) A high carrier rate usually denotes overcrowding and dangerously unhygienic conditions, even though no cases of the disease may have recently occurred; (2) Whilst sporadic cases may occur in a military as in any other community with any carrier rate, anything approaching an epidemic of cerebrospinal fever is heralded by a warning rise of considerable height in the carrier rate; (3) Severe overcrowding will probably be accompanied by a carrier rate (serological) of at least 20 per cent. This percentage is indicated as the danger line in the *War Office Memorandum* on Cerebrospinal fever (March, 1917). A carrier rate of this height will usually imply that the mobilization standard of 40 sq. ft. per man has been infringed, and that beds in the unit examined are less than 1 ft. apart. It should be regarded as a signal for prompt and effective action to diminish overcrowding, and to improve ventilation; (4) The distance between beds is of paramount importance; (5) Carrier rates between 10 and 20 per cent. are unsatisfactory, and imply a certain amount of overcrowding, and must be watched with suspicion; (6) Carrier rates from 2 to 5 per cent. may be considered usual under the best conditions obtainable in barracks and hutments; (7) Under the same conditions of overcrowding "non-contacts" carrier rates agree substantially with "contact" carrier rates; (8) Quite a moderate degree of "spacing out" of beds combined with simple methods of improving ventilation are highly efficient agents in reducing high carrier rates; (9) When a unit shows a high carrier rate, a distance of at least 2½ ft. between the beds should be enforced. The "peace" standard (3 ft. between beds) would, of course, be even more effective; (10) Recruits should be specially spaced out during their first three months of service.

Crónica Médico-Quirúrgica de la Habana.

September, 1918.

1. Purposes of the Pan-American Fellowship. Carlos E. Paz Soldan.
2. Convenience of Treating the Old Cases of Atrophy of the Optic Discs. Juan Santos Fernandez.
3. Induction. A. Perez Miró.
4. A Social Danger. Victor Foveau.
5. Ocular Tuberculosis. F. M. Fernandez.
6. Chemistry of Measles and Scarlet Fever. S. Velazquez de Castro.
7. Medical Aspects of the War. F. M. Fernandez.
8. A Case of Rat-bite Fever. A. Matienzo.

2. Convenience of Treating Old Cases of Atrophy of the Optic Discs.—Juan Santos Fernandez, describing some cases of optic nerve atrophy of long standing, gives his reasons for recommending that even in these old cases treatment should be instituted, because there is always the chance that they may improve somewhat.

4. A Social Danger.—Victor Foveau refers to the disadvantages of the obligatory registration of tuberculous cases as it was intended to do in France. The large number of tuberculosis cases makes it impossible for the State to keep them isolated.

6. Chemistry of Measles and Scarlet Fever.—S. Velasquez de Castro denies that either one of those diseases has a bacterial origin. He believes that in both cases there is some dietetic cause, there being a slight arsenicism in the first case and a slight iodism in scarlet fever. The author bases his opinion on the fact that overdoses of arsenic or of iodides cause symptoms similar to those seen in one or the other of these diseases.

Berliner klinische Wochenschrift.

October 7, 1918.

The Appearance of External Heterosexual Characters in Hypogenital States.—A. Alexander relates the case of a woman, age 34 years, without children. Since the absence of her husband the menses progressively diminished and had ceased to appear. The writer found a notable atrophy of the uterus and at the same time there had appeared distinctly masculine characteristics. The voice had changed, a minute beard developed, as

well as other changes in the epilous system. The writer explains this syndrome by a constitutional hypoplasia of the female endocrine apparatus and this hypoplasia ends in an insufficiency. At this time the heterosexual characters appear as they are no longer under the control of the female internal secretion.

The Frequency and Signification of Scaphoid Scapula.—F. Chotzen has studied the malformation described by Graves (MEDICAL RECORD, May 21, 1910), consisting of a concave internal border of the scapulæ. The writer seems to be very broad in the attribution of this condition since he has found 270 instances out of a total of 400 children in the schools for weak-minded at Breslau. Chotzen was unable to discover a luetic origin in his cases although this is supposed to be the case by most writers. On the other hand, the history of rickets was common in the children affected. The malformation is frequently accompanied by other evidences of degeneration. Among the children with scaphoid scapula, mental insufficiency reaching to manifest idiocy was found in ten cases, five of which were instances of mongolian idiocy. Examination of 550 soldiers in active service showed that 19 per cent. had scaphoid scapula and in them the history of hereditary syphilis was not more common than in the others, but as in the case of the children the history of rickets was frequent.

Gastric Sensitiveness to Cold.—E. Melchior states that liquids are not perceived by the gastric mucosa but they are by the abdominal parietes, which become cold when cold fluids are taken into the stomach.

Münchener medizinische Wochenschrift.

September 24, 1918.

The Epidemiology of Malaria.—Kirschbaum shows that in a region where malaria is not endemic the disease may be introduced by carriers of the plasmodium and develop among others from mosquitos which have sucked the blood of the carriers. The heat of spring is the determining factor of the recrudescence which occurs at this time of the year. The writer shows by charts the dependence of the number of new cases on the daily thermic changes. There is no hibernation of the plasmodium in the anopheles; the recurrence of epidemics of malaria in the spring is due to human carriers. The latter may be infected in a latent state until the time of their invasion in the spring. The climatologic conditions of summer are unfavorable for the development of the plasmodium in the interior of the anopheles and explain the frequent latency of the disease during this period of the year. From the viewpoint of prophylaxis quinine is indicated in armies where latent affections become suddenly declared. In order to avoid relapses and diminish the number of carriers, it is necessary to examine patients twice after their apparent cure at intervals of one month.

Fat Embolus as a Cause of the Phenomena of Past Traumatic Shock.—H. Siegmund opposes to the generally accepted nervous theory of shock, another interpretation based on twelve autopsies. In all these cases the clinical signs had been those of serious shock ending in death within a few days. The special histological coloration revealed the presence of fat cells in the arteriolæ and pulmonary capillaries. The general circulation also showed fat globules even when Botal's foramen was perfectly closed. These emboli were also found in the cerebral, renal, splenic, and cardiac vessels. Control researches showed that these emboli are met with in cases other than fracture as, for example, in infectious diseases, but in this case the emboli are never in such considerable numbers as in states of shock. In the case of rapid death (falls in aviation) fat emboli are found, which proves that this complication may occur with extreme rapidity. The writer insists on the importance of the mechanism of embolus in a series of affections having commotional and convulsive phenomena.

Deutsche medizinische Wochenschrift.

September 26, 1918.

Hemoglobinuric Bilious Fever.—Mühlens studies this complication of malarial states without bringing forward much personal work. The distinctive signs of the attack are a sudden onset with chills and fever, vomiting, a serious general condition, hemoglobinuria with icterus and a marked anemia, tumefaction, and pain of the spleen and liver. The mortality, according to various statistics, varies from 10 to 50 per cent., and especially according to the possibilities for treatment. The blood contains the plasmodium before the attack and is present for one or two days during it. During the attack the schizontes must be destroyed as well as the erythrocytes. After the attack they gradually reappear. As to treatment, the writer advises cardiac tonics, abundant diuretic infusions, physiological salt solution, etc. Calcium chloride and cholesterin, which are supposed to diminish the globular fragility, gave no very marked results at the writer's hands. It is now generally considered that quinine should be omitted at the time of the attack and the instructions of the German Health Service are to this effect. After the attack, quinine should be given by slowly increasing daily doses, beginning with 1 centigram and gradually attaining one gram per diem. The urine must be carefully watched in order to detect the first traces of urobilin or albumin which are the index of an approaching attack of hemoglobinuria. Methylene blue possesses the same drawbacks as quinine and should not be employed.

The Relationship Between Malaria and Leucemia.—G. Rosenow reports the case of a soldier who, after attacks of malaria, developed a myeloid leucemia (113,000 white corpuscles). The relation between cause and effect appears evident to the writer and it is to be remarked that the occurrence of new attacks of malaria made a drop in the number of white cells. This fact is to be regarded as an exaggeration of the usual phenomenon of leucopenia at the time of malarial paroxysms.

Some Symptoms of Latent and Tropical Malaria.—F. Sachs mentions as such, persistent headache, neuralgic or rheumatismal pain, bronchitis, intestinal disturbances and icterus. These signs, even in absence of hematologic or clinical evidence, should draw the physician's attention to the possibility of malaria which should then be looked for by the well known procedures of provocation.

Correspondenz-Blatt für Schweizer Aerzte.

August 31, 1918.

Traumatic Nephritis.—Wildbolz, after mentioning the special interest of this substance for accident insurance, states that doubt as to the existence of this lesion still obtains. No one denies its possibility, but none the less it is very difficult to commit one's self to a hard and fast diagnosis, such as must be forthcoming in insurance practice. If numbers of alleged cases signify anything, traumatic nephritis not only exists but is fairly common. But when one reads all of these histories through, the relationship of cause and effect is always uncertain. If a man of continuous good health gets an injury in which the kidney is directly implicated and if renal elements which signify inflammation can be found in the urine and if there is a constitutional reaction such as accompanies nephritis then one can speak of a traumatic nephritis. On the other hand, if high blood pressure and dilated heart appear after the injury it can only mean an old nephritis which has been aggravated by the injury; for such sequelæ could not develop rapidly. A contusion over the kidney may cause a certain amount of mechanical disturbance ending in desquamation with leakage of albumin and slight hemorrhage, but this soon disappears and should not be termed traumatic nephritis. Exploratory palpation of the kidneys may also cause the appearance of a renal sediment in the urine. Unless the trauma alone and at once causes the appearance of a renal sediment the author would not use the term traumatic nephritis. A case is related of a carpenter who was struck over the loins by a falling joist. He kept at work with both local and general symptoms and the examining physicians reported no damage although they failed to examine the urine. Becoming worse, he took his urine to a druggist who found an abundance of albumin. He then consulted the author, who at once examined him for pre-existing nephritis, as shown by the state of the cardiovascular system. There was an

effort to differentiate between the two kidneys, as presumably one bore the brunt of the injury. Ureteral catheterisation was performed and when it was learned that both kidneys were equally compromised the author decided against traumatic nephritis. It seldom happens that any of these patients have their urine examined directly after the injury. Several complete cases are cited—injury over one kidney, initial hematuria, interval of latency, evidences of nephritis shown by segregation to be unilateral, etc.

La Presse Médicale.

August 15, 1918.

Clinical Consequences of Oliguria of Cardiac Origin.—Josue and Parturier state that the elimination of urine diminishes in asystolia because of slowing of the circulation and renal stasis. The oliguria in turn reacts on the kidneys and the resulting troubles are superadded to the asystolia. In this way renal symptoms may come to dominate the picture. The traditional belief is that it is often difficult to distinguish between a cardiac and renal lesion in these cases. In such a dilemma a cardiac stimulant will often clear up the renal symptoms. The authors call this syndrome the pesudo-cardiorenal because in this type of affection there is no actual renal lesion present. As a matter of fact, oliguria in these cases can lead to the same edema and the same retention in the blood that we see in uremia. The authors have seen many cases in which nitrogen retention amounted to 1 gm. per liter of blood. But if the heart be stimulated by digitalis, the kidney, as already stated, clears up promptly. The mechanism here is of the simplest, according to the authors, although this is not universally conceded. The syndrome comes about purely from water stagnation and vanishes with diuresis. Others hold that some of the renal parenchyma is actually compromised. The water retention causes edema and hydremia. The edema of the blood so-called becomes edema of the tissues. Retention of water means a parallel retention of sodium chloride, the salt being dissolved in the water in a constant concentration. Urea retention, while present in marked degree, even sometimes tenfold normal, never reaches such a figure as to cause uremia. In other words nitrogen and chlorine retention are not parallel in asystolia. The scanty urine of the latter condition contains plenty of urea, but is poor in chlorides, because of the notable retention of the latter. Should a pathological azotemia develop in these cases, it is certain evidence of a renal lesion.

La Presse Médicale.

September 12, 1918.

Mitral Stenosis and Raynaud's Disease.—Chalier alludes to the complex etiology of Raynaud's disease and has repeatedly called attention to a relationship between the latter and vascular lesions. A few cases are on record of association of the peripheral lesion with mitral stenosis while in a much larger number some other lesion of the heart was in evidence. These comprise interventricular communication, aortic insufficiency, angina pectoris, pulmonal insufficiency, tricuspid insufficiency, cardiac hypertrophy, etc. To these totals may be added an entire large series of cases of arteriosclerosis, atheroma, and combinations of cardiac and vascular disease. The author is interested in this connection only in mitral stenosis and is now able to cite six personal cases of the association with Raynaud's disease to the older material. All six presented the double affection in greater or less purity and in all the cardiac lesion evidently preceded the Raynaud's disease. This fact, with the admitted infrequency of the latter, shows plainly that the cardiac affection was a causal element or concomitant in the genesis of the gangrene. Much must depend on the nature and cause of the endocarditis which was responsible for the stenosis; and if we assume that this was articular rheumatism then we might add the large number of other cardiopathies of presumably the same origin and make rheumatism a potent factor in the causation of Raynaud's disease. But on interrogation of the patients we singularly enough find no history whatever of rheumatism in three of the six. The next causal factor to consider is tuberculosis which may cause mitral stenosis in some indirect fashion, probably by action of the toxins on the endocardium. There is considerable resemblance also between certain tuberculides of the fingers and Raynaud's disease. But in three again of the author's cases there were no data to suggest tuberculous infection. We can only conclude that the same factor or factors which set up Raynaud's disease may also give rise to the cardiac lesion. The vasomotor system is probably involved in the mechanism in the latter as it is in the former.

Wiener medizinische Wochenschrift.

August 31, 1918.

The So-called Disasters from Salvarsan.—M. von Zeissel has observed 4,000 syphilitics treated with salvarsan and found that many offered certain disturbances, such as erythemata, urticaria, or vomiting. Without bringing forward any cases of more serious accidents resulting from salvarsan, the writer refers to certain accidents, such as blindness, deafness, and nervous lesions present in cases of syphilis at the time they came under treatment.

The Struggle Against Infectious Diseases in the Army of the Isonzo.—K. Russ, in this second portion of his article, after referring to the installation of baths and lice disinfection, speaks of the service rendered by laundries and centers for examination of foodstuffs. Prophylactic vaccinations were made every three months for cholera and every seven months for typhoid. In certain formations a mixed cholera-typhoid vaccine was tried. Antidysenteric vaccination is being studied. The results of these measures are shown by statistical charts made by the writer. They reveal a general decrease in the death rate for the various diseases, particularly marked for six months beginning with January, 1916, after which it fell more slowly. October, 1916, shows a general recrudescence of the diseases but they were mild in severity and very temporary in duration. The eruptive fevers (measles, scarlet fever, and typhus) were few and sporadic. There were some few cases of cerebrospinal meningitis but the mortality was high, viz.: 50 per cent. in spite of serotherapy. The great infrequency of tetanus is attributed to prophylactic injections.

Norsk Magazin for Laegevidenskaben.

August, 1918.

Idiopathic Dilatation of the Esophagus.—Harbitz calls attention to the similarity which exists between three different affections of the alimentary canal, viz.: congenital megacolon or Hirschsprung's disease, pyloric hypertrophy and stenosis in the new born or very young infant and idiopathic dilatation of the esophagus. Concerning the latter, he has seen three cases in individuals respectively 34, 40 and 27 years of age, all of them being autopsy cases. The first patient was believed to suffer from gastric ulcer or cancer. The symptoms were great emaciation and rejection of food and his disorder had begun 8 years before with swallowing troubles. Even after admission to the clinic of Professor Nicolaysen the diagnosis of gastric cancer was upheld and an exploratory laparotomy which resulted in the patient's death led to the autopsy diagnosis. In the second case idiopathic dilatation of the esophagus was recognized by the *x*-ray. Death took place three days after laparotomy performed with the intent of separating the cardia from the hiatus of the esophagus. The third patient had been treated for stenosis of the esophagus. He was subjected to a gastrostomy and died of postoperative pneumonia.

Case of Congenital Dextrocardia.—Barth's patient suffered from ulcerative endocarditis in a right sided heart. The age was seventeen years and although the boy had been under medical care before it had never been remarked that the heart beat was on the right side. The present illness began two weeks before as a remittent fever. The author had no trouble in the diagnosis of dextrocardia of evident congenital origin with ulcerative endocarditis. Death took place from hemiplegia following cerebral embolism. Autopsy showed an ulcer on the mitral and the presence of half a pint of clear fluid in the pericardium.

Book Reviews.

THE SURGICAL CLINICS OF CHICAGO. Volume 2, Number 3, June, 1918. Octavo of 254 pages with 63 illustrations. Published bi-monthly. Price, per year, $10.00. Philadelphia and London: W. B. Saunders Co., 1918.

THIS number of the clinics contains fifteen clinical lectures covering a great variety of subjects, from renal calculus and gallstones to bunions. Bevan's lectures are based upon six clinical cases of various kinds and fill about one-fifth of the book. Smithies contributes a long lecture on gall-bladder disease, partly based on a number of clinical cases and partly on a study of 1000 cases in which gall-bladder pathology was demonstrated by operation. Carl Beck describes a new method of performing gastrostomy. E. H. Ochsner has an interesting lecture on the treatment of flat foot. Buford gives the results of his experience in the treatment of umbilical hernia in children. There are several other lectures that well merit individual notice, and the number as a whole is particularly good.

GYMNASTIC TREATMENT FOR JOINT AND MUSCLE DISABILITIES. By Brevet Col. H. E. DEANE, R.A.M.C. Price, $2.50. New York: Oxford University Press, American Branch, 1918.

THIS little volume contains 26 photographs which illustrate chiefly various gymnastic exercises. The apparatus recommended includes the so-called "handbag" which can be indented by a certain degree of finger pressure, Indian clubs, the skipping rope, wrist rollers and pulley machines, the climbing rope, parallel bars, the climbing plank, walking and hanging beams, wall bars, and the nautical wheel. Free gymnastics and games are also illustrated. One aim of these exercises is recovery of lost function; another is increased development of sound limbs.

CLINICAL DISORDERS OF THE HEART BEAT. A Handbook for Practitioners and Students. By THOMAS LEWIS, M.D., F.R.S., D.Sc., F.R.C.P., Physician of the Staff of the Medical Research Committee; Assistant Physician and Lecturer in Cardiac Pathology, University College Hospital; Late Physician to Out-Patients, City of London Hospital for Diseases of the Chest. Fourth edition. Price, $2.25. New York: Paul B. Hoeber, 1918.

THERE is little to add to what has already been said regarding this book in reviews of the earlier editions. The subject of the heart's action as studied in the pulse and by graphic methods is one that Lewis has made peculiarly his own, and what he has to teach us in this line is worthy of the careful attention of clinicians. Whatever advance there has been in this study during the past two years is recorded in this new edition, which can be recommended as a trustworthy guide to the diagnosis of disorders of the cardiac muscle.

AMPUTATION STUMPS: THEIR CARE AND AFTERTREATMENT. By G. MARTIN HUGGINS, F.R.C.S., Medical Officer to the Government Schools, Salisbury, Rhodesia; Late Surgical Specialist to the Pavilion Military Hospital, Brighton. Pp. 228, with 95 illustrations. Price, $2.75. London and New York: Oxford University Press, American Branch, 1918.

THIS guide in the treatment of cases in which amputations have been performed was written because very little information on the subject has been published heretofore in such shape as to be readily available. The author's qualification rests in the fact that as surgical specialist at the Pavilion General Hospital at Brighton for 13 months he was responsible for the treatment of about 3000 amputation cases in the course of a year; and he also visited Roehampton House once a week to see his own and other surgeons' cases fitted with artificial limbs. This afforded a wonderful opportunity to see large numbers of good and bad end results so that it was possible to come to definite conclusions as to the best methods of treatment and, *per contra*, the methods to be avoided. This book is not intended as a textbook on amputations, and the author assumes that the reader is familiar with the information contained in the ordinary surgical textbooks.

The book is divided into seven chapters under the following titles: General Considerations; Amputation Stumps of the Upper Limb; Amputation Stumps of the Lower Limb; Painful and Tender Stumps; Sinuses and Necrosis of Bone; Joint Deformities; and Miscellaneous Considerations, Temporary Peg Legs, etc. This transcript of the chapter headings will give an approximate idea of the ground covered. Unfortunately, space will permit but very limited discussion of the text. In the chapter on General Considerations the qualities of the ideal stump are set forth. This is followed by remarks on the guillotine operation, when to reamputate, evidence that the stump is ready for reamputation, the technique of reamputation, pain following reamputation, etc. These remarks are eminently practical and are based upon such an extensive experience that they are almost invaluable, which, indeed, may be said of practically the entire text. Throughout, in the chapters discussing regional amputations, the possibilities and limitations of subsequent mechanical appliances are kept well in the foreground. The book is adequately illustrated and is of the greatest value just at the present time when so much reconstructive work along this line is to be done.

THE AMERICAN HOSPITAL OF THE TWENTIETH CENTURY. A treatise on the development of medical institutions, both in Europe and in America, since the beginning of the present century. By EDWARD F. STEVENS, architect, member of American Institute of Architects; member of Province of Quebec Association of Architects; member of American Hospital Association. Illustrated. New York: Architectural Record Publishing Co., 1918.

THERE is a paucity of books dealing with American hospitals. It certainly is not because hospitals of this continent are not equal to those of Europe. Rather it may be said that in many respects institutions for treating the sick are models, on this side of the Atlantic. Mr. Edward F. Stevens, the well-known Boston architect, in the work before us has endeavored to remove to some extent the reproach from America that her numerous splendid hospitals are inadequately described. The author is particularly well qualified for the task as he has himself designed some of the most notable American hospitals. The work well fulfills its purpose and is profusely and suitably illustrated.

AN INTRODUCTION TO THE MAMMALIAN DENTITION. By T. WINGATE TODD, M.B., Ch.B., Manc.; F.R.C.S., Eng.; Captain Canadian Army Medical Corps; Payne Professor of Anatomy, Western Reserve University, Cleveland, Ohio. Price, $3.00. St. Louis: C. V. Mosby Co., 1918.

THIS volume is in addition to its technical features a document relating to the evolution of the mammals. As far as the teeth can witness the latter had as progenitors certain mammal-like reptiles known as therocephali and cynodonts, both of which show rudiments of mammalian teeth in addition to other mammal-like features. These reptiles walked rather than crept, through the possession of well-developed limbs, and this high degree of locomotive activity may have played a role in the development of warm blood. Dental evolution assumed more and more the mammalian type but a genealogy based purely on dentition is evidently incomplete. The earliest known mammals appear to have been marsupials and certain insectivora. Forms of the latter, known as tree-shrews, may have evolved into the lowest primates and these into the higher forms.

THE CANADIAN MEDICAL WEEK. Hamilton, May 27-June 1, 1918. Published under the auspices of the Ontario Medical Association. Price, $4.00. Toronto: The Macmillan Company of Canada, Ltd., 1918.

THIS volume contains the transactions of a joint session of the Canadian and Ontario Medical Associations, which was carried out in nine sections, viz., eye, ear, nose and throat; medicine; obstetrics and gynecology; pediatrics; public health; returned soldier problem; surgery tuberculosis; museum and laboratory. About 50 papers were read, nearly half of which were by physicians of the United States, doubtless because of the absence abroad of so many prominent Canadians. The range and quality of effort in the contributions are both notable.

Society Reports.

AMERICAN PEDIATRIC SOCIETY.

Thirtieth Annual Meeting,

Held at Lenox, Mass., May 27, 28 and 29, 1918.

THE PRESIDENT, DR. LINNÆUS EDWIN LAFETRA OF NEW YORK IN THE CHAIR.

(*Continued from page* 1006.)

Variations in the Lipoid ("Fat") Content of the Blood of Infants Under Certain Nutritional Conditions.—Drs. W. MCKIM MARRIOTT of St. Louis and WARREN R. SISSON of Boston presented this paper, which was read by Dr. Marriott. He said that an infant fed on considerable amounts of fat, but unable to utilize this fat, was virtually in a state of fat starvation. Analysis of the stools for fat or its derivities gave us some indication of the efficiency with which the fat of the food was digested and absorbed. Further information as to the behavior of fat in the body of the infant could be obtained from a study of the fat of the circulating blood under varying conditions of feeding and states of nutrition. Blood fat was derived from the tissues as well as from the food, and during complete starvation might be as high as when moderate amounts of fat were fed. In order to interpret the analysis of blood for fat it was necessary to know the diet of the patient. If the food taken was what would ordinarily be adequate, and blood fat remained low, it might be assumed that there was difficulty with fat absorbtion. A high blood fat meant a deposition of fat somewhere in the body. Blood fat was determined by Bloor's nephelometric method. The authors had made 52 determinations of fat on the bloods from 48 infants, patients in the wards of the Boston Floating Hospital. The average blood fat for the series was 0.68 per cent. There were no differences in the blood fat percentage that could be attributed to the time of taking of the samples after feeding. Other factors being equal, well nourished and poorly nourished infants had essentially the same amounts of fat in the blood. Their results showed that an infant who was gaining weight, no matter what his state of nutrition, would have a higher blood fat percentage than one who was not gaining. Breast fed infants gaining weight showed a higher average blood fat than any other group of infants in the series studied. Infants fed on milk mixtures containing no fat showed a low blood fat percentage, much lower than those being completely starved. Some of the infants being starved were suffering from "intoxication" and a few developed acidosis. The infants with acidosis showed blood fat percentages essentially the same as those who did not have acidosis. The fact that certain groups of infants showed amounts of blood fat that differed distinctly from the general average of other groups, suggested the desirability of further work on special types of nutritional disorders. It would be of especial interest to study further the particular group of cases in which failure to thrive had been attributed to difficulties in the digestion and absorption of fats.

The Relative Efficiency of the Different Mercurial Preparations in the Treatment of Congenital Syphilis in Infants and Children as Determined by a Quantitative Analysis of the Mercury Eliminated in the Urine.—Dr. WALTER REEVE RAMSEY of St. Paul, Minn., presented this communication, in which he said that up to the present time the form, dose, and method of administration of mercury in the treatment of syphilis in infants and children had been more or less haphazard. The series of experiments discussed were undertaken to determine, if possible, the extent of the absorption of mercury into the circulation as indicated by the elimination in the urine, when the ordinary methods and dosage were employed, and the time during which the mercury continued to be eliminated in the urine after the mercury had been discontinued. From the series of experiments shown in the charts which were presented the following conclusions were drawn: In infants and children, mercury, when given by the mouth, by inunction, or subcutaneously, was excreted at least partly by the urine. In the new born infants and older children, mercurial ointment when placed in contact with the skin, without any friction being used, protected and sealed by waxed paper from being volatilized and inhaled, was taken up by the skin and eliminated in the urine, and continued to be excreted in the urine for some time after all treatment had been discontinued. By inunction, mercury was readily taken up by the skin and eliminated in the urine, and continued to be eliminated for a considerable length of time. When one inunction was given, the maximum daily amount of mercury was usually eliminated during the following twenty-four hours, smaller amounts being eliminated for varying lengths of time. Where continuous inunctions were given there was an accumulation in the system and considerable amounts were eliminated at intervals with only traces between. It was therefore probable that it was unnecessary to have mercury in contact with the skin either with or without rubbing as often or as long as had been generally thought necessary. This, however, must be determined by further clinical investigation. Mercury salicylate suspended in oil and given subcutaneously continued to be eliminated in the urine in appreciable amounts for as long as eight days, the daily amounts eliminated varying widely. It was therefore probable that repetition of the treatment not oftener than at intervals of eight days would be sufficient. Mercuric chloride by the subcutaneous method continued to be eliminated for ten days. In all cases in which mercurial chloride was used either by mouth or by the subcutaneous method, protein was found in the urine. Calomel one-quarter of a gram every two hours, for four doses, and gray powder one-half a gram continued to be eliminated from the urine in appreciable amounts for as long as nine days, the maximum amount being eliminated during the twenty-four hours following the administration. It was therefore probable that the daily use of any of the mercurial salts in the amounts usually prescribed was unnecessary and presumably harmful. The investigations would be continued with the idea that some degree of accuracy would be attained in the treatment of syphilis by the different mercurial preparations.

Dr. HOWARD C. CARPENTER of Philadelphia asked if the calomel ointment was recommended instead of the official blue ointment which was formerly used. He said that some work done by Dr. Kolmer led one to think that the calomel ointment was more readily absorbed than the blue ointment, and in that case it should be used as it did not have the disagreeable features of the ordinary blue ointment.

Dr. RAMSEY replied that they had determined that the calomel ointment was as readily absorbed as the blue ointment. The toxicity of these preparations had not yet been determined, but he hoped to be able to say something about that next year.

Standards for Growth and Nutrition of School Children.—Dr. L. EMMETT HOLT of New York presented this communication and showed charts giving the weight curves from observations upon over 50,000 boys of different nationalities both in this country and abroad. He stated that the weight-to-age variations were so wide as to make this relationship of very little value when taken alone. The normal variations in the weight of healthy children of the same race were from 10 to 15 pounds between the sixth and the tenth year, while from the tenth to the sixteenth year the range is from 20 to 40 pounds. In a private school in New York for boys who came from the wealthiest homes the weight range from the twelfth to the sixteenth year was from 40 to 50 pounds, all weights being taken without clothes and by the same physician. The height-to-age variations were still less significant. Height was even more influenced by race and family inheritance than the weight. Children of the well-to-do classes exceeded those of the less favored in height much more than they did in weight. The relation of height-to-weight was the only one which was really important as indicating the state of nutrition; but here also considerable variations existed in healthy children. A child's nutrition might be considered below the normal when he was ten per cent. below weight for his height between the sixth and the tenth year, or twelve per cent. below from the eleventh to the sixteenth year. The best of all guides to the state of nutrition, and more important than either of the

foregoing, was the annual rate of increase in weight and height. The annual increase in weight was from 4 to 6 pounds a year from the sixth to the tenth year; while it rose to an average of 13 pounds in the fifteenth year. Girls gain at the same rate as boys up to the age of ten years, but surpassed them for the next three years. The annual increase in height varied normally less than the weight. The average increase was from 1¾ to 2 inches a year from the sixth to the eleventh year; it rose to its highest point in boys from the thirteenth to the sixteenth year when it was usually 2.5 to 3.0 inches a year. In girls it was highest from the tenth to the fourteenth year. As a rule growth in height and weight were in healthy children along parallel lines. On insufficient food, growth in height might go on though there was loss in weight. Observations upon 1243 school boys between ten and sixteen years showed that they increased in weight 1¼ pounds more in the six months from May to November than from November to May, and that the gain in height was 0.38 inches more during the first named period.

Dr. Fritz B. Talbot of Boston said he was interested in these figures because they had need of them in the work they were doing at the Carnegie Laboratory at the present time. In their work in metabolism they had been able to establish a ratio between the metabolism and the body weight, and he should not be much surprised if there was some such relation between weight and height as they had found between weight and metabolism. The figures which Dr. Holt had presented were very important to those who were working with children between the ages of two and twelve years.

Dr. Godfrey R. Pisek of New York said they had need of just such an estimate as Dr. Holt had given them. Many of the observations made in reference to weight and height were unscientific, but when the figures were made by members of this society or under their supervision they could be depended upon.

Dr. John Lovett Morse of Boston called attention to the fact that some observations with reference to the rapidity of growth showed that growth in height was most rapid in the spring and gain in weight was most rapid in the autumn. Dr. Holt's figures showed that growth in height was most rapid in the summer.

Dr. J. P. Crozer Griffith of Philadelphia spoke of the need of making allowance for the weight of clothing. The younger children were weighed without clothing and the older children with clothing. This allowance should be made and was made in Bowditch's figures. Dr. Griffith recalled that he had made observations on 200 children between the ages of two and six years and that all of these children were weighed undressed.

Dr. Alfred F. Hess of New York said that during the past six or seven years he had been following the weights and heights in children that were not tuberculous but merely undernourished. It had been his experience that they did not gain well in the summer months. He thought that the reason Dr. Holt found the gain greater during the summer months was because these school boys were housed up in the winter and led an outdoor life in the summer. Observations to be of practical value should be made on hundreds of thousands of children.

Dr. Charles Hendee Smith of New York said that in connection with their work in the nutritional classes at the Bellevue Out-patient Department, the had plotted the curves of a large number of children. They found that a large number of the city children ran under the average as estimated by Bowditch. Undernutrition affected growth in height as well as weight. These children could be made to grow in height as well as to increase in weight by careful feeding. Heredity was also a factor. The children of taller parents if treated properly could be made to grow more rapidly than those whose parents were shorter.

Dr. Godfrey R. Pisek of New York stated that anthropologists had agreed to throw out gross variations in plotting curves, and this was a point to be taken into consideration in this work also.

Dr. Holt emphasized that the normal curve was not a line but a zone, and a much wider zone that they had hitherto appreciated. With reference to the weight of the clothes of which Dr. Griffith had spoken, it might be recalled that Bowditch had shown that the weight of the clothes in boys and girls averaged very closely to the same figures. Dr. Hess was perhaps right in thinking that it was the out-door life during the summer months that accounted for the more rapid growth during that period. In studying the records of the individual boys the gain in weight and height was almost symmetrical, unless there was a sickness which sometimes made a difference. Dr. Holt stated that in his opinion the Dunfermline scale was not a good standard. Under Dr. Baker's supervision, 170,000 New York school children had been examined according to this scale and results were reached which were quite at variance with the truth.

The Complement Fixation Test for Tuberculosis in Infancy.—Dr. Henry Heiman of New York read this paper in which he gave the results of the complement fixation test in a series of 59 patients whose ages varied from the six months to twelve years. Of these 16 cases were tuberculous, six probable or suspicious, and 23 were non-tuberculous. Among the former group were six cases of tuberculous meningitis. Complement fixation reactions on the blood of these patients with both antigens was negative in four and suspicious in two cases. Of seven cases of pleural effusion, one was definitely tuberculous, three were probably tuberculous, and in three others the etiology could not be determined. In these cases the complement fixation tests were negative with both antigens. The serum of the three patients in whom the etiology was not definitely determined gave negative reactions also. Of six children with pulmonary involvement, two being cases of miliary tuberculosis with the usual course, all gave negative reactions with both antigens. The diagnosis was subsequently confirmed by findings at the autopsy table. Among 28 cases with no signs or symptoms of tuberculosis infection, complement fixation tests revealed three strongly positive reactions, one faint inhibition, and one suspicious reaction. In view of the very favorable results reported by other men with the same antigens in general groups of individuals, before discarding the test it was desirable that they should learn the experience of others in this field.

Dr. Paul Armand-Delille of France said that some years ago he had made complement fixation tests in tuberculous children and adults, using old tuberculin and other antigens, and he had found exactly what Dr. Heiman had found. He found that in differentiating the tuberculous from the non-tuberculous the complement fixation test was of no value.

Dr. J. P. Sedgwick of Minneapolis said he thought that the results with the complement fixation test in tuberculosis depended largely upon the antigen. Dr. Larsen of the University of Minnesota had an antigen that gave more reliable results than those that were being used. We should not discard the complement fixation test until Dr. Larsen reported on this work.

Dr. Heiman said he wished to agree with Dr. Sedgewick. We were not going to discard the complement fixation test for tuberculosis but we were going to look for a further improvement in the technique.

Twenty-six Cases of Pyloric Stenosis in Private Practice, with Operation by the Rammstedt Method.—Dr. Charles Gilmore Kerley of New York presented this paper. He stated that of these twenty-six cases, twenty-four had been operated on by Dr. Downes at the Babies' Hospital, one by Dr. Downes at St. Luke's, and one by Dr. Jennings at the Brooklyn Hospital. Of these cases seventeen were boys and nine girls. The lowest weight at operation was 4 pounds 2 ounces; the birth weight of this child was 5 pounds 8 ounces. This patient made an uneventful recovery. Vomiting began at birth in one instance, at two weeks or under in eleven cases, between two and four weeks in thirteen cases, at six weeks in one and at eight weeks in one. The onset was abrupt in all but one. Twenty-three were entirely breast fed at the onset of vomiting. The vomiting in all cases was projectile, the stools and urine were very scant in all, and in all there was a steady loss of weight after the onset of the vomiting. The peristaltic wave was present in all cases. There was no rise in temperature. A tumor was palpable in all but one case, and was most frequently located above and to the right of the umbilicus. Postoperative observations showed no postoperative vomiting in seventeen cases, nine vomited post-

operatively, but all of these recovered. Postoperative temperature above 101° F. was noted in seven. Four cases ended fatally, a mortality of 15.3 per cent. In three of these the children had vomited for weeks and were in wretched condition at the time of operation. The fourth child had vomited for weeks, but was in fairly good condition. Immediate operation was advised, but the family insisted that the child be kept under observation for a few weeks. The child developed an acute gastrointestinal infection and in three days the operative risk had risen 50 per cent., and the child died in collapse three hours after the operation. The postoperative management carried on at the Babies' Hospital was that evolved by Dr. Holt, which consisted in wrapping the child in a warm blanket when it came out of the operating room, and when it was put to bed surrounding it with hot water bottles outside the blanket. For an hour or two after the operation the head of the bed was kept lowered to prevent the aspiration of mucus into the larynx; this was absolutely necessary. Ten or twelve hours later the patient was put in the semi-erect position, which prevented the regurgitation of food and permitted the easier escape of gas. As soon as the patient was placed in bed hypodermoclysis of 120 c.c. of saline solution was given, and if the condition was very poor a hypodermic of 5 minims of adrenalin, 1-1000, was administered and repeated every four to five hours. Dilute whisky every few hours for the first five or six days had proven of great value. Transfusion in a few cases that had collapsed had been of material benefit. One and one-half hours after the operation 10 c.c. of water was given, and an hour and a half later 10 c.c. of barley water and breast milk. Two hours later 8 c.c. of breast milk was given, and then every three hours alternated with water and gradually increased in amount, so that at the end of forty-eight hours about 30 c.c. was given at a feeding, with 4 c.c. of barley water. The barley water was then discontinued and the breast milk increased, so that by the eighth day following operation the baby was taking 60 c.c. at each feeding. By the eleventh or twelfth day the baby was nursing entirely. In well nourished babies a sponge bath was given daily; in emaciated children an oil rub was preferable. A teaspoonful of castor oil was usually given twenty-four hours after the operation if there had been no stool. If there were more than three or four stools a day, protein milk should be substituted for three or four breast feedings. The wound was not disturbed for four or five days unless some indication arose. The stitches were removed on the ninth or tenth day. A low mortality in these cases depended upon early diagnosis and immediate operation. The presence of a palpable tumor demanded prompt surgical interference. Operation by a competent surgeon, using the Rammstedt method, which meant a rapid operation, would insure a mortality of about 5 per cent. in cases that had not vomited more than two weeks. Sudden and unexpected death in the palliatively treated cases was not uncommon. Acidosis due to defective urinary secretion with retention of acid was an ever present danger.

Dr. L. Emmett Holt of New York stated that at the Babies' Hospital they had had some two hundred cases of hypertrophic stenosis of the pylorus, and that did not mean that every baby that came to the hospital had hypertrophic stenosis of the pylorus, for in most of these cases the diagnosis was made outside the hospital. The more he studied the matter the more he became convinced that the treatment of this condition was operative. In about 100 cases in which the vomiting had lasted less than four weeks the mortality was 40 per cent., while in those in whom the vomiting had lasted over four weeks the mortality was 50 per cent., which showed very clearly that the chances for life were better if the operation were performed early. While the risk of operation was something to be considered, the risk of not operating was greater than the risk of operation. If the operation was performed as Dr. Downes did it, it took only ten to fifteen minutes. Hemorrhage occurred in very few cases. In their last fifty or seventy-five cases there had not been a serious complication. They began giving food, a teaspoonful, immediately after the child came out of the anesthetic. To withhold food for twenty-four to thirty-six hours after the operation was to diminish whatever chances of recovery the child had. At the end of a week the child was getting 2 ounces of breast milk, but he was not put on the breast until nine or ten days after the operation, the reason being that the amount of food must be very carefully measured. There was no question that the after treatment presented great difficulties.

Dr. John Howland of Baltimore said that while he did not wish to advise any special method of treatment, he thought it was possible to cure a great many of these cases without operation. Patients with hypertrophic stenosis of the pylorus could not be cared for at home and they could not be treated by operation without breast milk. Operation did not stop vomiting in all cases. He had had cases that vomited almost as badly after operation, as though they were being treated medically without operation. The spasm was the factor that was important. He had had one child with great peristaltic waves and a palpable tumor of almost artilaginous consistency at the time of the spasm, yet in this case there was no great amount of thickening. To have immediate recourse to operation because there were peristaltic waves and a tumor was most unwise.

Dr. Alfred F. Hess of New York said he agreed with Dr. Howland that operation was not always necessary in these cases of hypertrophic pyloric stenosis. The operation had been so simplified that the tendency was to operate too frequently. The question of prognosis was not how long the baby had vomited, but it was a question of the operator. He had seen Dr. Downes operate and it gave one the impression that the operation was a very simple matter. That was wrong; it took a very skillful man to perform this operation and get good results. Spasm and active peristalsis did not necessarily mean that hypertrophy was present. A catheter could frequently be passed through a pylorus where there was active peristalsis; even where there was a tumor one might be able to get the catheter through.

Dr. Henry Dwight Chapin cited one instance in which the Rammstedt operation was performed and the child died within forty-eight hours. At autopsy it was found that the food had gone through into the peritonesal cavity. The surgeon had gone a little too far and cut through the mucous membrane.

Dr. Henry Heiman of New York expressed the opinion that every case of this kind should be treated on its own merits. To place dependence on the length of time that vomiting had lasted was not so important as to watch the feces. The condition of the feces was more important than the number of pylorospasms the child was having in twenty-four hours.

Dr. Walter R. Ramsey of St. Paul said that progressive and continuous loss of weight in these cases was always an indication for operation.

Dr. Henry F. Helmholz reported his experience with fourteen cases of pyloric stenosis treated with thick cereal gruels. These cases occurred in nervous children and all showed the typical symptoms of pyloric stenosis, with inability to retain food or even plain water. All recovered under this treatment except one; that child was operated on and recovered also.

Dr. H. M. McClanahan of Omaha related his experience with 14 cases of this condition. He said that its mortality was higher than that given by Dr. Kerley, but that nine of the fourteen cases recovered. The surgeon who did his operating succeeded in getting better results each year, and completed the operation more quickly by the old fashioned method. Exposure of the bowels in operating was a large factor in influencing the mortality. It was quite possible to have a pylorospasm without stenosis and these cases would naturally get well without operation.

Dr. J. P. Crozer Griffith of Philadelphia said that he used to talk a great deal about treating these cases medically, but he had undergone a change of heart. He had had cause to regret delaying operation, but he had not had any cause to regret operation. He now favored operation more frequently than formerly.

Dr. John Lovett Morse of Boston expressed himself as very much surprised at the difference of opinion in regard to hypertrophic stenosis of the pylorus. When one found, months after a gastroenterostomy had been performed, that hypertrophy and stenosis were still

present, it was difficult to understand how any one could believe that medical treatment would be effective in such a case. He still believed that there were two types of cases, the one a real hypertrophic stenosis, and the other a spasm of the pylorus, and there was a small third class of cases in which there was a spasm added to some hypertrophy. It seemed to him that the Rammstedt operation was the operation to do. It required a good surgeon and then the child could be off the table in ten minutes.

Dr. Oscar M. Schloss of New York suggested the possibility that with the diminished intake of fluid and the lessened secretion of urine an acidosis might result, which might have a deleterious effect in case of operation.

Dr. Godfrey R. Pisek of New York advised giving a sinus injection of saline before operation. He thought there was but one side to this question. He also had a record of not wishing to have cases operated on, but now when he saw a case in which the diagnosis was definitely made he wanted it operated on as soon as possible.

Dr. D. M. Cowie said that he thought in stenosis of the pylorus of large caliber medical treatment might be effective, and if the children could be carried along in this way as they grew and the stomach enlarged the pylorus and the caliber of the stenosis also enlarged. The case should be examined carefully to determine whether one was dealing with a large or a small caliber stenosis and then the treatment should be influenced by the condition found.

Dr. Kerley, in closing, said that most of the cases in this series had been seen by other physicians before he saw them and had been treated by various palliative measures. They were not cases of spasm alone; there was no question that they were cases of stenosis. He had passed through all the stages of palliative, non-operative treatments, and waiting to see what would happen, and he had seen the children die. All that was required to make a diagnosis of pyloric stenosis was a well marked palpable tumor; those who would not accept that as a diagnostic sign now would do so in a few years when they had seen a few more cases.

A Preliminary Report upon the Value of Auxohormones and Other Agents in the Feeding of the Young.—Dr. E. W. Saunders of St. Louis presented this communication, in which he called attention to a class of patients in which the clinical course was somewhat as follows: A baby that had previously given no cause for anxiety was suddenly taken ill, the symptoms being insomnia, frantic nervousness, vomiting, loathing for the particular kind of food upon which it had been fed, rapid pulse, and convulsions of a mild type. There would be slight fever and no acetone breath. Rarely tetany was manifested in the hands or feet but without facial involvement. Death came often without further sign. In studying the etiology of these cases there was one factor invariably found, namely, a history of prolonged subsistence upon dead food exclusively. There was a class of fat rickety cases, due most often to a certain tinned food, another class, a fulminating type of Barlow's disease, due to another brand, and of the writer's cases nine-tenths were found to have been subsisting for months on a third variety of these foods. Attempts had been made to identify the syndrome with Finkelstein's sugar intoxication, with thymic asthma, or tetanus, or the spurious hydrocephalus of Marshall Hall, but it did not fit in with the picture of any of these conditions. In the treatment much might be hoped from the prompt and vigorous employment of large doses of glonoin dropped on the tongue and exclusive tube feeding, using a live rennet whey containing a rapidly increasing amount of unsterilized cream, autolyzed yeast, and green vegetable juices. In extreme cases a hypodermic of morphine or atropine was given, but ordinarily a fractional dose of veronal acted as a sedative. Calcium bromide and the phosphates seemed to be beneficial in all cases. Hypodermoclysis or injection into the longitudinal sinus was warranted in the severer cases. In prescribing food for the baby we thought in terms of percentages, we allowed a per diem of calories, we guarded against infection, but all would be in vain if we did not secure the presence and undiminished power of the mysterious food hormones, the vitamines. Yolk of egg in emulsion ranked next in fat and hormone value when milk was not obtainable. Honey, by which a child would often profit more than by purified sugar, and vinegar, which the essayist had used for several years past with increasing satisfaction, and which authorities said enhanced the value of vitamines, were all valuable agents. Gruels of natural grains, ground whole, had proved far more acceptable than one per cent. decoctions of devitalized grains. Young babies tolerated six per cent. gruels well, and such an amount of cereal augmented the mineral content of the formula greatly. A baby's milk might perhaps be constructed out of an ounce or more of cocoanut oil, emulsified with a natural six per cent. gruel which had been boiled with cabbage, and sweetened with honey. According to McCallum, the green vegetable juices had the power to hormonize the inert fat and raise it to the rank of a glandular fat in promoting growth. Many infant foods were destitute of vitamines and glandular fat and of an adequate mineral content, and called for governmental supervision in the interest of the children. Some years ago in response to a letter of inquiry the speaker recommended this course to the Department of Chemistry, and now Dr. Alsberg, the Chief, was willing to meet a committee of the society with a view to formulating a bill for introduction to Congress requiring a label on all patent foods showing whether they contained hormones or not. Every parent should be taught the value of green vegetables.

The Appeal of the American Reserve Corps to the Members of the American Pediatric Society.—Major Channing Frothingham, Jr., made this address. He said that the Government needed medical men and the community needed medical men. The question was where was the dividing line to be drawn. Many men who were specialists wondered if there was any room for them. If the obstetrician or the pediatrician had asked him a year ago whether there was a place in the army for him, his answer would have been "No," but at that time he was examining recruits on part time. Since that time he had had experience at Fort Benjamin Harrison and had learned that there was a great deal to do in the Medical Department of the Army which had nothing to do with the profession itself. He wished to say that it was quite worth while going into the army to do things that were not professional in the strict sense of the word. At the present time the Medical Department of the Army was standing the strain of a terrific expansion and was standing it well. There were few physicians in the army who had not specialized before entering the service. A man might do something for which he was not trained and might learn to do it well. To show what the medical officer did in the army the speaker began at the front line and described the way in which the wounded soldier was cared for from the time he reached the first dressing station until he was established in a base hospital. Even in the front line an out-patient department was run and the regimental physician got a few patients every day. From the first dressing station to the field hospital and from the field hospital to the base hospital the transportation was under the supervision of medical men. Much of this work the pediatrician could do as well as anyone else. This did not mean that all the pediatricians would be pushed into the front line. In the evacuation hospital, there had to be a medical man as well as a surgeon at the head. In the special hospitals conducted in connection with each large hospital, there were specialists for the eye, for head injuries, for nervous troubles, etc. A big base hospital was similar to a large civilian hospital and should be run on exactly the same lines. The problems of the base hospital were those of acute infection. They were the problems of the contagious diseases of childhood and these were the diseases that the pediatrician was accustomed to care for. At the cantonments they had chest examiners and heart examiners and in this work pediatricians would be perfectly capable. How were they to be fitted into the niche? If the Government did not need them he would advise them to put their names down with the Red Cross. There was another side which was worth mentioning. In the first place it was great fun to be in the game and to be taking part in this big scheme of organization and to be doing what everyone thought was the proper thing to do. If

one did not go because he felt it his duty, he should go because it was a splendid way to improve his medical knowledge. This would be found particularly true of the acute infectious diseases. They would not see these in private practice to the extent that they would see them in the army. The army offered a splendid opportunity for the study of this class of diseases. In closing, Major Frothingham said: "It is a big game and all men must get into it. You must come in, for your Government says it needs you."

A Case of Erosion of Blood Vessels in the Course of Scarlet Fever.—Dr. JOHN HOWLAND of Baltimore reported this case, which occurred in a child 5½ years of age. The child became ill on December 1, 1917, and two days later a membrane appeared on the tonsils. The child developed no characteristic eruption and the case was diagnosed as one of diphtheria. Subsequently, albumin was found in the urine and it was thought that the child had a post-diphtheritic nephritis. Twenty-three days after the onset the child became very ill. There was found to be a necrosis of the right tonsil with a very foul secretion and a characteristic scarlet fever desquamation. There was a mass in the right side of the neck which was opened and about two ounces of pus evacuated, but no blood. In the middle of the night the child was found exsanguinated and in a pool of blood. The child was given 300 c.c. of salt solution subcutaneously and transfused with the mother's blood, 250 c.c. being given intravenously. The child was given morphine and an attempt made to examine the abscess cavity, when there was a gush of blood, apparently from the external carotid or the lingual. The vessels were ligated and the hemorrhage controlled. Another transfusion was given and after that the child improved until two weeks later, when another hemorrhage occurred as the result of the soughing of a suture on the external carotid. After this the child improved quite rapidly and eventually recovered, though convalescence was complicated by a psychosis. Hemorrhage after scarlet fever was reported in about 50 cases, but in most instances it was from the internal jugular, and such cases ended fatally.

Dr. HOWARD C. CARPENTER of Philadelphia cited a somewhat similar case, in which, during a cervical adenitis that seemed to be progressing favorably, a hemorrhage, apparently from the carotid, occurred and the child died within two minutes.

A Case of Hirschsprung's Disease.—Dr. WALTER LESTER CARR of New York reported this case, occurring in a girl six years of age. She gave a history of constipation for five years and of vomiting for the last twenty-four hours. She was in a condition of shock at the time of admission to the City Hospital. The temperature was 97.5°, pulse 120. The abdomen was greatly distended and there was a constant involuntary discharge of feces. Colonic irrigations of saline solution were given with stimulation, heat, etc. A partial blood count showed 5,100,000 red cells and 11,300 white cells. The blood was viscid and was not absorbed by Tallquist paper. The child died 11 hours after admission. A partial necropsy disclosed a marked distension of the intestines which was particularly evident in the sigmoid colon which was bent upon itself. The wall of the upper part of the rectum and the lower part of the sigmoid colon was slightly calcified and the lining mucous membrane was very granular. There was hyperplasia of the mesenteric lymph nodes. The anatomical diagnosis was idiopathic dilatation of the sigmoid colon. Hirschsprung's disease, with secondary calcification of the lower part of the sigmoid and the upper part of the rectum. A microscopic examination of the tissue from this specimen showed a complete loss of mucous membrane, and in its place was a vascularized round celled proliferation of the submucosa. There was a corresponding hypertrophy of the inner and outer muscular coats as shown by the microscopic slides.

Dr. HENRY KOPLIK of New York said that sometimes these obstructions were alleviated by nature, by diet, and by enemata, and sometimes they went on to obstruction, were operated on, and passed away. The prognosis was very bad if one made an artificial anus. Some of the cases with this condition went on to adolescence. He had published such a case fourteen years ago, in which the condition continued until adolescence and the boy then passed away from obstruction. The condition might be rapidly fatal or it might go along quite normally for a time.

Dr. JOHN HOWLAND of Baltimore said that a point not brought out was the different types of the condition. There were instances in which there was not only hypertrophy and dilatation, but in which the bowel was extremely long. In some cases there was no dilatation so far as the *x*-ray showed and in others there would be great dilatation and hypertrophy. The point to be made was that the treatment and prognosis depended upon the type of the disease.

Dr. FRITZ B. TALBOT of Boston said that the name Hirschsprung's disease was applied to a stage in a common condition. When this condition was dignified by the name Hirschsprung's disease it was in a late stage of the disease. The time to treat the condition was before the dilatation had occurred. There were many cases of Hirschsprung's disease walking about to-day, some would reach the stage of dilatation when they would be recognized and others would not.

Dr. CHARLES GILMORE KERLEY recalled that he had reported 20 cases of elongated sigmoid and showed the *x*-ray plates before the Detroit meeting of the American Medical Association. He felt that these cases were fairly usual and that the name Hirschsprung's disease should be dropped. They were identical with the elongated sigmoids that folded upon themselves and became sacculated and dilated and that were accompanied by sacculation and later constriction. The condition was one that was very frequent and it was the severe cases that went on to the formation of gross lesions.

Dr. HENRY HEIMAN of New York said that the first stage of this condition was what was known as megacolon to which he had called attention many years ago. The first stage was megacolon and constipation and later it was Hirschsprung's disease and obstruction.

Dr. LANGLEY PORTER took issue with the last statement, and said that congenital megacolon was found at birth and in the premature child. He had placed on record a number of such cases.

Dr. HENRY KOPLIK of New York said that Hirschsprung thoroughly described the condition as congenital or an anomaly. He had specimens also showing that the condition might be congenital.

Dr. CHARLES HUNTER DUNN of Boston agreed with Dr. Koplik and Dr. Porter that the condition might be congenital. He cited two cases which he had seen in the first week of life, in which the condition could not have been produced by prolonged constipation and must have been congenital.

Dr. TALBOT of Boston said that if they would think back he had spoken of a condition and not a disease. If they would look over the diagnoses in the hospital records they would find that the condition was called Hirschsprung's disease irrespective of whether it was congenital or acquired. The point he wished to bring out was that there was a condition which developed into Hirschsprung's disease and which could be prevented from so developing by appropriate measures.

A Case of Cardiospasm Followed by Hypertrophy, Dilatation and Stricture of the Esophagus, Treated by Gastrostomy, and Subsequent Dilatation of the Esophageal Stricture.—Dr. EDWIN E. GRAHAM of Philadelphia reported this case. He stated that clinically the element of spasm was unquestionably present, the food entering the stomach very much better at some times than at others. The diagnosis of stricture of the esophagus was verified by the *x*-ray plates. A point of particular interest was that the diagnosis of ulcerative esophagitis was made by direct inspection with the eye, the esophagoscope having been passed by Dr. Chevalier Jackson, and the ulcerative area having been clearly seen. The treatment consisted in gastrostomy, feeding the child through a tube for several weeks, nothing being allowed by mouth except small quantities of water, and finally dilatation of the stricture of the esophagus by sight and not by touch. The esophagoscope was passed and then Dr. Jackson passed bougies, small delicate ones at first and then larger ones. There was a second child in the Jefferson Hospital with a stricture of the esophagus caused by swallowing lye who was being treated in the same way.

A Brief Report of a Case of Congenital Stricture of the Duodenum; Operation, Death.—Dr. H. M. MCCLANA-

HAN of Omaha said that this baby gave a history of vomiting from the third day after birth. There was intermittent loss of weight and the stools increased in frequency and became green in color at times. The Roentgen plates revealed a large shadow over the stomach, but a distinct shadow down to the colon, showing that the pylorus was pervious. At no time were there any peristaltic waves nor was a mass palpable at any time. When the child was a month old the parents gave their consent to operation. Through a medium incision the stomach crowded itself out of the abdomen on account of its great distension. The pylorus was moderately constricted by a distinct circular induration, but not sufficiently to account for the great distension. The duodenum was greatly distended and, following this down to the point where it passed through the transverse colon, a very marked constriction was encountered. It was found that all the distension was above the mesocolon. On examining the opening into the mesenterium a constricting band was found compressing the duodenum 8 inches beyond the pylorus. The band belonged to the mesenterium and not to the intestine. The band was divided and the distension of the duodenum relieved at once. A posterior gastroenterostomy was performed on account of the distinct pyloric constriction and the probability of a recurrence of the condition in the fossa of Treitz. The child died very suddenly in the night, following the operation. The fact that at times the stools and gain in weight were normal indicated that the band did not entirely constrict the duodenum all the time.

Dr. FRITZ B. TALBOT of Boston related the history of a somewhat similar case, in which there was a constricting band over the duodenum. An interesting point in this case was the obstructive vomiting for only a part of the time. This child spent most of its time in the knee-chest position, and when in that position did not vomit. The band over the duodenum was relaxed by that position so that the food could pass through.

Dr. LANGLEY PORTER of San Francisco also reported two somewhat similar cases, one coming to autopsy and the other to operation.

Dr. L. E. LA FETRA of New York said he had seen one of these cases during life and another at autopsy, and the symptoms were very much like those of hypertrophic pyloric stenosis.

A Case of Balantidium Coli.—Dr. L. R. DEBUYS of New Orleans reported this case. He described the organism, reviewed the literature on the subject, the pathology, symptomatology, diagnosis, prophylaxis, and treatment. He stated that the infection was a rare one in man, less than 150 cases having been reported. The infection was exceedingly rare in children, there being only three instances on record. The writer's patient was five years of age and had helped rounding up the pigs, at times eating his food in the pig pens. He had been ill for nearly a year with diarrhea. During this time there had been periods of improvement, though each attack was more pronounced than the preceding one. The stools resembled those of amebic dysentery, containing blood and mucus. The rectal tube was passed and the organism was found. The patient was poorly nourished and had a catarrhal stomatitis, otherwise the physical examination was negative, except for some pain in the lower abdomen. In the treatment of this infection ipecac or its alkaloid emetine seemed to be indicated, because of the resemblance of this infection to that of amebic dysentery: (1) In the location and invasion of the organisms in the tissues; (2) in the histological pathology; and (3) in its clinical manifestations. It was hardly to be expected that local flushings would be of any avail after the infection was established.

A Case of "Cribbing" in a Young Infant; Dilated Stomach; Spasm of Diaphragm.—Dr. PERCIVAL J. EATON of Pittsburgh reported this case. He stated that the child was apparently normal at birth, weighing 9 pounds 7½ ounces, and was breast fed for three weeks, but had had during the third week supplementary feeding of cream mixture and then condensed milk. He sucked fists, tongue, and nipple, and had lost weight. The stomach was dilated, the lower edge of the greater curvature reaching about three-quarters of an inch below the line of the umbilicus. The wave motion was visible and somewhat exaggerated. There was much tympany of the stomach and little of the intestine. The baby was placed on a raw milk formula at regular and absolutely fixed intervals, and his arms were splinted to keep his hands from his mouth. The child was also postured to get the aid of gravity in keeping the fluid contents of the stomach at the pyloric end. Massage of the stomach was persisted in. At the time of the greatest activity of the vomiting there was a distinct spasm of the diaphragm. The vomiting was of the projectile type. This child's sister, now three years old, was also a cribber. An occasional dose of strontium bromide was given the child, and also phosphorated oil in cod-liver oil. The child also had an abundance of fresh air and sunlight.

Dr. CHARLES HERRMAN of New York recommended the use of atropine in cases of this kind. He and his colleague had used atropine in these cases and the results were sometimes favorable.

Dr. D. M. COWIE of Ann Arbor said that one method of treatment of cribbing was to tie a spool in the mouth. By this means one could break the child of the habit in a couple of weeks.

Dr. SAMUEL S. ADAMS of Washington asked why this was called cribbing.

Dr. EATON replied that he had used that term because the child bit and chewed on anything that came near him, just as a horse bit and chewed its stall. The child was responding well to treatment.

A Case of Kala Azar.—Dr. FRITZ B. TALBOT of Boston reported this case, which occurred in a child born in Greece. Infection presumably occurred before the child came to this country. This was the first case of kala azar reported in this country, so far as the writer was able to ascertain. The history of the case showed the characteristic onset. The symptoms were pallor, weakness, and enlargement of the abdomen. The spleen was removed and the diagnosis made from a smear of the spleen pulp. The secretion was later obtained from the inguinal glands and also showed a positive culture. Various forms of treatment were tried without avail. The course of the disease was apparently benefited by splenectomy. Later there was a relapse. At this time atoxyl was used without any effect. Tartar emetic in 2 per cent. solution was used in doses starting with 1 c.c. and working up to 4 c.c. This eventually caused the symptoms of salivation and was therefore discontinued. From that time forward the child improved rapidly and had remained normal ever since. It was seen one year after it left the hospital, when it was normal in every respect.

Dr. ALFRED F. HESS asked if the diagnosis could be made in any other way than by smears from the spleen.

Dr. CHARLES HERRMAN of New York asked if one could not puncture the spleen and obtain a smear in that way for diagnostic purposes.

Dr. TALBOT said that attempts made to culture the organism from the blood had been almost universally unsuccessful. One could easily remove an inguinal gland, and one with experience could culture the organism from that without difficulty. In the tropics they punctured the spleen and obtained a smear for culture.

A Case of Intussusception.—Dr. FRANK X. WALLS of Chicago presented this report, which he said recorded an observation made in the fluoroscopic examination of the lower bowel which revealed a picture of great diagnostic value that had not thus far been brought out in the literature of intussusception. In a boy, with the symptoms of intussusception, physical examination showed a soft tumor mass about 2 by 3 inches in extent in the upper right quadrant of the abdomen, with its long axis transverse. The fluoroscopic examination, after the injection of a barium buttermilk enema from the height of 18 inches, showed the barium entering the bowel, filling it from below upward, until the mass reached the middle of the transverse colon. Here the column of barium halted a moment and then a small stream of barium trickled from the heavy column along the periphery of the colon for a distance of about an inch, and after this the column did not advance or alter its position. The arrested barium then looked like a solid mass with a decided concave U-shaped termination. The boy was operated on immediately and an ileocolic intussusception about 3 inches long was found, which was reduced. A long appendix that was engaged in the tumor was removed. A prompt recovery fol-

lowed. The wet specimen illustrated the loose approximation between the external and middle layer of the intussusception. If the barium enema was observed under the screen in a case of intussusception the mass would be seen filling up the bowel until it was arrested by the intussusception, and a small amount of the mass would pass for a longer or shorter distance between the intussusceptum and the intussuscipiens. The shadow made by the thin layer would be appreciably different from that made by the dense mass, and the end of the column would appear to be concave or U-shaped.

Dr. Langley Porter of San Francisco suggested that it might be a good idea to use the column of barium, and then under the fluoroscope to attempt by manipulation to reduce the intussusception according to the original method of Hirschsprung, before resorting to an operation. So far as he knew this had not been done.

Dr. DeWitt H. Sherman of Buffalo stated that he had shown some pictures at the New York Medical Society meeting the week before and one of these was a subacute intussusception, similar to the one described by Dr. Wall. Operation was refused and a week or ten days after leaving the hospital the child passed a part of the bowel. The child had since progressed normally.

Dr. Alfred F. Hand of Philadelphia said there were those who thought the diagnosis of intussusception easy, but this was not always the case. He had had a case in a child nineteen months old, showing the symptoms of constipation, colic, and vomiting, which was followed by blood and mucus in the stools. There was board-like rigidity on the lower side of the scrotum. He called in a surgeon, who found a strangulated hernia; this was replaced. Had it not been for the fact that the mass was palpated in this instance, the symptoms would have seemed very much like those of intussusception.

Two Cases of Congenital Cardiac Disease.—Dr. Charles Hunter Dunn of Boston presented this report. He stated that the first case occurred in a baby, two months old, showing the symptom complex of systolic murmur, thrill, and cyanosis. Percussion and the *x*-ray showed no enlargement. Only one ventricular cavity was visible and only one auricular-ventricular orifice. The large vessels opened into this one ventricle. Search was made for the aortic valve which was found above and in the wall of the ventricle. A rudimentary ventricle was found in the wall of this one large ventricle. The second case occurred in a baby three months old, which showed a systomic murmur but no palpable thrill and no evidence of enlargement. Cyanosis was present as shown by the lips, but there was not a proportionate cyanosis of the extremities. No accurate diagnosis was made. On opening the chest an anomaly of the great vessels was discovered, there being a complete transposition of the vessels. The writer recalled that he had presented a case of complete transposition of the great vessels before the Society last year and had described the embryology at that time. In this instance the aorta was divided into two branches and the pulmonary artery into three branches.

Dr. William P. Northrup recalled that forty years ago he had reported a case of transposition of the trunks of the great vessels and said he wished to report a case of patent foramen ovale that he had been able to follow until the girl graduated from high school. She died of a condition not directly associated with her heart anomaly and at autopsy he found a narrowed pulmonary orifice and an incomplete septum ventriculorum. He had done many autopsies in these cases and had always found a narrowed pulmonary orifice associated with the patent foramen ovale. This he had never been able to explain to his entire satisfaction.

Death from Tuberculous Meningitis in a Breast-Fed Infant at Ten Weeks of Age.—Dr. DeWitt H. Sherman of Buffalo presented this report. He stated that tuberculous meningitis in this case was proved by guinea-pig inoculation. This child was normal until its last illness and was never on the street. The family history was negative for tuberculosis, and the child never received any other food than breast milk and a little water which was always boiled. When the writer saw the child, on the third day of its illness, one eye was closed and the pupil of that eye was larger than the pupil of the opposite eye. The pupillary reaction of both eyes was sluggish. There was some bulging of the anterior fontanelle, slight rigidity of the neck, doubtfully exaggerated patellar reflexes, and while the child could be aroused it made no response. All other signs and symptoms of meningitis were wanting, except for slight twitching of the angle of the mouth. The specimen of the spinal fluid stained for tubercle bacilli showed eight bacilli. The morphology of these was that of the human type. The colloidal gold test gave no reaction that was in any way significant. The findings in three guinea pigs injected with the spinal fluid were practically the same, showing extensive tuberculous involvement of the liver, spleen, and abdominal lymph glands. The lungs showed only a few scattered tubercles. These guinea pigs all died in from six to nine weeks after receiving the inoculation.

A Case with Vascular, Joint, Muscle, and Skin Disturbances.—Dr. Richard M. Smith of Boston reported this case which occurred in a child 4½ years of age who gave a negative family and personal history. In November, 1917, she was vaccinated against smallpox, the reaction being violent with high temperature, and involvement of the glands in the groin. A few days after this reaction subsided the child's face became red and swollen and she began to complain of stiffness in bending her knees. These symptoms progressed until all the joints in the body became involved, including those of the spine. The muscles seemed to be in a clonic state of contraction. There were conjunctival hemorrhages and the mucous-membrane of the mouth about the teeth was red, edematous, and in spots hemorrhagic. The skin almost everywhere on the body showed blotchy erythema resembling Raynaud's disease. It also showed a brawny induration and in some portions a slight edema. The lesions of every kind were absolutely symmetrical even to the position of the erythematous blotches on the finger tips. The hair was coarse and abundant. The child before the onset of the symptoms was cheerful and happy, but since the trouble began she had become very tearful, quiet, and did not want to be disturbed. Aside from these things the physical examination was entirely negative. The *x*-ray examination had revealed in the subcutaneous tissues a curious irregular striation unlike anything with which the writer was familiar. The etiology of this condition was extremely doubtful, but he felt inclined to think that the vaccination had nothing whatever to do with it and in this opinion the mother concurred, a fact worth while noting. Possibly some toxic agent had affected the glands of internal secretion. No focus of infection had been found. The skin condition might be primary and everything else secondary to it. The most likely diagnosis seemed to him to be a diffuse scleroderma. Nothing that had thus far been done in the way of treatment had modified the condition in any way. During the last few weeks there had been a slight tendency to improvement.

Dr. Henry Koplik of New York recalled having seen a case exactly like this one in his service at Mount Sinai Hospital. This was one of the rarest conditions met with in pediatrics. Every detail in the case he had seen worked out just as in the case reported by Dr. Smith. No one knew what the diagnosis was. Some thought it a diffuse scleroderma. Finally, Dr. Sara Welt-Kakels saw the patient and said she had seen a similar case before, that it was a neurodermomyositis, which had been described by Oppenheimer. A marked eosinophilia was present. The disease seemed finally to wear itself out and the child became better and able to walk about. The disease as described by the neurologists was not a skin disease, but the skin was affected along with the other structures. In the case to which he had referred they had examined the muscles and found a general atrophy.

Dr. A. H. Beifield of Chicago asked whether these patients had had any itching of the fingers and whether there was any edema of the digital phalanges of the fingers and toes, or any desquamation, and whether there was any alopecia or photophobia. He said he had seen six cases of a similar condition but still more intense.

Dr. Smith, in reply to the questions, said the child had no great amount of itching and no desquamation excepting under the arms and the extreme tips of the fingers and toes. There was no eosinophilia.

Preliminary Report on the Use of Vegetable Milk.—Dr. HENRY DWIGHT CHAPIN and Dr. LUDWIG KAST of New York presented this communication which was read by Dr. Chapin. He said that the milk was prepared from almonds, was pleasant and easy to digest, and seemed worthy of a trial in various nutritional disturbances of early life. The almonds were first finely ground and then covered with water and allowed to stand over night in the ice-box. The following day they were pressed out using a potato, rice, or fruit press, or they might simply be pressed out by hand through four layers of gauze, which was the method usually employed in their laboratory. A comparison was made of the chemical analyses of cow's milk and almond milk which showed that there were certain advantages in the use of the almond milk that might be considered from both a theoretical and a practical standpoint. The almond milk fermented much less easily than ordinary cow's milk; it had a higher fat ratio in the form of almond oil which was sufficiently emulsified to render it easily digestable; the proteins in this milk were much less apt to undergo putrefaction than the casein of cow's milk; almond milk contained a large amount of phosphorus and and a small amount of sodium chloride, which would suggest its favorable employment on such conditions as rickets and nephritis. From its low carbohydrate content it was less likely to cause sugar fermentation. On the practical side it had been tried on more than 1000 adults by Dr. Kast and while some disliked it, actual disturbances had never been caused by it. So far no patients had shown an idiosyncrasy to it. Patients kept on almond milk alone maintained their equilibrium of metabolism and usually gained in weight. It was well taken and served a good purpose in such conditions as nephritis, typhoid fever, intestinal putrefaction, malnutrition, and secondary anemia. It was rich in vitamines. While the authors did not recommend its permanent use they felt that it was desirable and useful as a temporary substitute for cow's milk.

Dr. L. EMMETT HOLT of New York said it seemed to him that Dr. Chapin's vegetable milk might have been useful in diarrhea if he had not added the sugar. Without the addition of the sugar he would have had a mixture with a high fat and high protein and low carbohydrate content.

Dr. OSCAR M. SCHLOSS called attention to the possibility of obtaining a much higher percentage of protein from the almonds than Dr. Chapin had done. The globulin of almonds was much more soluble in a weak alkaline or saline solution than in ordinary tap water.

Transposition of Viscera.—Dr. HOWARD C. CARPENTER of Philadelphia reported this case. He stated that the patient was a seven-months premature infant, whose birth weight was estimated at three pounds. Up to the age of seven years, when he came under the writer's observation, he had had pertussis and measles, and had had hypertrophied tonsils and adenoids removed. Since the age of five years his nutrition had been subnormal. His only symptoms were sweating about the head and a variable appetite. He was a thin, pale, nervous child. After giving the measurements of the child the writer stated that the left side of the chest anteriorly was more prominent than the right. The apex beat was visible in the sixth interspace in the mid-clavicular line. Cardiac dullness extended 7½ cm. to the right of the mid-sternal line and 4 cm. to the left. Cardiac dullness began above in the second interspace. The muscular quality of the first sound was good. A faint, blowing systolic murmur was heard all over the heart area, but loudest at the apex. The pulse averaged 100 to 110, and after exercise was around 140. The abdomen was pendulous, and there was a decided lumbar lordosis. The liver was on the left side, the upper border being at the sixth rib in the left clavicular line and the lower border extending 1 cm. below the edge of the ribs on the same side. The spleen was on the right side. The *x*-ray, after a test meal, showed the stomach on the right side. Electrocardiograms taken by Dr. Charles Leone showed the following results: Lead I, right arm to left arm—horizontal—was inverted. Lead II, right arm to left leg—long axis of the heart—was like Lead III in the normal heart. Lead III, left arm to left leg—vertical—was like Lead II in the normal heart. The right leg was then substituted for the left leg, with the following results: Lead IV, left arm to right arm—the electrodes reversed horizontal—was the same as Lead I in the normal heart. Lead V, left arm to right leg—long axis of the heart—was the same as Lead II in the normal heart. Lead VI, right arm to right leg—vertical—was the same as Lead III in the normal heart.

(To be concluded.)

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Special Meeting, Tuesday, November 3, 1918.

DR. THOMAS R. NEILSON, ACTING PRESIDENT, IN THE CHAIR.

The Surgical Treatment of Wounds of the Lung.—Major PIERRE DUVAL, of Paris, said that in the last two years the treatment of lung wounds in the French Army had changed from the medical to the surgical; that the surgical treatment consisted in excising the lung wound and treating it as one would a wound in any other part of the body. The chest was opened widely enough to take the lung out; it was then examined on all its surfaces; hemorrhage was checked, the lung replaced and the chest wall sutured completely. In the first half of the war in 300 cases of lung wounds treated medically there had been a mortality of from 25 to 28 per cent. By the surgical treatment in cases brought in with severe hemorrhage there were good results in from 65 to 68 per cent. of all cases. By the operative treatment of war wounds of the lungs the mortality had fallen from 28 to 9 per cent. The war experience in lung wounds Majjor Duval felt had opened a broad field for lung surgery in time of peace.

Gunshot Wounds of the Chest.—Colonel GEORGE E. GASK, of London, announced that a very great change had come over the whole of their treatment of gunshot wounds. At the beginning of the war, they had been horrified to find that every single wound was suppurating. Efforts to get clean wounds had been futile, and it seemed as if there had been a return to the pre-Listerian period. It was not realized that the essential treatment of all gunshot wounds was the early mechanical cleansing by open operation under aseptic precautions before the organism introduced by the missile had a chance to multiply and invade the tissues. A broad line of distinction was drawn between contamination and infection. In the majority of cases operation was done within 12 or 15 hours of the time of injury. For the first two years of the war the surgeons had feared to do any sort of operation on the chest. The men were put to bed, given morphine if in pain, a remedy for cough if there was cough, and it was hoped they would get well. Quite a large number did, but a larger number died, and a large number became extremely septic and had empyema with pus discharge. The only surgery that was done was the removal of an inch or two of rib and a tube put in. Throughout the time of the Somme fighting there had not been time to study the chest cases, for the number of urgent operable cases had been enormous. Gradually it was found possible to divide the thoracic cases into two categories: Those dying on the battlefield or within a few hours, and those dying in from 48 hours to two or three weeks. Of the former class death was the result of hemorrhage; of the latter, usually death resulted from sepsis. The next step had been to find the channel of infection, and the great principle arrived at was to effect an early mechanical cleansing of the wound of the chest wall and of the wound in the lung. The method had been to put the patient to bed, the chest being examined for complicating wounds, hemothorax, pneumothorax, movements of the diaphragm, position of the heart and for any indication of respiratory distress. *X*-ray examination was used whenever possible. Determining that the chest wall must be excised, the rib, or scapula, was cut down upon, it being found necessary often to excise ragged splinters with a pair of scissors. Very often bleeding was found in the costal artery, which they at first thought came from the lung. This was tied. Inserting a finger, there could be felt splinters of bone in the cavity or sticking into the lung. Such cases with the air sucking in and out were uniformly fatal. Later they had been led to enlarge the wound of entrance

that the hand might enter the thoracic cavity and remove foreign bodies. Rather to their astonishment the men stood these operations much better than anticipated. There had been banished forever the principle which the speaker had been taught to believe that handling of the wounded lung would cause renewed bleeding. Upon opening the chest the blood was removed and search made for foreign bodies, the lung was examined for foreign bodies as would be a coil of intestine. If the foreign body had penetrated into the lung, a fresh incision might be required. This could be made without fear except near the hilus; any bleeding was easily controlled by deep catgut sutures. The principle that a wound must be cleansed, it was said, must be applied in wounds of the lungs as in any of the soft parts. As evidence of the fact that the lung is able to take care of any organisms without abscess formation, gas gangrene of the lung was unknown in spite of the many cases in which foreign bodies were left in the lung. It was, therefore, a matter of practice to close every wound in the lung. The author was inclined to believe that restoration of function is accomplished much more quickly when the lung is at once put into as nearly normal condition as possible. Cleansing of the pleural cavity was regarded as of the utmost importance. The final step in the operation was closure of the chest, and this is done as in closure of the abdomen when possible—muscle to muscle, and skin to skin. An anesthetic might be given with safety if there was fair function on the side of the chest not opened. The opinion was expressed that the type of anesthetic, so long as it was skilfully given, was not of very great importance. In the after treatment the chest should be aspirated at regular intervals to determine that no infection was present. It was stated that probably not more than 30 per cent of penetrating wounds of the chest should be subjected to operation. In their experience the indications for early operation were: (1) Such wounds of the soft parts as would require operation in any other part of the body; (2) bleeding from that wound, intracostal hemorrhage; (3) fractured ribs; (4) cases with large foreign bodies lodged in the lung; (5) cases of pneumothorax in which air is admitted through the wound. In hemothorax without extensive wounds, splintered ribs or retained bodies, there was said to be at present a diversity of opinion. While the inclination was to operation, their practice was not to operate unless there was sign of sepsis. Theoretically there should be no such state as an infected hemothorax, but practically there were a considerable number of such cases. No means of telling which cases would become septic were available. It was believed that closure of the chest helped to expand the lung for every movement aids in this expansion as soon as the air is absorbed. If pus were formed a stitch might be easily removed and a tube inserted. The surgical treatment of wounds of the chest was now being practised in almost every hospital at the front line, and the surgeons had had the supreme pleasure of seeing many patients restored to health who would have died under the former treatment.

The Treatment of Chest Wounds by Artificial Pneumothorax.—Professor RAFFAELE BASTIANELLI of Italy said that in the Italian Army the treatment of chest wounds had followed almost the same steps as in the other armies. Early in the summer of 1916 there had been observed the necessity of an active intervention, and the conclusion had been reached that, except for a few puncture-like wounds, it was necessary to excise the soft parts and to remove the bone fragments, treating the chest wall in the same way as the teaching had been to treat wounds in any other part of the body, because it was felt that much of the pleural infection causing empyema, septicemia, and death was due to an infection coming from the outside. The chest wall was closed air-tight and without drainage, and generally this operation was performed under local anesthesia. It was through the untiring interest of one of the author's associates, Major Morelli, a pupil of Forlanini of Pavia, that the artificial pneumothorax had been introduced into the Italian Army, leaving the complete chest operation for the treatment of exceptional cases. Some lung wounds are such that air was not admitted to the pleural cavity from the outside, neither could it escape, so that the hemothorax and the pneumothorax were in a closed thorax; and when here there were no adhesions generally it was seen that the hemorrhage was either fatal; or it was profuse, or moderate; or did not show at the beginning, but appeared and was prolonged. This prolonged hemorrhage was due to the fact that inside the closed thorax there was the negative pressure of the lung which worked like a suction cup on the lung wound. Two very bad conditions, a movement of the wounded organ, and a suction on the wound itself, were thus presented. In many such cases of closed thorax wound Nature might effect a perfect or an imperfect cure. The mechanism of the cure by Nature was through the pressure exercised on the lung wound by the blood in the pleural cavity, by the air, or by both together. With 1500 or 2000 c.c. of blood inside the pleural cavity the lung might still expand. The lung, collapsed and immovable, presented a favorable condition for healing. It had been learned also that blood in the pleural cavity was dangerous not only as a medium for micro-organisms but also in favoring the formation of fibrous deposits which obliterated the sinuses of the pleura and produced adherences; also its presence did not favor expansion of the other side of the chest. Instead, if the pleural cavity were filled with air, the lung was compressed, hemorrhage, infection, and adhesions were prevented more easily, and even the big missile inside the lung sometimes remained without complication if immobility were maintained. With blood in the pleural cavity the lung was usually only partially retracted and bad functional consequences ensued. If the lung were surrounded completely by air adhesions did not occur, and when the lung began to expand the pleura would not contract adhesions so quickly that the expansion was prevented. Adhesions might occur later, but then the lung had already expanded and the function was good. For these reasons it was believed that there was advantage in removing the blood as completely as possible from the pleural cavity and in substituting air. Secondary hemorrhage was never seen. The current opinion that blood in the pleural cavity was efficient in checking hemorrhage was not true if in removing the blood air was substituted, inducing a positive pressure sufficient to cause collapse of the lung. It was believed that in every case in which a lung wound was demonstrated pneumothorax should be performed. This was done also in cases of contusions of the lung which were apt to be followed by complications. Contra-indications were evidenced when adhesions prevented the introduction of air or when the air escaped through a gap of the chest wall which could not be completely closed, or through the lung wound itself. Such contra-indications, however, were exceptional. The indications for complete operation in their practice were very limited, and when the chest is a closed one it was believed that it should be performed exceptionally. While if the chest were open, and especially if the opening were large, naturally it was more often indicated to inspect and treat the lung wound. There had been no case in which it was necessary to resort to a complete operation for hemorrhage. It was believed that the operation should be performed when a foreign body in the pleural cavity could be demonstrated. Closure of the open chest should be made as promptly as possible and there had been found useful the introduction in the chest wound of a small rubber bag which when inflated sealed completely the opening. These bags and the apparatus for performing the pneumothorax, devised by Major Morelli, were shown by lantern slides. In 206 cases of lung wounds with closed chest treated by pneumothorax alone or by thoracentesis and pneumothorax there had been seven deaths. Among the cured cases there were seen only 22 complications. Of the open chest there were 84 cases with a mortality of 19 cases, 22 per cent. Of these 19 eight had died in the first 14 hours. Of the 76 treated by pneumothorax after removal of the blood there was a mortality of 11 cases, 14½ per cent. There had been a great improvement in this series of open chest since the author's plan of suturing the chest wall air-tight was systematically adopted instead of plugging permanently the gap with the rubber bag. In 35 cases so treated there had been two deaths. The opinion was expressed that these results compared fa-

vorably with any result in any other army by any other means of treatment.

Surgery of the Lungs.—Colonel Sir THOMAS MYLES of Dublin said that it must never be forgotten that the man with a bullet in his lungs had a bullet in two places—in his lung, and also on his mind. It was to get rid of the bullet on his mind that the second operation was often undertaken. Sir Berkeley Moynihan believed that the mechanical effect of the bullet in the lung was in many cases comparatively small, while the effect upon the man's mind was very large. The only reliable method of examination was said to be by the *x*-ray, and for the removal of the foreign body Sir Berkeley Moynihan found that with few exceptions an incision at the level of the fourth rib offered an easy route of exit. The lung was to be handled as gently as possible in searching for the foreign body, and when located it was a simple matter to make an incision and extract it. A stitch was then inserted with a curved needle. It was of great importance not to encourage a too rapid inflation of the collapsed lung. It was of service also to maintain a pneumothorax for a few days when necessary to break down adhesions.

Later Stages of Gunshot Wounds of the Lungs.—Major G. GRAY TURNER of Newcastle-on-Tyne said that in the early stages of the present trouble it was not the custom to carry out any active surgical intervention; the practice of the surgeons at the front was reflected upon the practice of those in the stations behind the battle line. As a consequence quite a number of cases suffering from penetrating wounds of the chest and with retained foreign bodies came to the base hospitals. About the middle of 1915 it had been determined to see if the men could not be relieved by active surgical methods. It was found that many were suffering from incompletely absorbed hemothorax, some from neurasthenic symptoms, some from injury to the underlying lung. In a limited number of cases the foreign body in the lung gave rise to cough, hemoptysis, and symptoms suggestive of suppurative processes. Upon operation, band-like adhesions in the track of the bullet had been found, the site of persistent infection, due possibly to the movement of the lung. The best results in gunshot wounds were said to be obtained in those cases in which there had been a through and through wound. These men made a good recovery up to a certain point but broke down under the stress of military training. Upon opening some of these cases it was found that the blood was an organized clot. The lung was perfectly smooth as though encased in a sac. By splitting up the fibrous coating the lung was enabled to distend. A similar condition in the diaphragm was dealt with in the same way. The worst feature found upon opening the chest was that of adhesion of the base of the lung to the diaphragm. The speaker was inclined to think that a certain amount of the disability here found was due to the hemorrhage and want of expansion of the lung for a considerable time. The lung becomes retracted and this position was not overcome by the respiratory exercise. It was not fair to speak of these operations as though they were to be lightly undertaken. The risk, however, was very small. Recovery depended upon the amount of damage done to the lung tissue at the time when the operation was undertaken. Sufficient time had not elapsed to say what the ultimate history of these cases would be. It was not deemed enough to say that the patient could be returned to duty; the condition months or years hence must be known before one could speak with certainty. Chest surgery was regarded as a branch of war surgery not yet sufficiently practised but for which the time for development was ripe. The nearer to the battle front could be brought the first line of surgical defense the better would be the results. The success of thoracic surgery in this war, it was stated, had been a very good demonstration that the general principles of surgery were true wherever applied.

War Amenorrhea.—This affection must be compared to certain disorders in animals due to defective nourishment. If deprived of certain fodder, cows give less milk, and hens do not lay.—*Correspondenz-Blatt für Schweizer Aerzte.*

Miscellany.

State and Federal Cooperation in the Control of Venereal Disease.—Since the establishmnet of the Division of Venereal Diseases as a part of the Public Health Service plans have been worked out for State control and prevention of venereal diseases, and the United States Public Health Service has published a number of bulletins giving suggestions for the active prosecution of a campaign against these diseases to be carried on by State departments of health. Notification laws or regulations requiring the reporting of these diseases to health authorities have now been passed by nearly all the States, and the machinery for the control is rapidly being put into operation. The campaigns instituted follow the four principal channels, namely: (1) Educational: Acquainting the public with the nature of the diseases and the objects desired to be accomplished. (2) Law enforcement: Securing cooperation of the physicians in reporting cases, and of the police in apprehending prostitutes, vagrants, and such other persons as can be reasonably suspected of having venereal disease in communicable stages. (3) Propaganda to secure local funds for providing detention homes and hospital facilities for isolation and treatment of venereal diseases carriers who by their habits are a menace to the public health. (4) Establishment of increased facilities for early diagnosis and treatment. Attention is called to the fact that in putting any comprehensive plan into operation it is wise to do at once those things which may be done without special law or ordinance. Free diagnostic facilities and free treatment facilities may be established without additional legislation, though they do require money. As a war measure it is possible in practically all states to secure money for a venereal disease campaign as a part of a nation-wide patriotic effort to increase the efficiency of the fighting forces. There should be a Wassermann laboratory in each state and in large cities branch laboratories may be used. A chain of venereal dispensaries should be established so placed as to furnish treatment facilities for the entire state. Sufficient money must be secured to enable the State to assist in the maintenance of these dispensaries by furnishing free arsphenamine and about $1,000 for each clinic for clerical and other expenses. On this basis it is possible to establish these dispensaries, preferably in connection with existing institutions, in order to render less conspicuous the venereal clinic itself. These dispensaries should serve as centers for the distribution of arsphenamine. The minimum standards for clinics for venereal disease control recently adopted by Massachusetts are recommended for the consideration of other states entering on this work. It is also suggested that if State laws are insufficient proper legislation should be secured to prevent the treatment of persons suffering from venereal diseases by quacks and drug clerks. Since syphilis and gonorrhea have been declared diseases dangerous to public health and made reportable, a druggist has no more right to treat them than he has to treat smallpox, diphtheria, or scarlet fever. A final suggestion is that prisoners with venereal disease be treated and cured before discharge.

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Original Articles.

CONCERNING CERTAIN TYPES OF HEMORRHAGIC NEPHRITIS.*

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NEW YORK.

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THE recognition of the existence of various clinical forms of hemorrhagic nephritis, as well as the separation of the nephritides which are accompanied with frequent and profuse hematuria, into groups is of value particularly in facilitating the diagnosis and in determining the therapeutic indications of the urologist. Albarran was one of the first to call attention to the frequency of organic lesions in the kidney in many of those cases of hematuria, in which the diagnosis of essential hematuria or renal hemophilia had been made. The surgeon should be able to group those cases of doubtful hematuria in which we can find no gross organic lesion of the kidney—such as calculus, tuberculosis, or tumor—into cases of essential or idiopathic hematuria, cases of hemorrhagic nephritis of the Bright's type and the primarily hemorrhagic nephritides—those usually following infectious processes. Concerning the first two much has already been written. It is with the last of the three types of hematuria, that I wish to concern myself tonight, and I hope in discussing the hemorrhagic nephritis of infectious origin to be able to bring to the attention of the medical practitioner certain characteristic phenomena and objective manifestations that the urologist has learned to find, and which are concomitant manifestations of certain types of this disease.

It will not be my purpose to dwell at length on the etiology any further than to point out that rather striking is the frequent association of infectious diseases, or infections of the throat and tonsils, with the development of hemorrhagic nephritis.

In this particular the hemorrhagic nephritides, concerning which I shall speak tonight, differ from the hemorrhagic nephritis of Bright's disease.

Thus, Israel reports smallpox as one of the antecedent diseases, and possibly the cause of hemorrhagic nephritis in one case, and diphtheria and two attacks of rheumatism, as the causes in other cases. Leguéu operated upon a case in which a severe angina seemed to precede the development of hemorrhagic nephritis. Pousson believes that one of his cases was due to typhoid fever.

Pathology.—Concerning the pathology very little definite is known. It is supposed that just as in the case of the nephritides accompanied by pain, the so-called painful nephritides, the lesions are most frequently localized in one kidney. The lesions may involve the perirenal fatty envelope, the capsule of the kidney and the parenchyma.

The fatty envelope or fatty capsule is supposed to be the site of a chronic inflammatory process, but the extent of the lesion is not so marked and great as in the case of the painful nephritides. It is often absent, but may be pronounced as in the cases reported by Foisy, Israel, and Freeman.

As for the capsule of the kidney, alterations may be present in the form of milky plaques, or whitish bands that can cause deformation of the kidney. None of these changes are so marked as in the nephritides accompanied by severe pain.

As for the kidney, it is sometimes diminished in size, hard, and apparently deformed by the action of the capsule. In the majority of cases, however, it is rather larger than normal, and in some cases is said to be even elongated in the form of a sausage or rather spheroidal or globular in shape, depending upon the direction of its enlargement. In general, we may say that the renal tissue appears somewhat congested, has a violaceous tint, suggesting chronic hyperemia and congestion.

As for the histological lesions, these are not extensive, and seem to involve especially the glomerular system. In some cases, these changes are so minimal that it is necessary to make numerous sections to recognize any pathological changes at all.

Pousson recounts the case of Nicolich, where the left kidney had been removed for profuse hematuria. On examination by one of the most competent histologists in Vienna, this kidney was pronounced as practically free of any microscopic change. However, on further and more careful study, after numerous sections had been cut, Albarran was able to demonstrate distinct lesions of glomerular nephritis. Similarly, Israel was able to find minute microscopic lesions in a kidney removed by Sonnenburg, in a case considered a hematuria of hemophilic origin. Israel demonstrated the presence of numerous islands of interstitial inflammation and new-formed connective tissue.

According to the various authors, one may recognize in the case of hemorrhagic nephritis, lesions involving the stroma, interstitial lesions, parenchymatous lesions, and lesions involving

*Read before the Clinical Society of the People's Hospital, New York, April 10, 1918.

both parenchyma and stroma, so-called mixed lesions.

In short, if we inspect the findings of the most thorough investigators, we will have to believe with them that in practically all instances of hemorrhagic nephritis, some lesions in the parenchyma do exist.

Symptomatology.—In some cases no prodromal symptoms are noted, the hematuria occurring in a patient apparently in perfect health. In the experience of Pousson, the appearance of blood in the urine is more frequently preceded by lumbar pain, even though this be slight. At times there may be very severe pain, sufficiently marked to arouse the suspicion of renal colic.

Thus, firstly, we have the cases in which hematuria is the first symptom; secondly, the cases where the hematuria is preceded by attacks of pain or dull ache; and, thirdly, the hematuria in which there is a distinct history of angina, some febrile disease, some infection, influenza or typhoid, followed within a short period by evidences of hemorrhagic nephritis, or at least by hematuria.

The symptoms usually recur, so that the course is intermittent, occurring suddenly as some of the other diseases of the urinary tract do, where there are attacks of congestion. Some authors believe that these attacks are precipitated in some instances by fatigue, walking, or violent exercise.

In most of the cases, profuse hemorrhage has been noted, lasting several days, weeks, or even months, some patients having persistent bleeding over a period of years. When the hematuria lasts for such a long time, it is rare to find it continuous, there being intermittent, short, free intervals, during which no macroscopic blood appears in the urine.

It is a rule to find the hematurias become successively more severe in hemorrhagic nephritis, but there are exceptions to this general statement. In regard to the pain, we must divide this into two types: first, that which is due to the congestion of the kidney, and the hemorrhage into the kidney pelvis, with the increased tension of the capsule—therefore, a pain due to a sort of strangulation of the kidney; and secondly, the pain that is due to the passage of clots, the reno-ureterovesical pain, usually characterized by a certain amount of irradiation into the bladder, groin, or even into the extremities.

I think it would not be too audacious to assume that the mere passage of a considerable amount of blood without the presence of clots may produce sufficient irritation of the ureter to give the symptoms of pain, an example being afforded in the passage of fine uric acid and oxalate crystals.

Then, again, we must not forget that there are rarer instances of chronic nephritis, in which there is a long period, months or years, during which the patient complains of lumbar pain without hematuria. The *x*-ray examination may be negative, and the hematuria may not as yet have set in. This period may be called that of chronic nephritis with pain, or nephralgia without hemorrhage, and gives way to that symptom-complex which we regard as hemorrhagic nephritis; in short, nephralgia for a number of years followed by the development of chronic nephritis with pronounced hematuria. Some of these cases are incorrectly diagnosticated as chronic appendicitis.

In certain cases there is some tenderness of the affected kidney during the period of hematuria. In others, we can distinctly feel an enlarged organ.

Rather interesting is the circumstance that the blood in these cases is often intimately mixed with the urine, and may show no clots. Particularly, are the long worm-like clots, those so characteristic of bleeding from the kidney in cases of hypernephroma, absent.

As for the presence of other elements suggestive of the existence of nephritis, namely, albumin and casts, there seems to be no unanimity of opinion. Thus, in our own experience, *it is usually difficult to find any casts whatsoever* during the active stages of the bleeding, making the diagnosis still more difficult. Certain authors claim that the usual findings of a chronic nephritis obtain here too, namely, the reduced output of urea, reduced quantity of urine, the presence of casts, the diminished phenolsulphonephthalein output, and the increased nitrogenous products in the blood. In our experience we cannot corroborate or confirm these generalizations, at least during the early stages of the disease.

It is rather noteworthy that the general condition of these patients does not seem to suffer for some time. Those who bleed considerably may be pale and somewhat emaciated as time goes on, but for a considerable period of time their general state is good. Except for local complaints, ailments that accompany the original infection or are the sequelae of the original infection, the local pain and discomfort in the lumbar region and the hematuria, there are no symptoms. When secondary anemia is established, certain secondary symptoms appear that belong to this complicating condition, such as slight headaches, slight intestinal disturbances, shortness of breath, etc. These, therefore, are the consequences of loss of blood. Cases reported as having persistent headaches, disturbances of vision, dyspnoea, severe gastrointestinal symptoms, with possibly edema of the lower extremities, more properly belong to the classification of Bright's disease with complicating hemorrhage, than to the class which we here designate as hemorrhagic nephritis.

Illustrative Cases.—One of the most interesting of the cases that have come under our observation may be cited both because of the pathological inferences that could be made from a study of the cystoscopic lesions, and from the standpoint of the diagnostic deductions that could be drawn from a study of the clinical history.

Case I.—B. G., male, 21 years of age, was referred to me by Dr. L. Gross because of very active hematuria. Careful investigation of the history elicited the following: About one week previously he had been ill with a sore throat. For the past four or five days he had had fever, pain in the throat, and general malaise, the symptoms being regarded by him as indicative of a cold and sore throat. For the past three days he had blood in the urine. With the passage of blood he noticed an increase in frequency of urination, with the gradual onset of some pain during micturition, with discomfort during the act as well as some urgency. He

had never had any renal or bladder symptoms so far as he knew, and was fairly sure that he had never passed blood before. Renal colic or pain in the lumbar region was absent.

Examination of the urine showed numerous red blood cells, some hyaline casts, a large amount of albumin, and a few small clots of blood; in short, a very distinct history of angina, fever, malaise, followed by hematuria.

It was the cystoscopic examination done on June 5, and another one on June 10, that gave interesting and valuable information regarding the nature of the process that was responsible for the hemorrhages, or the escape of blood not only from the kidneys, but also from the bladder.

Cystoscopic notes, made on June 7, 1915.—The bladder is found to contain numerous small blood clots. The posterior wall of the bladder near the base is hemorrhagic, seems to be swollen, reddened, but the ureters do not appear to show any lesions whatsoever. In the region of the trigone there is a mass with an irregular villous surface, that undoubtedly represents partly decolorized blood clots. In the right paratrigonal region there are numerous hemorrhages, and also a small blood clot. Catheterization of the ureters (after the injection of indigo-carmine for the purpose of estimating the functional activity of the kidneys) is easily performed, there being no obstruction in the ureters. There is some delay in the output of the indigo-carmine, none being excreted in the specimens obtained from the right side during a period of at least 17 minutes after the injection, whereas, the left kidney function seemed to be a little more active, in that the specimens were slightly green after a period of 11 minutes.

The examination of the urinary specimens showed the following:

Right Kidney—Reaction, neutral; albumin, trace; urea, 0.1 per cent.; microscopical, few epith. cells, few red blood cells, few pus cells, hyaline and finely granular casts; culture, sterile; tubercle bacilli, negative.

Left Kidney—Reaction, acid; albumin, trace; urea, 1.4 per cent.; microscopical, many epith. cells, many red blood cells, few pus cells, hyaline and finely granular casts; culture, sterile; tubercle baccili, negative.

Bladder—Reaction, acid; albumin, much present; urea, 1.6 per cent.; microscopical, blood; culture, staphylococci and colon bacilli; tubercle bacilli, negative.

In brief, the specimens obtained from the two kidneys showed that the right kidney was evidently somewhat inhibited in its action, as evidenced by the very low output of urea, and poor excretion of indigo-carmine. Furthermore, both kidneys were evidently bleeding in very small amounts, the urine of both kidneys containing hyaline and granular casts. Suggestive of the existence of an inflammatory process, or of an acute exudate, a nephritis, or possibly indicating a complicating pyelitis, was the presence of a few pus cells in both specimens. But the amount of pus was not sufficient to warrant a positive diagnosis either of a suppurative nephritis or of a pyelitis.

It seemed very evident, therefore, that we were dealing here with two lesions, one suggestive of a nephritic process in both kidneys, attended with hemorrhage, and another lesion, a vesical lesion, characterized by numerous submucous hemorrhages and suggillations.

On June 10, 1915, a second cystoscopic examination was made to further study the nature of the lesions in the bladder, and to determine whether these were merely a part of a general process, of which the involvement of the kidneys was but one expression or manifestation, or as to whether some other local condition was present or not.

The cystoscope again revealed extensive hemorrhagic areas occupying the region of the trigone, of the paratrigonal region, and of the posterior wall of the bladder. Some of these submucous hemorrhages were present in the form of gyrate areas, others were small and punctate, but evidently of considerable depth by reason of the protrusion that they caused in the mucous membrane. Catheterization of the ureters delivered urine which contained such small traces of blood in the specimens from both kidneys that a diagnosis of renal hemorrhage was impossible at this time. Examination of the urinary specimen showed an absence of tubercle bacilli on June 16, the bladder urine, however, exhibiting a moderate amount of albumin, occasional granular casts, numerous red blood cells, and a very few white blood cells.

The coagulation time, taken on June 11, was 13 minutes; red blood cells, 4,500,000; white blood cells, 13,200, with 73 per cent. polymorphonuclear cells, and 27 per cent. lymphocytes.

To sum up the findings at the second cystoscopy: *evidences of extensive bladder hemorrhage, no active renal hemorrhage, but findings suggestive of nephritis.*

The patient remained under my observation until June 15, when he was so much improved that he was discharged from the hospital. On January 6, 1917, about one and a half years later, he consulted me again, saying that he had apparently been perfectly well until December 13, 1916. He thinks he caught cold, had fever, headache, general malaise, pain in the back, legs, and in the joints. Within a very short period, possibly less than a day, his urine again became bloody. Because of the fever and general symptoms he remained in bed for three weeks, the symptoms gradually subsiding, the urine becoming almost clear. However, a few days ago the urine again became bloody, so that he was sufficiently anxious about it to consult a specialist. Succinctly, then, after an interval of about a year and a half, there was a return of general symptoms, "a cold and hematuria."

January 9, 1917, I examined his bladder again with the cystoscope, with the following result: The bladder interior was practically negative in contrast to the findings one and a half years ago. The specimens from both kidneys contained blood, without any pus cells; the cultures from both kidneys and the bladder remained sterile, tubercle bacilli being absent. The output of indigo carmine was about equal on both sides, appearing in good concentration within about 14 minutes after the injection. The detailed urinary report is as follows:

	RIGHT	LEFT	BLADDER
Reaction	Acid	Acid	Acid
Albumin	Faint trace	Good trace	Heavy trace
Sugar	.....	.....	Negative
Urea	1.8	1.6	1.5
Microscopical	Few epith. cells Some red blood cells No pus cells No casts	Few epith. cells Some red blood cells No pus cells No casts	Few epith. cells Many red blood cells No pus cells Few finely granular casts
Culture	Sterile	Sterile	Sterile
Tubercle bacilli	Negative	Negative	Negative

From this cystoscopy we could conclude that the hematuria was still present, but evidently subsiding, that hemorrhagic lesions in the bladder were absent on this occasion, that the examination of the specimens suggested strongly the diagnosis of nephritis, and in conjunction with the history, made the assumption warrantable, that an infectious process may have again been responsible for the recurrence of bleeding in the kidneys.

Phenolsulphonephthalein test, January 21, 1917, showed an output during the first hour of 35 per cent.; second hour, 21 per cent.; *total*, 56 *per cent. in two hours.*

The patient was kept under observation for some three or four weeks, during which time the hematuria gradually subsided, although not completely, so that a few red blood cells were always present in the urine, even after his discharge, early in February, 1917.

In further elucidation of the clinical picture of this type of hemorrhagic nephritis and of further corroborating the value of cystoscopy as an aid to diagnosis, I may be permitted to cite the case of a boy about six years of age who was referred to me by Dr. S. Sobel because of hematuria.

CASE II.—B. L., boy of 6 years, had tonsillitis two weeks previously. Since then hematuria appeared, the exact day of the onset not having been noted. For the last four days there had been some abdominal cramps, a diffuse ache in the bladder region, and the urine was macroscopically bloody.

Examination of the urine showed considerable albumin, the sediment being composed mostly of red blood cells, numerous in number, possibly a few pus cells, with possibly more white cells than could be accounted for by the presence of the blood. *X*-ray examination was negative.

Cystoscopic examination on May 13, 1916, under gas anesthesia, showed numerous hemorrhages in the posterior wall of the bladder. Blood was seen coming from the left kidney. The question of the presence of blood in the right kidney urine could not be determined, because the efflux was barely colored, and catheterization of the ureter was not done. The efflux from the left ureter, however, indicated left renal hematuria.

Within two weeks after the cystoscopy the patient's symptoms had subsided, and according to the family doctor's statement the patient has been well ever since.

Curiously enough, another member of the family was attacked similarly about the same time after an attack of tonsillitis.

In short, *hematuria, evidently of renal origin, associated with bladder hemorrhages, affecting a case in which there was a distinct history of an infection of the throat, which was followed by an involvement of the urinary tract.*

Clinical and Pathological Deductions.—It was my purpose in discussing somewhat in detail these two interesting cases exemplifying a group which not infrequently comes under the observation of the urologist, to present for your consideration the possibility of the acceptance of a new viewpoint regarding the pathogenesis of the hematuria in these cases, and to call attention, furthermore, to the great value of a thorough examination, by means of the cystoscope and the *x*-ray.

Little is known regarding the causation of renal bleeding. In the cases of bilateral nephritis, which the French authors regard as belonging to the Bright's type, or the so-called chronic nephritides, we may invoke as an explanation of the hematuria, either a diminution of protein substances in the blood, or a change in the blood by reason of toxins, possibly retained toxins. However, clinical facts tend to show that unilateral cases—and the cases cited more frequently belong to this type—are more apt to be attended with hematuria, a circumstance which could hardly be in keeping with the toxic theories or with the theory of alteration of the constitution of the blood. It was argumentation along these lines that led Pousson to believe that renal bleeding may be due to limited local changes in one or the other or both kidneys, and that anatomical changes, particularly in the glomeruli may be responsible.

On the other hand, there are the views of those who believe that the renal hemorrhage is due to reflex vascular disturbances, initiated by irritation of some renal nerve (Rovesing).

And then again we have the views of Lancereaux, whose conception was that an angioneurotic process obtained in these cases.

The question then arises: *Is there an antecedent local disease of one or both kidneys which is responsible for the renal bleeding? Or may not the renal bleeding be the primary or antecedent phenomenon, evoked by an infection,* and *may not this bleeding be the precursor of renal changes, which we interpret later in specimens that are removed, as chronic nephritis, glomerular nephritis, or interstitial nephritis?*

If we study carefully the association of bladder hemorrhages in these cases, we cannot refrain from suggesting some sort of hypothesis as the following.

By virtue of some toxin, bacterial agent, or virus, hemorrhagic lesions occur. These lesions in the cases of hemorrhagic nephritis above cited are particularly known to occur in the urinary tract where the clinical and cystoscopic evidences demonstrate them to have appeared or to have given rise to hemorrhage, not only from one or both kidneys, but also in isolated and disseminated patchy areas in the bladder interior. For what other explanation could account for the appearance of the suggilations in the bladder interior? Does not the presence of the bladder hemorrhages at least suggest that the *same cause is responsible for similar lesions in the kidney;* and that, as a result of these hemorrhages in the kidney, the urine is either directly admixed with blood in the kidney tubules by reason of the parenchymatous hemorrhages, or becomes secondarily bloody by virtue of the secondary changes that have been brought about in the renal tissue? That such an assumption or hypothesis is not fanciful will be clear when we consider the many other hemorrhagic diseases in which multiple hemorrhages occur, not only in the integument, but also in the intestinal tract. In accord with this line of reasoning, we may assume that certain secondary interstitial and glomerular changes in the kidney are rather the product of the initial hemorrhagic renal disease than the cause of the original or primary hematuria. After such interstitial and glomerular changes have become established, recurrences of the hematuria may be due either to the chronic renal disease thus engendered or to recurrences of the same type infection which had brought about the first attack.

In brief, we may be permitted to entertain the thought that another modus in the elaboration of the renal pathological lesions may be at work than the usual primary or initial nephritis.

Be that as it may, it seems to me that a very important observation, one which throws some light upon the classification of these cases, and one most useful clinically as well as from the therapeutic standpoint, is the recognition of the association of bladder hemorrhages with renal hematuria, a finding that can be discovered only with the cystoscope. For it may be mentioned here in the way of anticipation, that it is this type of case *par excellence*, as well as that type of so-called essential hematuria—many of which really belong to this group—that sometimes responds in a most remarkable manner to the simple operation of renal decapsulation.

The analysis of another set of interesting cases that have come under my observation, is suggestive of the possible relation between so-called influenza or grippe infection, and the development of bladder hemorrhages with and without signs of renal hemorrhage at the time of cystoscopy.

Case III.—In one case that came under my observation on the 9th of January, 1917, a woman of about 36 years of age (L. I.), there was a history of a sore throat about two weeks previously, with what the patient regarded as grippe. Ten days later hematuria commenced, without pain in the bladder, but with some urgency and urinary frequency.

Cystoscopy on January 9, 1917, disclosed extensive intravesical hemorrhages, one rather large hemorrhage behind the left ureter, with rather extensive ecchymoses or suggilations in this neighborhood. There was a similar smaller hemorrhage behind the right ureter, but the usual signs of cystitis were absent.

The catheterized specimens from the ureters showed blood coming down from both kidneys in small amounts, the left-sided specimens being macroscopically bloody. *X*-ray examination was negative. Cultures showed *Bacillus coli communis* in all the specimens, which, however, is not an unusual finding in females, and the significance of which is not at all clear in this case.

A careful study of this case convinced me that we were not dealing with a pure or simple cystitis, the vesical picture of a cystitis, but rather that of a purpuric condition, limited to the bladder mucous membrane.

Inasmuch as there was no recurrence in this case since the time she first consulted me, no further data have been obtainable. It is not unlikely, however, that this case also belongs to the type above alluded to, although the possibility of a colon bacillus infection can not be absolutely ruled out. Certain it is, however, and definitely proven was it by the observations made here, that multiple hemorrhages in the bladder mucous membrane may be the product of toxins, as in the other cases of grippe and sore throat.

That cases of this nature, where the bleeding becomes intractable and alarming, sometimes respond in the most miraculous manner to decapsulation, the following instance from my case records will illustrate:

Case IV.—A. K., male, 27 years of age, consulted me on June 21, 1915, referred by Dr. S. M. Roth for "kidney trouble." During the month of April about two and a half months previously, he had had a severe attack of grippe, which lasted for some time, and which made him ill for almost a month. Either during or following this attack of grippe he had had some dull ache in the left lumbar region, and for some two weeks or more had a great deal of blood in the urine.

Cystoscopic examination on June 21, 1915, showed a negative bladder, specimens from the left kidney showing large amounts of blood. The right kidney was excreting normally, showed good function, whereas the function of the left kidney was markedly diminished. *X*-ray examination was negative.

Because of the profuseness of the hemorrhage, which appeared to be alarming, and because of the patient's anxiety and that of the family physician, it was deemed advisable to explore the left kidney, although the *x*-ray examinations were negative.

The phenolsulphonepththalein test was 28 per cent. in the first hour, 16 per cent. in the second, a total of 44 per cent. in two hours. The urea-nitrogen was 14 mg.; uncoagulated nitrogen, 32 mg. per 100 c.c. of blood.

On June 31 I performed an exploratory operation on the left kidney, did a nephrotomy, and decapsulated the kidney. The left kidney was found somewhat enlarged, there being fairly marked evidences of the presence of a perinephritis, particularly at the upper pole. The kidney was delivered. No stones were found in the pelvis on palpation, and a small incision was made through the parenchyma through which the exploring finger was able to palpate the interior of the kidney and pelvis. No calculus could be discovered. Decapsulation was then performed, the kidney replaced, and the wound closed in the usual manner.

Four days after the operation there was a very noticeable diminution in the amount of blood in the urine. Nine days after the operation there was almost no blood present, and on July 7, two weeks after the operation, the urine was practically clear. Since then no bleeding has recurred. The patient was discharged on July 7, cured.

On September 8 of the same year, in a communication received in answer to my inquiry, the patient notified me that as far as he knew he was perfectly well. In short, a very strikingly interesting example of the value of decapsulation in some of these interesting cases.

If I have burdened you with a rather extensive account of some of the patients that have come under my observation, my purpose has been to call to your attention the value of early application of the cystoscope in cases of hematuria. I have not gone into the details of differential diagnosis between hematurias of this type and the hematurias due to other causes such as tuberculosis, calculus, tumor, angioma, hydronephrosis and other lesions of the kidney, but my aim has been to emphasize the value of the urologic methods of examination, in the recognition of certain types of nephritis that do respond to operative intervention, and also to place before you for consideration, a new viewpoint in the pathogenesis of hemorrhagic nephritis, a viewpoint which may be of more than mere passing interest.

1000 Park Avenue.

EXPERIMENTS WITH A NEW AND MOST EFFICIENT REMEDY FOR PULMONARY AND LARYNGEAL TUBERCULOSIS.*

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On July 4, 1914, I published in the Medical Record an article entitled "Cause and Prevention of Pyorrhea Alveolaris and Furunculosis," and in it I advised the use of sulphur and dilute sulphuric acid for these infections, as I found these drugs very efficacious in my practice, especially for boils. In this article I also mentioned that "J. and R. J. Reynolds of London reported wonderful results during a number of years from the use of dilute sulphuric acid in a variety of pus conditions, *i.e.* boils, carbuncles, and streptococcic infections. Cases even of bronchiectasis and pulmonary tuberculosis (*sic*) were markedly benefited."

Shortly afterward I received a letter from Prof. Charles Baskerville of the College of the City of New York. He stated that he was very much interested in my paper and would like me to send him two reprints, one for himself and one for a friend of his, a chemist in Chicago, Dr. Edward Gudeman.

In January, 1915, I received a leaflet from Dr. Gudeman, advising physicians to try inhalations of sulphur dioxide in the treatment of pulmonary tuberculosis, and as he had had no experience he left the method of treatment in the hands of physicians. He mentioned that sulphur dioxide could be inhaled by burning sulphur, sulphur candles, or by liberating the gas contained in liquid form in a steel tank.

In subsequent letters in reply to my inquiries he stated that "the value of sulphur dioxide is twofold; by chemical action it destroys the germs, and by mechanical action it dissolves the diseased tissue, loosens the mucous matter, and thereby exposes new and more healthy tissue to do the work required. It is the can-opener of the lungs."

*Read before the Society of the Alumni of Bellevue Hospital at the Yale Club, New York, Oct. 2, 1918.

He concluded his last letter saying: "I feel confident that inhalation of sulphurous acid will be beneficial in the treatment of tuberculosis, absolutely certain of it, if tried on patients in the first stages." This last sentence contains an astounding statement.

Months went by and I often pondered over the matter contained in these letters. Could it be true? Would a great chemist make such radical statements without indubitable grounds for them?

In December, 1915, I had my first opportunity in the person of a young Jewish woman. On examination the signs in her lungs pointed to a far advanced stage of phthisis. Her former physician agreed with me in considering her case a hopeless one. She took the treatment faithfully, and a month later I met her walking up a hill. I was very much surprised, as she had not been able to do this before. She told me that she was feeling ever so much better and was thinking of returning to New York. I advised her to wait another month, which she did, and improved steadily. On returning to the city her relatives and neighbors objected to the treatment, and after a couple of weeks she gave it up. About two months later I got news from her husband that she had a violent hemorrhage and passed away after two days' illness.

This was an unusual case. Before treatment this patient was so sick that she had given up all idea of returning to the city. After two months' treatment she felt better in every way, and her neighbors noticed the improvement.

The next patient was a married woman, thirty-nine years old, who came to my office on March 10, 1916, complaining of a chronic cough since the middle of December, 1915. She stated that the medicine ordered for her by another physician had not stopped the cough. Examination revealed the cardinal symptoms of incipient phthisis, viz., persistent cough, night sweats, loss of appetite, strength, and weight, dyspnea on exertion, pulse 96, temperature by rectum 99 6°, blood pressure, systolic 126, diastolic 92. I heard a few rales at the lower angle of the left scapula. The sputum was negative. Three weeks after treatment she had gained 2¼ pounds, felt perfectly well, and had no subjective symptoms. Three months later she had gained 15 pounds and her next-door neighbors, whom I knew well, told me she was apparently perfectly well. In the meantime I had met the physician who had previously attended her and discussed the symptoms with him and he had no hesitation in saying that this was a case of incipient phthisis. I thought the result of the treatment truly remarkable and henceforth I was very anxious to try it on other cases.

The next patient, a married woman, twenty-six years old, a native of the West Indies, of Spanish descent, came under my care when she was about eight and a half months pregnant with her first baby. She had been suffering from a chronic cough for over a year and was a Christian Scientist. On examination she gave the typical symptoms of phthisis and showed the following signs: consolidation at the right apex down to and including the second interspace in front and down to the spine of the scapula behind.

Two weeks after the birth of her baby, I put her on the new treatment. Although I watched her carefully, I purposely did not examine her chest for three weeks. I felt sure that something extraordinary would happen to that consolidation. Meanwhile she nursed her baby, taking the precaution on each occasion to cover her nose and mouth. She kept no servant and consequently did all the housework, including cooking and washing. Her subjective symptoms improved steadily in spite of adverse circumstances. Born and brought up in a hot climate, she could not stand the cold, and therefore lived in overheated and ill-ventilated rooms, seldom taking walking exercise or even fresh air.

When I examined her lungs at the end of the three weeks to my surprise the consolidation had completely disappeared, and there were only a few rales at the apex in front and behind. This was an amazing experience. The consolidation had behaved as it does in a pneumonia. If the treatment could do this marvelous feat, what would be its limits?

This patient was a frail little woman, who never weighed more than 100 pounds and now was only eighty-six. Nursing sapped her strength and was discontinued after three months, although she had milk enough for two babies. Her infant was a magnificent specimen and weighed then about fifteen pounds. On the advent of cold weather she yearned for the tropics, and heated her little bungalow more and more. In November, 1916, she left for the South, weighing ninety-two pounds, but she still had a few rales at the right apex. I advised her to take the apparatus with her, but she refused to do so. I heard later that she went back to Christian Science and died eighteen months after she left me.

On September 16, 1916, a patient came to my office complaining chiefly of dyspnea on exertion and cough since May, 1916. He had the cardinal symptoms of phthisis and the examination revealed crepitant rales at both apices and dullness over left apex with increased voice and whisper. The sputum was positive. He had just spent several weeks in Sullivan County, but without any benefit. A week after commencing treatment he was able to resume work in his business, but was given light jobs to do. Three weeks later the night sweats stopped and he made steady improvement. He coughed for a few minutes every morning on getting out of bed, and I attributed this to pleuritic adhesions. I examined his lungs at intervals and found no rales. I saw him about three months ago, and he was apparently well and at work.

On May 1, 1917, I went to a certain hospital. The physician in charge, after having heard my story, flatly refused to allow me to use such a poisonous gas on his patients. When asked whether he had ever tried it, he replied that he never had and never wanted to, but in the end I had my way. The interne selected four patients, only one of whom was interesting from my point of view. He was unmistakably tuberculous, with crepitant rales at both apices, a pleurisy on the left side, and broncho-cavernous voice and breathing near the right nipple, the size of a half-dollar. The sputum was positive. I asked the interne what he thought of this, and he replied that it was a small cavity. I told him I believed it to be a consolidation because of its size and added that we should know in a few days, as a consolidation would disappear whereas a cavity would of course stay. I had treated only one consolidation before, but just the same I was sure it would act in the same manner. The interne, of course, did not believe a word I said. Two days after starting treatment I told the interne that I would like to make a more careful examination and keep notes of it. When I examined the patient I put the stethoscope over the area in dispute and heard only vesicular breathing. I then asked the interne to locate the cavity. He searched for quite a while and his embarrassment and fruitless search for it amused me greatly. Three days later the same patient told me that an instructor appeared with a party of students and after looking at the chart he examined him, and then threw down the chart angrily, saying, "rotten examination." Now what was I to do? I could not have discussed this matter with the attending physician, as he would have told me that the interne had made a mistake and that there never was a cavity nor a consolidation. A few days later I decided to leave this hospital, as no one was interested in my experiments.

Early in January, 1918, I decided to try another hospital. I selected four patients. The first, a young girl of 13 years, had cavities at both apices, and I was about to reject her, when I noticed that she had aphonia. She told me that she began to lose her voice in September, 1917. She had been in this hospital since December 13 and no one had heard her speak aloud. She had no dysphagia and was therefore a most favorable case for treatment. Examination of her larynx showed edema of the arytenoids and vocal cords, these structures were pale, and shiny. I did not notice the epiglottis. On January 7, *x*-ray pictures were taken and I started treatment the next day. On January 15, the other three patients greeted me with joyful exclamations and informed me that "Edith is beginning to talk already." I noticed that Edith phonated every 5th or 6th word, and a week later she was able to speak aloud but was hoarse, like a person recovering from a cold. Three weeks after treatment she spoke well, and was only slightly hoarse.

I now asked the visiting physician to examine the patients and he flatly refused to do so, remarking that it would be unnecessary as there could be no improvement in so short a time. I then referred to Edith, and was told she was a "wonderful spontaneous recovery." I had never heard of a spontaneous recovery within three weeks, and several prominent laryngologists of New York agreed with me.

The other three cases were interesting and instructive. The visiting physician selected two of them, marking on the chart of one, "right apex late second stage," and on the other, "bilateral second stage." He did not approve of the third case, and I cannot now recall why I selected her unless because of her advanced condition.

On January 10, I saw the *x*-ray pictures and the report. There were no consolidations, only cavities, fibrous filtrations, etc. What was I to do now? I had come to the hospital to demonstrate the disappearance of consolidations under my treatment. If I selected another lot of patients I would have to give up the laryngitis case, and might not get another like her. I was afraid to mention that I would treat her, as the visiting physician would probably consider my request absurd. I therefore resorted to camouflage and said: "Since there are no consolidations, I will try it on the fibrous infiltrations." I was not wrong in this.

Immediately after I saw some of my medical friends and told them about this episode. I was warned that I had staked everything on a case of laryngitis, which I had never treated before.

I noticed improvement in the lungs of all the patients. Rales disappeared very rapidly from below upward, that is to say up to the third rib in front and up to the spine of the scapula behind. Above these lines, rales took much longer to disappear. I noticed that they staid longest at the inner border of the first interspace near the sternum. Behind they were last to go in the alarm zone.

One patient, M. O., had very loud sibilant sounds and not only she herself noticed this wheezing, but the other women heard it too. Only a week later they all informed me that they heard no more wheezing, and on examination I found very few sibilant sounds.

The *x*-ray report was incorrect, for in the case of the woman, Mrs. J., designated on the chart as "bilateral second stage," a cavity at the right apex only was mentioned, yet there was bronchial voice and breathing above the spine of the left scapula, but no such signs in front, only rales. I watched this consolidation and noted that it disappeared on January 29, in three weeks exactly. It first cleared up near the shoulder and staid longest in the alarm zone. I learned something more; there were two women with temperatures previously always over 101 deg. and during the fourth and fifth weeks at the hospital the temperatures were at or just below 100 deg.

The reason why on physical examination cavities are sometimes mistaken for consolidations, as was the case above, is very simple. You must have a consolidation before you can get a cavity. The latter starts in the center. This will at first give you all the signs of a consolidation. Now when you begin treatment, the chemical action of sulphur dioxide kills the germs and the diseased tissues are detached from the living tissues. The same action takes place with antitoxin in diphtheria. Two of my patients told me that after a few days' treatment they experienced an occasional pain at the apex and then felt as if something had got loose there, and that a little later a lump was felt in the lower part of the chest, pointing exactly to the bifurcation of the trachea. They then coughed and brought up a thick lump of mucus.

These patients made these statements of their own accord without leading questions. I will read you an extract from a lady's letter whose husband I am treating for phthisis. She writes: "On Tuesday the cough was more frequent and he complained of a fullness as he expressed it, in the chest on the left side. This has passed away, and yesterday Saturday, for a brief period he had a peculiar feeling accompanied by pain, in about the same place. The pain finally ceased, after which he said it seemed as if something which had been clogged had cleared away." Here we get the mechanical action of Gudeman's can-opener.

On February 13, my last day at the hospital, when I examined Edith's lungs I noticed cavernous voice and breathing in a small area to the outer side of the right nipple, which had not been there before. This shows that x-ray findings in regard to fibrosis are not always correct.

In July, 1918, I decided to try still another hospital. I exacted a promise from the visiting physician to examine the cases with me at least once a week. We selected two women with consolidations at both apices. I remarked to him that it was not always possible to be sure of consolidations, for if large they would, after treatment give the signs of unmistakable cavities. I also selected two men, one had aphonia and had had his epiglottis removed a few weeks before and now complained of soreness in the throat "like raw beef." His lungs were also involved. The other man complained of severe dysphagia

and his throat was tender to the touch. He could take only warm semi-liquid food. He could not eat crackers or bread, nor could he swallow any cold liquids. He also had marked dyspnea, with difficulty going up one flight of stairs. His lungs were also involved. The assistant laryngologist reported marked ulceration and infiltration of the larynx.

A week later, on July 22, we examined the patients. The left apices of both women showed only normal vesicular breathing and no rales. The right apices showed cavernous breathing and rales. The visiting physician made no comments. We then went down to another floor and examined the men. The first man felt more comfortable. The other man could eat everything now, hot or cold, soft or hard. The throat was no longer tender to the touch, and he had that morning early, spoken a few words aloud for a few minutes. He also told us that when the elevator was not available he walked up four flights of steps without losing his breath.

I asked for more patients and was referred to the intern. For nearly six weeks I begged the intern for consolidation and laryngeal cases, but he never had any time, or could not find any, although there were over 300 patients in the hospital. I then decided to leave.

On July 4, 1918, a patient, forty-nine years old, came to my office complaining of a slight cough for the past two months and dyspnea. His previous history was as follows: About 1901 he was operated on for mastoiditis of the left ear by a New York specialist, and four or five similar operations were performed during the next three or four years. At the last one the much enlarged cervical glands on the left side were excised. There is a profuse and constant evil-smelling discharge, which has existed for the past twelve years, and no treatment has been able to stop it. He has no night sweats, weight 136 pounds, height 5 ft. 11 in, temperature by mouth 99°, pulse 92 and regular, blood pressure, systolic 122, diastolic 92. Examination: very slim, deep depressions above clavicles, enlarged veins on upper part of chest in front. Whisper and voice louder on left side in alarm zone, with occasional crepitant rales. Few rales below and to outer side of right nipple. Examination of sputum: abundant pus cells very much degenerated, no tubercle bacilli; discharge from ear: few very much degenerated pus cells, no organisms present. Examination of ear: no drum membrane, an opening in posterior part of canal communicating with the mastoid, mucopurulent foul discharge.

In spite of the laboratory reports I considered this a case of chronic tuberculosis of the lungs and middle ear, and told the patient that I hoped I was correct, for in that case I could help him greatly. On July 9 he began treatment. On July 20 the discharge stopped. For the next three weeks he felt itching in the ear. During the week ending August 30 numerous dry scabs dropped out of the ear. He has had no symptoms since and his lungs are now clear. The specialist who operated on him and treated him for several years replied to my inquiries as follows: "This case was a very severe one. I have no doubt he was tuberculous at the time and his healing was very much retarded on account of his physical condition."

It had occurred to me that the inhalations of sulphur dioxide might be beneficial for other conditions as well as phthisis, especially pertussis. Consequently, when I was called in on August 31, 1916, to treat a lady and her daughter, aged nine years, for pertussis, I suggested my new treatment. They consented very readily, as they had tried everything else without relief. The mother had been suffering for a month and her daughter for two months from this affliction. That afternoon both patients began treatment.

I paid a visit 24 hours later—they were feeling very comfortable. The cough was slight and did not bother them at all, and they passed the first restful night for weeks. Forty-eight hours after starting treatment both patients stated that they had not coughed that day. I watched them for several weeks but no symptoms of pertussis returned. This seemed promising, but the results were not as good as I had expected. For out of a total of 26 patients only 10 were cured within three days, and of the latter, the oldest was about 36 years and the youngest 15 months. The treatment had no effect whatever on the other 16 cases. It is a curious fact that all the 10 cured cases were in Summit, N. J., where I lived until June 1, 1918.

The medical literature gave me no clue for further investigation, but the parents of some of the patients informed me, that many years ago, children suffering from pertussis, were taken near the gas plants and *some* of them recovered very quickly. I also heard from other sources that children were taken for runs in the Scranton coal mines, and that *some* of them recovered rapidly. I shall refer to this matter later.

We are then forced to the conclusion that there is more than one type of germ causing pertussis. One is killed by sulphur dioxide and the other remains immune to this gas. This confirms the statements of several physicians, that pertussis is not caused by a single germ; see for instance Holt's "Diseases of Infancy and Childhood," 1917 edition, page 1004.

In March, 1918, I wrote to Dr. Gudeman, relating some of my successes with his treatment, and received a reply dated March 22, 1918, from which I give some extracts:

"From your own experience with the medical profession, you can easily figure out how much more chance I have, a layman, to get the medical profession to actually try out the use of sulphurous acid inhalations. I had all plans perfected to have the treatment tried at the Municipal Tuberculosis Sanitarium here, but through political disturbances, the matter was dropped. I tried to have the Rockefeller Institute take it up, also the U. S. Medical Department. They were too busy and could not consider new work. You will note that chlorine inhalation is now used in the treatment of meningitis carriers, ... it has also great curative value in tuberculosis and other respiratory diseases. It would be a very long story to give you the outline even of what led me to recommend the use of sulphurous acid gas. It is based on personal observation and then study of prevalence of the disease.

"Immunity to respiratory diseases seems to exist in those occupations where gases having antiseptic effects are produced. Have you noticed that tuberculosis is not a disease found among the workers in the electric industries around Niagara Falls, none, so I have been told, in any of the generating rooms nor in the chlorine plants? To what extent is that due to the chlorine, or sulphurous acid, or nitric acid and nitrous fumes in the atmosphere?

"While sulphur is very inactive and if administered as such, is passed off into the feces as sulphur, a relatively large amount goes into combination. This is not surprising for sulphur is dissolved in alkaline juices and then is active and forms sulphur compounds."

If we examine the medical literature on the subject of phthisis, we soon discover that certain occupations are comparatively free from this curse and others are immune to it. I have here Fishberg's "Pulmonary Tuberculosis" and on page 98, you will notice that "coal dust prevents the development of phthisis, and that miners are less subject to phthisis than all other occupied males." Again on page 99, Fisac reports that in Spain the workers in quicklime and plaster of Paris are immune to tuberculosis, despite the fact that they live in squalid dwellings and are underfed.

To discover if this immunity exists among lime and plaster of Paris workers in this country, I obtained through a New York chemist, the address of the manager of the largest manufacturer of plaster of Paris in Canada. I wrote to the manager and asked him for statistics and in his reply he stated that not a single case of phthisis had been known among the men during the past 25 or 30 years.

Another manufactory in Canada reported equally favorably.

I next obtained the addresses of lime works in the eastern States through the U. S. Geological Survey Department. In reply to my inquiries they gave most favorable reports, not only stating that phthisis was unknown among their workers, but that coughs and colds seemed to be broken up by inhaling the lime dust. A physician who had medical charge of one of these plants for 40 years, reported that he had never seen a case of phthisis in all those years.

Over and over again we see the question asked: "Why should the dust of coal prevent phthisis?" Why should it? Coal dust can have but one action in the lungs, namely, that of an irritant. It acts like any other foreign body, which is not absorbed by the tissues. In the pages quoted above one is led to believe that coal-dust is beneficial to men working in coal mines. Now when we turn to page 468 we find that employment in coalyards is considered unhealthy. But the dust in a coal mine does not differ from the dust in a coalyard. Consequently there must be something in the coal mine besides coal-dust which prevents phthisis, for it does not prevent it in a coalyard. What is it? We notice too that the older writers report more favorable action from coal-dust than more recent writers. I will tell you why a little later.

To gain further information on this subject I called on two prominent chemists in New York. I told them of my experiments and asked them how they could account for sulphur dioxide in coal mines, for I felt sure it must be present, judging from the results that I had obtained with it in the treatment of tuberculosis. I was informed that coal-dust did not decompose, that it was a stable article, like powdered glass, flint or granite, nor could the body fluids absorb or change it in any way.

To settle this question definitely, I paid a visit to Mr. H. J. Force, the chemist and engineer of tests of the D. L. & W. Railroad Company at Scranton, Pa., on May 2, 1918. His views were no different. I suggested that sulphur dioxide might penetrate through fissures in the coal. I was told that there were no fissures in anthracite. I then hinted that the gas might permeate through the soil. Again I was corrected and reminded that no gases could penetrate, for anthracite rests on beds of clay. The only thing left for me was to ask Mr. Force to analyze the air in a mine under working conditions. This he willingly agreed to do.

On May 20, 1918, he reported the presence of sulphur dioxide in one of the mines. It was due to the sulphur contained in the blasting powder! The air was taken shortly after a blast, and when analyzed showed 17 parts of sulphur dioxide per million of air. The amount of the gas varied according to the number and frequency of the blasts. Very powerful air fans are now used, which was not the case a few years ago. This accounts for the greater immunity in coal mines recorded by older writers. The presence of sulphur dioxide also explains why some cases of pertussis were benefited by visits to the mines.

Some of you here have no doubt read in the *Presse Médicale of Paris*, of January 3, 1918, abstracted in the *Journal of the A. M. A.*, of March 9, 1918, of Dr. Lacombe's remarkable success in the treatment of gonorrhea with sulphur dioxide.

In conclusion I wish to say, judging from my limited experience, that sulphur dioxide will be of benefit in all cases of tuberculosis where the gas can come in contact with the diseased tissues, such as tuberculosis of the lungs, larynx, ear, and nose, also in a certain number of cases of pertussis. This treatment might be given a trial in streptococcic infections and bronchiectases, for the reason that J. and R. J. Reynolds of London reported favorably in these cases with dilute sulphuric acid given by mouth. This might also apply in the various types of pneumonia.

Finally, I believe that sulphur dioxide will be of great value for diagnostic purposes, especially in the early doubtful cases, when there are no physical signs and the laboratory findings are negative. A few weeks treatment can do no harm, and improvement would point to tuberculosis.

The patient with the chronic mastoiditis and the one with dysphagia were present at the meeting. A prominent New York laryngologist testified in the discussion which followed the paper, that he had examined the patient with the tuberculous laryngitis in his office a few days ago and saw two healed ulcers, one on the epiglottis and the other on the left arytenoid, and that the larynx appeared to be getting well.

I purposely omitted details about the use of sulphur dioxide, for when not given in sufficient quantity the results are poor, and when given in excess, the symptoms of the patient are alarmingly aggravated. However, by watching the patient's symptoms carefully the treatment can be given with benefit.

I do not advise the use of sulphur candles, they are too irritating, probably on account of the grease or fat contained in them. The best treatment is obtained with a small tank of liquid sulphur dioxide, which can be obtained in New York from the King Chemical Company. This tank contains about 8 lbs. of the liquid and lasts about eight months. A rubber tube should be attached to the outlet and dipped into a glass test-tube half full of water. In this way the amount of the gas can be regulated.

To begin treatment, select a small room without any metal fittings, as the gas will corrode them. Close all windows and doors. Place the tank in any part of the room, turn on the gas so fast that the bubbles cannot be counted. Within a few minutes the patient will notice the odor of the gas and also taste it on his tongue. Now turn the gas down to about 60 to 100 bubbles a minute, more or less. The patient should stand not less than six feet away from the tank and take deep inhalations, 2 or 3 times a minute, holding his breath at the end of each inhalation for not more than 4 or 5 seconds. Inhalations should be kept up for 15 to 20 minutes at a time. Patients should breathe through the mouth only, except in cases of tuberculosis of the nasal cavities. When there is much sneezing, the nostrils should be closed with pieces of absorbent cotton. Coughing occasionally during treatment will do no harm. When there is much coughing, the gas is too strong; in that case turn it off and open the doors and windows for a few minutes and begin over again, using less gas. The gas is always too strong when it causes weeping or smarting of the eyes.

Inhalations should take place 3 or 4 times a day for incipient cases, and 5 or 6 times a day for severer ones.

When tanks cannot be obtained, the patient can burn a teaspoonful of sulphur on any metal dish by dropping a few drops of alcohol on the sulphur and lighting it. When too much gas is present, the flame can be put out, and when there is insufficient gas, more sulphur can be burnt.

Patients with gastric and intestinal symptoms are much benefited by the administration of dilute sulphuric acid (U. S. P.) mx-xx in a glass of water t.i.d. one-half hour before meals. This causes increased frequency of micturition after a while and should then be stopped or the dose diminished. One of my patients was much benefited by eating raw onions, which I am told contain a large percentage of sulphur.

I shall be glad to give any further information when requested.

An Ancient Canadian Empiric.—Ahern gives an account of a Breton who took up the healing art without the usual process of education. He migrated to Quebec, but since he spoke no French but only the Breton language, nearly starved. In his own sketch of his life he claims to have built up a reputation which extended all over the Province. He practised surgery as well. The death of Yves Phlem, for that was his name, took place in 1749. He left many descendants. According to his own version he received the gift of healing disease from Providence.—*Le Bulletin Médical de Quebec.*

THE MEDICAL TREATMENT OF ENTEROPTOSIS.*

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MUCH in a medical way can be done for the enteroptotic individual. To get ideal and substantial results, time, patience, and perseverance are required. There is no quick, easy-to-achieve, and ready-to-accomplish method that answers. In the less severe types relief is easily possible, but in the average case a program must be adhered to for months. It is important for results to consider cases as multisided, and that varying degrees and combinations of conditions are met with, attention to each detail being important to bring results about. Failure in results have come along the lines of considering these people only as those to be given abdominal support, an ample diet, correction of corporeal conditions, and surgery if not successful. The medical side of the work is much deeper than this, and unless one considers the conditions along broader and deeper lines than these the most that can be accomplished medically is not obtainable.

The figures I shall quote are based on a study of 500 cases in my practice, the majority of them persons in good and average circumstances. Careful measurements must be taken of the body and attention paid to developing these to more normal standards. At least 50 per cent. of these were physically deficient. Chest and upper abdomen expansion must be developed by deep-breathing exercises, and they usually have to be taught to breathe infracostally and abdominally. Exercises, of which there are several good systems, are required to build up muscle substance and tone. Most often they must be taught to walk, stand and sit properly, things we have been neglectful of in the past. Ninety-two per cent. had definite posture defects. The gorilla stance must be straightened and the kangaroo bent back until the person walks, stands, and sits so that the vertical weight line runs straight downward through the body, the line coursing from the vortex, through the atlas articulation, the posterior of the rim of acetabulum, and the centers of the knee and ankle joints.

Twenty-eight per cent. had crossed sex characteristics and prenatal stigmata. Here is where endocrinology comes in as a factor for therapeutic results, thyroid excess and suprarenal deficiency making up the majority. For the prenatal stigmata nothing specific can be done, these improving on the upbuilding of the body as a whole. More or less nervous debility and instability are common here, and rest, steady normal routine of life, conservation of the physical and nervous expenditures, and nerve tonics are necessary. I have found that cacydalate of strychnia, the glycerophosphates, and malt extract answer to the best purpose. Depressing social and economic factors were present in 36 per cent. of the cases, and much worth the while can be done in advising them and perhaps changing or modifying their life's main interests. It is in the factors

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just mentioned that the neurological features come in, and attention must be given to them to benefit the deficient nervous make-up of these people. Ofttimes, if you improve their neurological disturbance, their subjective symptoms, digestion, and assimilation are markedly benefited.

If dilatation of the stomach and colon exists, or distinct disturbances in motility, strychnia, sinusoidal currents, small and often repeated, and high valued caloric meals, would be in order. Usually, the stomach secretions are not markedly interfered with, although the alkalies, oils or belladonna in hyperacidity, or the acids in subacidity, may be called for. When anacidity exists, pancreatic extract may be helpful. The tendency in these cases is for deficient motility rather than hyper. This, in my opinion, is due to deficient innervation to the organ rather than deficiency within it. Therefore, what would help the general make-up of the individual as a whole is the best treatment for the deficient nervous stimuli to the stomach and colon. In other words, if the storage batteries are good and sufficiently charged the wires and organs will respond, and here again comes a neurological feature to the disorder.

All roads lead to Rome, but there is usually a shortest one from wherever you are at the moment; so it is with abdominal support. There are many good ones, but none that are always efficient. We need to support the abdomen between a transverse umbilical line and the symphysis pubis, pouparts ligaments and the front of the crests of the ilea. This support must be upward as well as backward in the line of the mesentery to the root, and some of these people have so little bulk of abdomen to do this with that the ordinarily used support is an ostrich proposition. One can only accomplish this in the slim subject with steels in the front of the belt or corset, steels which have been concaved at the lowest point. I have used this type of support during several years of work, and generally succeeded where others failed.

What I have said as important in the medical handling of these patients is not more important than that the case must be judged in the early instance along two classifications, namely, those who should go to bed and be treated ambulatorily afterward, or not so severe, and can be handled successfully up and about all the way through; and secondly, the intestinal toxemia cases as to whether they are secondary toxemias, and will clean up when the ptosis and general condition is benefited, or whether the intestinal toxemia is primary and will remain to modify the substantial results, and perhaps cause a return of the symptoms in a short course of time.

As to the bed treatment, no benefits in any condition we have to handle is beyond what can be done with these people. The program necessary is replete with details, all of which must be fixedly carried out during three or four weeks' time. In a well-ventilated room, sunny during the day, the bed is raised at the foot from 15 to 25 inches from the floor, the distance depending upon the degree of ptosis. A folded rug is placed between the mattress and spring, or a board transversely across the bed, under the spring and at the level of the hips, keeps these from sagging and the body straight. Only one pillow is allowed, so that the shoulders are kept flat on the mattress, and sitting for eating foods, voiding urine and stool, or reading, is not permitted. Only one hour visiting is allowed during the day, the room is kept quiet, no night reading is permitted, and lights are out at 8 o'clock.

The diet is simple, regular fare being allowed, excepting potatoes, asparagus, Brussel sprouts, cauliflower, highly seasoned foods, made-up dishes, tea, coffee, soups, and broths. No fluid is allowed at the main meals, and interval feedings of fresh cream and water, so that a half pint of double or triple cream is taken each day. The patient should lie on the back for the first hour after the meal, then on the right side. Lying on the abdomen is at no time permitted.

Each day an abdominal massage, finished by general massage, is given. Some simple bed exercises are engaged in and lessons in deep breathing are begun. Small normal saline enemas are given mornings or evenings, and to keep the intestines from becoming too stagnant a dose of cascara once every five days. Belt or corset measurements are taken in the last week and delivered for use three days before the time is up. The patient then gets up slowly, one hour the first day, two the second, four the third, and completely on the fourth. During the first one to three days up they may not feel as well as during the last week in bed, but if mention is made of this they will not become discouraged.

Then they become ambulatory cases, and the program is about as follows: The adopting of the routine mentioned in the beginning of this paper: sleeping in a raised bed for one year; given a diet in which the carbohydrate and hydrocarbons are ample and the native proteins nominal. Water drinking between meals, fruits twice a day, bran, prunes, and vaseline by mouth, are made use of to correct the constipation. This program, dieting, exercises, correction of posture defects, abdominal support, perhaps simple medication, regulation of daily routine, bed up nights, etc., is carried on for months until return of health is brought about.

In my 500 cases, primary or independent chronic excessive toxemia was met with in 50 per cent., secondary, or dependent upon the ptosis, in 24 per cent., and toxemia-free 26 per cent. Therefore, 50 per cent. of all cases have one of the forms of primary chronic intestinal toxemia, and unless this is controlled recurrence of symptoms is very liable to happen in a few months' time. This is the most important part of the treatment of these individuals that is being neglected, and which has brought on so much discouragement in the permanency of results from medical treatment. This field of work requires dieting according to the toxemia present, high protein for the saccharo-butyric, carbohydrate for the indolic, and carefully weighed diet, so there is no excess in the mixed forms. Vaccines are essential to bring results about, these always being autogenous, and used in bold doses, the selection being according as the bacteriology of the gut is off from normal standards. At least 90 per cent. of these most difficult ptosis plus primary toxemia cases are curable by vaccines and diet.

A few of the cases are surgical, but the percentage is small. In people who, because of time or station in life, cannot follow the program outlined, this

number is greatest, and I feel that in them operation may be more freely engaged in. But in the clean-cut enteroptosis case, where proper medical handling can be carried out, my belief is that the medical method of treatment outstrips the benefits possible from surgery, and this is my conclusion from an ample experience with medically treated cases contrasted with a sufficient number treated by surgery. All distinct cases considered, the number requiring surgery represents about 1 per cent. When decided upon, a careful clean-up of angulations, adhesions, bands, as well as suturing the organs in higher position, are required. But even with these it is well to treat them medically for some time after operation has been performed.

21 West Seventy-fourth Street.

CURSORY REVIEW OF MEDICINE AND SURGERY OF THE TWENTIETH CENTURY, VIEWED FROM SEVERAL ANGLES.

By Bittle C. Keister, A.M., M.D.,

Roanoke, Va.

A noted statesman once said: Two things grow better with age, "wine and judges." We may add that the science of medicine and surgery has just as strong a claim for growing better with age, yet requiring more time for development and maturity. In drawing the analogy, we may well say the science of medicine has undergone its stage of fermentation, and, like good wine, it is rapidly ripening into maturity, and with time it will no longer be considered an inexact science.

The present day demand for medical men of proper training and education in the world's greatest epoch, is a strong evidence of the rapid development and usefulness of this great science. Consider, if you please, the 33,000 trained American physicians "over there" doing their bit for liberty and civilization! Consider the important part that science and self-denial on the part of the medical profession is playing in this great world war! The National Research Council is doing much along various lines in the prosecution of this war. Chemistry is solving the problem of absorbing the obnoxious gases to which the enemy has resorted as an unhallowed instrument of torture.

Geology is doing its part in the selection of camp zones and the recognition of adequate water supply. Hygiene and sanitation are important features in the proper management of camp life. The science of physics has solved the problem of detecting the submarines, getting adequate range finders in landing accurately projectiles, improvements in wireless telegraphy, etc., etc.

Among the most important subjects that confronted our scientists in medicine was the food problem. It did not require much time on the part of our National Research Council to discover the deficiency and imminent need of food supplies for our soldiers at the front. As Dr. Lyman Wilbur has aptly stated, a hungry soldier will fight for bread quicker than for the country that is starving him, hence we can readily see the importance of this subject and its bearing on the success of this great world struggle. Our Research Council lost no time in the study of plant and vegetable growing from a scientific standpoint, instilling into the minds of the people patriotic economy, co-operation and food conservation.

Through a campaign of education and patriotic self-denial, the American people are sending this year over 150,000,000 bushels of our wheat to the Allies in starving France and Belgium. These are only a few of the many great things that characterize the magnanimity, beneficence, and usefulness of the great science of medicine as an asset to the world, especially in time of war. If you please, take a panoramic survey of the glorious achievements wrought on the Southern Atlantic Coast during the past decade or so. Go with me down in South America, and as you pass through the great Panama country, the once God-forsaken country, where neither man nor beast could survive but a short period on account of the deadly miasms and other climatic conditions. See what the science of hygiene and preventive medicine has done! With our venerable Dr. William C. Gorgas as the initiator, the death rate from this miasm has been reduced from 60 per cent to only about 2 per cent within the past half decade. Think of the thousands of lives thus saved, and the millions of dollars that have been wisely invested in that once forgotten country! Then, on your return trip, take a passing look at old Cuba, the once hotbed of yellow fever, and observe the handiwork wrought through the instrumentality of our lamented Dr. Walter Reed and of Jesse Lazear, who laid his life down as a tribute to sufferers from this deadly scourge. Our country needs a few more such men as Reed and Lazear in this great epoch-making period of the world.

In the years 1348-50, 25,000,000 deaths from this plague, or "black death" occurred, which was one-fourth of the entire population of the world at that time. In the year 1761, fifty per cent of the English nation died before reaching the age of twenty years. The average length of life in the sixteenth century was only 21 years, while in this, the twentieth century, the average life is 45 years. In India, however, the average life today is only 24 years.

We are thus enabled to see what the science of medicine is accomplishing in our more civilized countries, where ignorance and superstition do not prevail to any very great extent.

It is a well known fact that where these twin curses exist, even in our own much boosted country, especially in the smaller communities where the uneducated negro and foreigner are thickly settled, we may have epidemics of various kinds through the entire year. If we could eliminate from our civilization these twin curses, there would be but little work for the medical man to do.

Dr. Thomas D. Wood, of Columbia University, in a lecture some months ago, made the statement that out of the 32,000,000 school children in the United States, 75 per cent. were physically defective, 1 per cent. mentally defective, 5 per cent. victims of tuberculosis, 5 per cent. with defective hearing, 5 per cent. with defective eyes, 25 per cent. suffered from malnutrition, 25 per cent. had diseased tonsils and adenoids, 50 to 75 per cent. suffered from defective teeth, while 1 per cent. were victims of organic heart disease. Is it any wonder that 29

per cent. of our soldier boys who registered for the great world's war were rejected on account of physical disability? In some of the States of the Union from 50 to 75 per cent. were rejected on this account.

The United States is today expending four billion dollars annually toward the prevention of diseases that are preventable, and that have their origin primarily from the two causes above mentioned, ignorance and superstition.

We may take that fell disease cancer, about which we know so little, and which is today destroying 500,000 persons annually. One of our fellow mortals is giving up his life to this monster enemy every six minutes. One in every twelve of our men, and one in every eight of our women, die from this disease.

What I have stated about cancer applies with equal, if not greater, force to tuberculosis and pneumonia. According to the latest statistics, there are today 8,000,000 people in the United States who are destined to die of tuberculosis; 175,000 persons died of this disease last year; 1,500,000 people are incapacitated annually in the United States from this disease. The toll exacted by tuberculosis throughout the world is about 144 human lives each hour. In China this white plague takes a person every 37 seconds. In Japan every two minutes, and in India about the same proportion of victims exists. These figures vary in different countries, according to the degree of civilization and education.

You will observe we are viewing our subject from various angles, and, while we may congratulate the great science of medicine and her corps of energetic laboratory workers on past achievements, yet there is much to do, and it behoves every medical man to buckle on the armor of war and face these deadly enemies of the human family which are today destroying more lives and are a greater menace to our country than were all of the Central Powers of our European enemies during the great war.

In view of these stern facts confronting our much boasted civilization of the twentieth century, is it not high time for our Federal Government to take due notice of the situation by placing a suitable medical man in the Cabinet at Washington as Secretary of Public Health and Preventive Medicine?

But let us take courage from the example of our predecessors in medicine in making our fight against the above mentioned "Triple Alliance" of cancer, pneumonia, and tuberculosis, that are destroying our race like the despotic Huns, regardless of age, sex, or nationality. Let us give more study and research to the cause of disease and the many deadly infections, and do as the great pathfinders, Jenner, Holmes, and Lister did, put into practice our findings. Undying credit is due Lister for his bold stand in putting into practice his discovery of a paste that revolutionized the surgical practice in the treatment of wounds.

With all due deference to antiseptic preparations and their distinguished discoverers however, as well as their many advocates, after a quarter of a century of active work in all lines of surgery and preventive medicine, I am still an advocate of the pre-war practice of asepsis, using only sterile applications in fresh, clean wounds, and germicidal applications only in old or pus wounds. I am glad to see the pendulum of radical surgery is rapidly receding, allowing conservatism to play its part, hence the less need of antiseptics, but the greater demand for the exercise of common sense, cleanliness, and surgical prevention.

When treating an old pus wound outside of a hospital, I would just about as leave treat it by a modified Lister method as the more modern Carrel-Dakin method. But for sure results, I would, in such cases, fall back on an old standby, namely, one part iodoform, two parts bismuth subcarborate, in sufficient quantity of sterile vaseline to make a paste or ointment, and enough thymol or eucalyptol to disguise the iodoform odor. With thorough cleanliness prior to making this application at proper intervals, any ordinary wound, other things being equal, should heal readily. The simplicity of this method should commend it, especially when we consider the extraordinary virtues of iodoform in rendering the soil inimicable to the growth of the germs, thus starving them in their own habitat, and preventing their migration to other fields. This commendable feature is worth considering when comparing it with bichloride and other antiseptics that act only as antiseptics, leaving the soil or habitat in an irritable or favorable condition for the growth and diffusion of a second or third regiment of microbes.

While we are paying tribute to our pioneers in surgery, the men whose business it was to handle the knife, we should not forget the noble men who made it possible to "cut without causing pain." With true Southern pride, we may modestly refer to Dr. Crawford Long as the real discoverer of sulphuric ether, while according an equal amount of glory to Dr. William G. T. Morton, a dentist by profession, who deserves the honor of making sulphuric ether practical as applied to surgery.

The first public demonstration made in a surgical amphitheater took place in the Massachusetts General Hospital on Oct. 16, 1846, when Dr. J. C. Warren performed the first surgical operation with the use of ether, administered by Dr. Morton, on a patient by the name of Gilbert Abbott. The operation consisted in the removal of a congenital tumor from the left side of the neck, extending along the jaw to the maxillary gland and into the mouth, embracing the margin of the tongue. The operation was successful, and when the patient recovered he declared he had suffered no pain. After completing the operation Dr. Warren turned to those present and said: "Gentlemen, this is no humbug." Unfortunately, Dr. Morton sought to establish his claim as the real discoverer of sulphuric ether and to secure a patent on same, and this, coupled with the bitter contention and disloyalty of his once trusted friends, led to his downfall and death in poverty at the early age of 49. Had he acted throughout as did Dr. Crawford Long, the real discoverer of sulphuric ether, no doubt but it would have been far better for him, as well as more comforting to his friends.

Dr. Long was born in Danielsville, Ga., and was known as a modest country practitioner, far from the centers of medical learning, and destitute of means sufficient to exploit his great discovery. He did not at the time realize the importance of the discovery, the vast benefit it was destined to bring

to the relief of suffering humanity. During the month of January, 1842, Dr. Long commenced experimenting with his new vapor, by allowing frolics to be held in his office by young lads who delighted to inhale the fumes of this exhilarating substance, some of them getting drunk and staggering about, knocking themselves against tables and other furniture without experiencing pain. This Dr. Long noted with special interest, and decided then and there, when opportunity presented, to make use of this new agency for the relief of pain.

On March 30, 1842, he operated on a man named James Venables, removing a small cystic tumor of the jaw with success and without the least pain. This success was followed by other operations in minor surgery by Dr. Long, and in the latter part of the year 1842, he presented a paper before the State Medical Association of Georgia, describing the effects and his results in the use of this new vapor that he had been experimenting with. Dr. Long did not push himself into the arena as a claimant for the honor of the discovery of anesthesia until 1854, when he felt it his duty to keep silent no longer, since such an array of claimants as Morton, Jackson, Wells, and Marcy were eagerly clamoring for the plum that rightly belonged to him.

We might give equal honor to Doctor Dumas of Paris, France, for the discovery of chloroform. I have dilated somewhat at length on this part of my subject, because of the great benefit of these discoveries to suffering humanity, not only for the past three-quarters of a century, but for all time to come. Then the close relation these discoveries bear to medicine and surgery makes it worth while to cherish the memory of these noble pathfinders. Then all honor and glory to Crawford Long for the discovery of sulphuric ether, to Morton for making it practical in surgery, and to Dumas for the discovery of chloroform! These two anesthetics alone have done more toward relieving the sufferings of the world than all other combined agencies. Every mother on the two hemispheres, if requested, would place a wreath of the purest and whitest flowers, bound by the threads from her own sacred locks, on the graves of these three noble benefactors. It would be but a fitting tribute if every surgical and lying-in hospital in the whole world would place a memorial tablet of the purest bronze on the walls of their operating amphitheaters.

We will now treat our subject, as stated in the outset, from another angle, namely: the attitude of the medical profession of the twentieth century, viewed from the standpoint of civic betterment and altruism.

Has the standard of the medical profession, like wine and judges, grown better and nobler with age? This question may be answered from one angle in the affirmative, and from another angle in the negative. From a scientific standpoint, including equipment, better facilities, and all that constitute a modern science, in both medicine and surgery, the answer, as previously intimated, is quite evidently in the affirmative. But whether the standard and altruistic spirit of the twentieth century medical man is on as high a plane now as a century or more ago is very questionable.

When we recall the self-sacrifice and the altruistic spirit that characterized the motives of Edward Jenner, Oliver Wendell Holmes, Joseph Lister, and many others, and draw the comparison with some of our moderns, we cannot help feeling a sense of humility. In making this comparison of the present and past, I include the entire globe where the medical profession is recognized, but would lay special emphasis on these conditions as applied to the United States.

Consider the commercial spirit that pervades the medical profession to-day, the anxiety for filthy lucre, which, to a great extent, obscures the beauty, the grandeur, and honor of the real science of medicine which was maintained and held so sacred by our ancestors. Think of the men who are following the phantoms, the ignis-fatuus of the present day, under the guise of cancer and consumption cure-alls, who are more interested in the shekels that are pouring into their coffers than they are in the diseases that they claim to cure. They do not heed the warnings of science and surgery, but go on exploiting their cure-alls, regardless of the fraud committed on their innocent victims.

Then if you will permit, let me remind you of a far greater stigma that hangs over our noble profession as a twentieth century pall. We gather from reliable statistics and good, authentic source that 33 per cent. of the medical profession of to-day are narcotic fiends. I challenged this charge by writing the party that made the statement, and after some correspondence I had to acknowledge the correctness of the accusation. In this accusation, however, alcoholic beverages were included under the head of narcotics. I also found that the other learned professions were included in these startling statistics. I am making these bold statements with some degree of trepidation, yet they are facts that cannot be refuted, even though they are not so pleasing to our sense of pride.

It has become a much-mooted question of late years, and is to-day being discussed by some of our most able thinkers of the medical profession, as to whether our profession and our patients would not be better off without the use of the common narcotics, especially those that belong to the habit-forming class. We have very scant account of this class of drugs being used by our ancestors of a century ago, and it does seem strange that if they, with their limited armamentarium and the many other handicaps with which they had to contend, could do without them, we of the twentieth century enlightenment could well afford to eliminate them from our pharmacopeia.

In looking over the weekly death list of our colleagues, college mates, etc., we are struck with awe in noting so many sudden deaths, suicides, and premature deaths. Why so many of these in our ranks ere the three-score and ten limit is reached, when so many of our ancestors passed over this limit? When we consider our present day advancement in the science of medicine and surgery, and the many adjunct facilities for the successful treatment of diseases, the superior hospital advantages with better trained nurses, etc., we may well ask, Why such a high rate of mortality in the medical profession? Oliver Wendell Holmes maintained his mental and physical vigor until he was 84 years old, which was a clear gain of 14 years over the allotted time for man to live. This may be accounted for,

in part, as due to his temperate habits, his cheerful and jovial disposition, notwithstanding the fact of his many trials and the strong opposition and severe criticism by his own medical brethren of his famous essay on puerperal fever, and his stand on the management and care of the lying-in expectant mother. Dr. Holmes was an all-round developed medical man, hence free from the petty jealousies, worries, etc., that characterize the lives of so many of our medical men of this commercial age. It has been wisely said that cheerfulness and contentment play a large part toward a medical man's success as well as toward enabling him to reach the goal of three-score and ten years. When we consider the longevity of our ancestry in the medical profession, these facts become very important and worthy our careful thought and meditation.

It was the privilege of the writer to listen to a very interesting paper read by Lister at the International Medical Congress held in Paris in 1900. Lister had then reached the age of three score and thirteen, and his clear voice and erect figure, military step, and handsome physique all indicated to the writer that he was good for another score of years. He had been a hard worker from the time of his graduation in medicine, but he never failed to observe the first law of nature, "self-preservation." There was less of the spirit of commercialism and personal jealousy in former times than we see at the present day. A lawsuit for malpractice or damages was almost unheard of, while at the present day we scarcely pick up a newspaper without seeing accounts of malpractice suits against some member of the profession. In fact, it has become so obnoxious that a medical man of any means or one who has charge of a hospital in his own name is forced to carry a liability insurance policy as a protection from the shylocks. Strange as it may seem, we have men in the profession who are low enough to lend their influence and testimony to this class of lawyers for a mere pittance or for their traveling and hotel expenses, regardless of the merits of the case. Usually lawsuits are due to some form of grievance or misunderstanding and a desire to gain something by fraud, and when you find a physician allowing himself to be a witness against a worthy brother physician in a suit for malpractice, in nine cases out of ten you will find that there has been an old grievance existing between them, or he is actuated by prejudice. Such men are a menace to our profession and should be debarred from membership in any State or county medical society, regardless of their standing as expert surgeons or specialists. It has become a most commendable feature in many of our State and county medical societies to establish and maintain a board of censors for the express purpose of defending its worthy members from these lawsuits. Why cannot all State societies introduce this commendable feature as a part of their work? No stronger inducement could be offered to increase the membership of the county medical society.

You can readily infer from the foregoing that in the writer's judgment the moral standing and the altruistic spirit of the medical profession of to-day does not rank on as high a plane as it did in the days of Jenner, Holmes, and Lister. In scientific attainments, however, it leads.

It behooves the medical profession of to-day to begin to take notice, and if possible inculcate some of the humane and altruistic principles that characterized our forefathers in medicine, and thus retrieve some of our lost prestige. Our medical faculties could do much along this line by putting a little more of "the personal" in their lectures to medical students, instead of requiring them to work out their own salvation with fear and trembling.

The whole medical profession, including the medical faculties of our colleges, could profit both materially and socially if we would put into our daily lives a little more personal and social spirit. Our influence over the laity as well as over our colleagues would be felt in more ways than one. It is the duty of every medical man to cultivate the spirit of sociability, without which accomplishment his financial income, like his popularity, wanes with each passing decade of his professional life.

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THE VALUE OF SACCHARIN AS A FOOD IN DIABETES.

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In diabetes it is known that oxidation is defective, as is indicated by the fact that the diabetic is unable to burn sugar, and because of this inability to use sugar, saccharin, which is five hundred times as sweet as cane sugar, has come to be used very extensively as a sweetening agent in the food of people suffering from this disease. The object of the present investigation was to determine if saccharin has any value in diabetes other than as a sweetening agent. Neubauer,[1] Benedict and Török,[2] Allen and Du Bois, have shown that the administration of alcohol and alcoholic beverages, such as red wine and whiskey, facilitates the oxidative processes in diabetes, thereby enabling the diabetic to burn sugar better, with resulting decrease in acidosis and sugar excretion. We[3] have shown that catalase, an enzyme in the tissues possessing the property of liberating oxygen from hydrogen peroxide, is decreased in diabetes, and accordingly suggested that the defective oxidation in this disease is due to the decrease in catalase. We[4] have also shown that the administration of alcohol increases catalase by stimulating the digestive glands, particularly the liver, to an increased output of this enzyme, and hence attributed the helpful effect of alcohol in diabetes, as suggested by the work of the men named above, to this increase in catalase. Moreover, we have found that whatever increases or decreases oxidation in the body produces a corresponding increase or decrease in catalase, and hence the conclusion was drawn that catalase is the enzyme in the tissue principally responsible for oxidation.

Stated more specifically, the present investigation was begun to determine if saccharin stimulates the digestive glands, particularly the liver, to an increased output of catalase, thus facilitating oxidation in diabetes, as is done by alcoholic beverages. Dogs were used in the investigation. These animals were rendered diabetic by the removal of the

pancreas. The saccharin used was "soluble saccharin" prepared by adding one-half part of sodium bicarbonate to saccharin. The amount administered was four grams per kilogram of body weight. Herter,[5] in his investigation for the Referee Board on Saccharin, gave this amount to rabbits without evil effects. Previous to the introduction of the saccharin into the stomach and intestines of the animal a determination was made of the catalase of the blood taken from the jugular vein. After the introduction of the saccharin determinations of the catalase of the blood taken from the same vein were also made at intervals of fifteen minutes. The determinations were made by adding 0.5 c.c. of

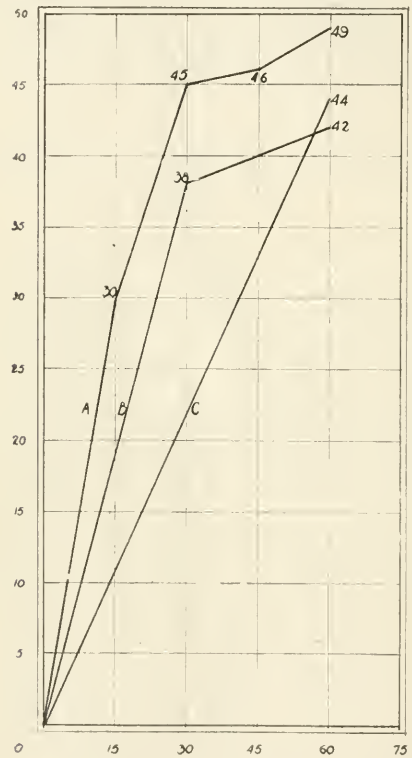

Fig. 1.—Curves showing percentage increase in catalase after the ingestion of saccharin. The figures (0-75) along the abscissa indicate time in minutes and the figures (0-50) along the ordinate percentage increase in catalase.

blood to 50 c.c. of hydrogen peroxide in a bottle at 22° C., and as the oxygen gas was liberated it was conducted through a rubber tube to an inverted burette previously filled with water. After the volume of gas collected as described in ten minutes had been reduced to standard atmospheric pressure the resulting volume was taken as a measure of the amount of catalase in the 0.5 c.c. of blood. The material was shaken in a shaking machine at a fixed rate of one hundred and eighty double shakes per minute during the determinations.

Curves A, B, and C in Fig. 1 show the effect of the administration of saccharin to dogs which had been rendered diabetic by the removal of the pancreas. The figures (0-75) along the abscissa indicate time in minutes and the figures (0-50) along the ordinate indicate percentage increase in the catalase of the blood. It will be seen that the administration of saccharin greatly increased the catalase of the blood, the greatest increase, which was 49 per cent., being in the blood of the dog from which data for curve A were obtained. From the standpoint of calories, saccharin cannot be regarded as a food, since it is not oxidized in the body; but from the standpoint of producing an increase in catalase, thereby facilitating the oxidation of the other food materials, it is even more effective than fat or carbohydrate, and equally as effective as protein.

From the results of the experiments reported in this paper the conclusion is drawn that saccharin, in addition to serving as a sweetening agent, serves to facilitate oxidation, and hence should be positively helpful, particularly in a disease such as diabetes, where the principal trouble is defective oxidation, instead of harmful, as some have claimed.

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Medicolegal Notes.

Medical Expert Testimony—Use of Medical Works as Evidence.—In an action for malpractice there was evidence tending to show that the plaintiff was in an automobile accident and suffered a simple fracture of the middle third of the right femur. He was taken to a hospital in Newport, where he was attended by the defendant and another physician, Dr. Blanchard. These two doctors, with other assistance, set the leg, making use of a Liston splint. Both doctors attended the plaintiff for a time, and the defendant attended him until he was moved to his home in Irasburgh, on December 20, 1913, which was about three weeks after the accident. Two days after this removal the defendant visited the plaintiff professionally at the latter's home, and once later saw him at Irasburgh when he was there to visit another patient. On January 15, 1914, Dr. Templeton, who was then caring for the plaintiff, removed the splint and found the injured leg 2¼ inches shorter than the other one. This condition was permanent, and the ends of the broken bone overlapped so that there was angular conformity at the point of fracture. The result caused pain and discomfort and interfered with his ability to handle his business of traveling salesman.

The plaintiff called the defendant to the stand and examined him as a witness. When he was questioned by his own counsel he was asked what medical authorities prescribed the method of reduction and treatment used by him on the plaintiff; and without objection he replied that Walsham was such an authority. Thereupon his counsel produced a book entitled "Surgery, Its Theory and Practice," by the author named, and asked the witness if the book, on pages 445 and 446, exactly described the method so used by him. This question was excluded and the defendant excepted. The Vermont Supreme Court holds that the exclusion was correct. That the contents of the book were not evidence of the facts therein stated is shown by Rogers v. State, 77 Vt. 454, 61 Atl. 489, and many other cases in other

states. And it was held improper, in the circumstances here existing, to ask a medical expert if he is acquainted with a certain book, and, calling his attention to a particular paragraph, to ask a question in the language of the book, and thus indirectly introduce such passage in evidence. The suggestion that the evidence would corroborate the witness is without force. It is not permissible to reinforce a witness in this way.

It was held there was no error in the cross-examination of Dr. Stockwell, an expert witness for the defendant. In his direct testimony, referring to the method used by the defendant, he asserted that it was a treatment recognized by the best authorities. In cross-examination he was very properly asked to name the authorities thus referred to, and replied that Walsham was the one he most relied on, and that Stimson spoke of this method. Thereupon the witness was asked if Stimson did not say that treatment by weight and pulley or elastic traction was almost exclusively employed in such cases, and, subject to exception, the witness replied in effect that he did. The court thought it apparent that in his first statement the witness intended to have the jury understand that Stimson approved the Liston method of treatment. It was therefore proper cross-examination to show by the book itself that the author did not approve such treatment. While it was not permissible to read the book into the case for the mere purpose of showing that the author disagreed with the witness, it was permissible to contradict and discredit him by showing that the book did not warrant his statement.

Dr. Young, another expert for the defendant, testified in direct examination that the Liston method was well recognized by the authorities. He also testified in cross-examination that he had observed that there was usually a great deal of pain from the use of Buck's extension. Thereupon counsel for the plaintiff asked the witness if Scudder on Fractures, a recognized authority, did not say that, as a general rule, the use of Buck's extension was followed by very little pain; and he was shown the book to refresh his recollection. This was objected to by the defendant, but the objection was overruled and the answer taken subject to exception. The Supreme Court holds this was error. It was not competent to contradict the witness in this way. As to the matter of the pain incident to the use of Buck's extension, the witness spoke of his experience and observation only, and made no reference, directly or indirectly, to Scudder or any other medical authority. His standing was entirely different from that of Dr. Stockwell, who spoke wholly of what the authorities approved. And right there, the court said, lies the distinction. When an expert witness testifies to his own experience and observation only, authorities cannot be read into the case either directly or indirectly on his cross-examination. But when he testifies as to what the authorities show, or bases an opinion in whole or in part upon what they advocate, the books may be used to contradict the witness and to discredit his testimony, though he mentions no particular author.

Just when and how far these books can be used to test the qualifications of the witness the court did not inquire, as the record showed that this ground of admissibility, if otherwise available, was excluded by what was said and done below. But this error was not made to appear harmful. When the answer of the witness was complete, it appeared that all the author said was that "ordinarily there would be little or no pain associated with the repair of the fracture," without a word about any particular method or apparatus. The defendant had already admitted that Scudder made this statement, and under any rule and in any case the error was harmless.

Dr. Templeton, testifying for the plaintiff as an expert, said that when a leg was put up as this one was, and severe pain continued at the point of fracture, it indicated that the dressings were too tight at some place, or the parts were not in apposition. So far no objection was made. He was then asked what could be done in a case like this, and, subject to exception, replied that a careful examination of the injured parts should be made. The court overruled this exception, since it was so obvious from the testimony that such an examination should be made in the circumstances stated that the answer could not have prejudiced the defendant.

During the cross-examination of Dr. Templeton he testified that the books approved of various methods of securing the requisite extension, counter extension and fixation in such fractures as here involved, but that he had never observed an approval of the use of a splint of the character of the one used by the defendant, though he had read of it in obsolete works. He was then shown a copy of Stimson on Fractures, published in 1900, and he testified that he never heard of it before, and knew nothing about it as an authority, but should not call it obsolete. He was then asked if he noticed that among the dressings therein prescribed was a side or hip splint usually with traction. This question being objected to, was excluded, and the defendant excepted.

The object of this inquiry, as stated by counsel, and as shown by a formal offer, was to show the fact that the author approved this kind of a splint. But later on in the trial the passage referred to was read to Dr. Lange, and all the benefit therefrom asked for by counsel was obtained. Thus the error, if any, was rendered harmless.

Dr. Aldrich, an expert witness for the plaintiff, testified that he had never used or seen used a Liston splint, and knew nothing regarding results of that method of treatment. He was shown two *x*-ray plates which were exhibits in the case, and asked whether, assuming the plates were taken of the plaintiff's injured leg, the angular deformity shown was such as would be produced by bandaging the leg to the side splint as was done by the defendent; and, subject to exception, he was allowed to answer that it was. The defendant argued that this was error, because it was allowing the witness to usurp the province of the jury by expressing an opinion on the very question the jury was to decide. But the court said it is not at all unusual to allow an expert witness to give an opinion that a particular condition is due to a specified cause. The fact that Dr. Aldrich had never had experience with this method of treatment did not disqualify him as a witness.

Dr. Kendrick was another of the defendant's experts. He testified that he had used a Liston splint in three cases; that Dr. Stockwell assisted in one of the cases, and Dr. Cushman in another. The trial court declined to allow the witness to say whether they approved the method adopted by him. This ruling was held without error. There approval could only have been indicated by what they said, or possibly by what they did, on the occasions referred to. The offer, at best, was a mere attempt to show what those doctors then thought about the propriety of that method. This would be nothing but hearsay. Both the doctors were in court, and were witnesses in the defendant's behalf. As such they approved the defendant's method of treatment and gave him the benefit of their present opinion of it. That they entertained similar views at some previous time was immaterial.—Baldwin v. Gaines (Vt.) 102 Atl. 338.

Misjoinder of Defendants.—The Mississippi Supreme Court holds that a complaint alleging that deceased, an employee of defendant railroad, was required to contribute to the maintenance of defendant hospital, which employed defendant physician, and that, when injured, the deceased was taken to the hospital, and as a result of malpractice of the physician and negligence of the officials of the hospital he died, did not state a cause of action which was joint and several, but was demurrable, since it was based on contract as to the railroad and on tort as to the other defendants, whose liabilities were not the same.—Owens v. Gulf & S. I. R. R. Co. (Miss.) 79 So. 248.

Sites for Sanatoria in Residential Districts.—The New York Supreme Court, Special Term, New York County, holds that where the refusal of the board of health of a city to approve as a site for a sanatorium property in a residential neighborhood is based on its effect on values of adjoining real estate, mandamus to compel approval will be granted. The court holds that Greater New York Charter, section 1,172, providing that boards of health, whose jurisdiction is confined to matters of public health, may embrace in the Sanitary Code all matters to which the authority of the board extends, "not limiting their application to the subject of health only," limits the jurisdiction to matters dealing directly or indirectly with the public health and life.—People ex rel. Sprenger v. Department of Health, 172 N. Y. Supp. 38.

Military Medicine.

The Emergency Treatment of Gunshot Wounds.—If circumstances permitted, the healing of infected gunshot wounds could be greatly promoted by excision during the pre-inflammatory period, *i.e.* within twenty-four hours of the receipt of the injury. It has been amply proved during the present war that excised wounds will often heal by primary union, and even when this result is not obtained the more serious consequences of infection will be prevented by the early institution of this measure. Lieut.-Col. Hill, R. A. M. C., writing on this subject in the *British Medical Journal*, notes that the success or failure of treatment of gunshot wounds depends largely upon the stage at which the wound comes under treatment. During the first few hours following its infliction a wound is comparatively clean, judged by bacteriological tests. The organisms have not had sufficient time to multiply in order to appear in the secretions. At the end of five or six hours organisms are frequently found in smears, and after twelve hours the wound has commenced to react. Bacteriological examination shows a large number of organisms, and these have now spread to the depths of the wound. It is, therefore, during the first twenty-four hours that the wound is amenable to surgical treatment, for after that period an inflammatory stage appears, during which the results of excision have been very much less satisfactory.

The question now arises whether it is possible to prolong the pre-inflammatory stage. The only treatment which a wound at present receives in war previous to being excised or otherwise dealt with at a casualty clearing station is the application of a first field dressing, the depths of the wound receiving no treatment. In fact, in spite of the advances in surgery, particularly in the treatment of wounds, the emergency treatment is no more efficacious than it was in the days of the Trojan wars. Since the old first field dressing appears to be totally inadequate, it has been suggested that, as soon as practicable after the infliction of a wound, it should be instilled with some non-irritating antiseptic, in order to inhibit the growth of microorganisms. When septic foreign bodies are retained in a wound, the growth of organisms would be enormously retarded by the presence of an inhibiting antiseptic. Septic cloths would become soaked with the reagent injected, and would become comparatively innocuous. Excision of the wounds could be carried out in due course with greatly enhanced likelihood of primary union.

Several reagents which are non-irritating inhibitors of septic organisms are available. Flavine in 1 in 1,000 solution or dichloramine-T would appear to be suitable anticeptics for the purpose. Brilliant green is frequently used (as recommended by Captain Hey) as an anticeptic stain. The wound is filled with brilliant green, which acts as a guide to infected tissue, previous to the excision of the septic area. This reagent would fulfill a double purpose if instilled into the wound at an early stage, by acting as an inhibitor of sepsis, and a guide to the septic tissue. Dakin solutions are too evanescent and too transient in their action for this purpose—as, in fact, they are for any wound treatment during transport. If a 5 per cent. solution of salt be combined with the antiseptic reagent, the microorganisms will not only be inhibited in the wound, but an outpouring stream of serum will be produced which will carry infection from the wound, and prevent the ingress of organisms.

The technique of wound instillation is of the simplest possible description. The chosen solution is instilled by means of a fine glass nozzle attached to a Higginson's syringe, care being taken to inject fluid into the depths of the wound. There is indication for the use of this method in casualty clearing stations. In times of pressure a patient may have to wait a day or more before an operation can be performed. The preliminary instillation of the wound with an inhibiting antiseptic solution may make the difference of the wound being operated upon in the pre-inflammatory stage, or when suppuration has commenced. Still more desirable is such treatment when it is necessary to transfer a patient to the base from casualty clearing stations without operation. By beginning wound instillation within an hour or so we are treating a wound which is bacteriologically as sterile as an excised wound, and but for the tissue necrosis which follows gunshot wounds the early instillation of a suitable antiseptic might replace wound excision.

The New German Methods of Antisepsis.—Voncken, in the *Archives Médicales Belges* for October, 1918, makes a brief contribution with the above title, and as subtitle "antisepsis or asepsis." Some of the pathologists beyond the Rhine are evidently looking forward to a return to asepsis on a peace footing. Whatever their utility in war surgery the fact remains that antiseptics not only injure the integrity of the cell but often do not destroy the germ life in wounds. The triumph of antisepsis is no doubt brief and the bactericide remedy will go into the discard—in fact the more a substance is bactericidal the more is it to be shunned as inimical to the organism. Chemotherapy in other words is not rational. Certain methods, like the Dakin irrigation, cannot stand criticism because if antiseptic at the start their power of this sort is soon forfeited and if the solution still is active it is only because of antitryptic properties which are indirectly hostile to germ life.

Certain German writers speak of deep antisepsis and this resource is meant to supersede the Dakin irrigation which is of course superficial in its activity. Under this head comes the internal use of hexamethylenamine. This substance is changed in the organism to formal, which can be recovered from the wound secretions. The objections to the constitutional antisepsis are two; it is founded on theory alone and its results in practice are not startling. Better grounded is the practice of deep injections around a wound area—a sort of antiseptic barrage. Bier began this method in the case of acute abscess. After the evacuation of the pus the abscess wall was injected with ethyl hydrocuprein. As this worked well he extended the method to suppurating

joints, but without duplicating his success. In gas abscess and gangrene as a prophylactic, ethyl hydrocuprein has been used freely. In reply to the query, "Are not such substances also antiseptics in the ordinary sense?" the answer would be in the negative. While they indeed have power over bacteria they are absolutely innocuous to the tissues and do not in any way interfere with normal cell life. Ethyl hydrocuprein, according to Morgenroth and others, may be destined to revolutionize surgery so far as laboratory experience may foreshadow the outlook. But there has been no lack of adverse criticism. The claim has even been made that while its action on a mere abscess is all sufficient it is not only helpless but dangerous in diffuse suppurations. Other surgeons, following those in the Allied Armies, teach extirpation of a wound focus with immediate suture. Deep antisepsis with quinine and copper derivatives has been tested freely with the aim of preventing the extreme mutilation and sacrifice of tissue and the resulting crippling. Ansinn, a surgeon of Munich, has devised a special technique for the deep peripheral injection of recent wounds. Voncken, however, is unable to state whether or not the method has been tested thoroughly and if so, whether it has made good.

In the meanwhile the intravenous method of antisepsis has had a tryout. The possibility of a venous infiltration of the tissues in a given area was long ago shown. In wounds of the extremities an Esmarch bandage renders the limb bloodless, and compression leaves the member anemic. A vein is then dissected out and made to serve for injection. Laboratory experiments show that the diffusion of various injected solutions is complete. The quinine synthetic already mentioned was used in this manner for gonococccic arthritis and tuberculous foci in the extremities were treated with tuberculin intravenously, while the method was also tested in syphilitic lesions with salvarsan. In such affections the results were disappointing. In military surgery the method has also been tested in gangrene and pyemia, but there are special technical difficulties here due to the nature of the drug injected. For this or other reason the method is not promising and from the theoretic viewpoint arteries and not veins should be the proper vessels for injection. Whatever the future success of the method, a question will be raised as to whether it is antisepsis or asepsis. The benefit to accrue from the quinine may be only a stimulation to leucocytosis or other biochemical property.

Influenza Deaths in Camps.—An official summary of the results of the influenza epidemic in army camps and military centers in the United States, made public by the War Department on December 10, shows that there were 338,257 cases of the disease up to December 1, with approximately 17,000 deaths. From September 13, the date of the outbreak, to December 1, 19,694 deaths from all causes were reported by military stations in the United States; about 2,000 of these deaths were due to causes other than influenza and pneumonia.

Navy's Influenza Tests Negative.—According to a report recently made public experiments undertaken by the Navy Department at the Navy Public Health Service Hospital on Gallupus Island, Boston, to ascertain the cause and reasons for the spread of influenza have had merely negative results. One hundred men volunteered for the experiments and it is stated that they had influenza germs placed in their nostrils and throats and swallowed them with their food, and some were inoculated with serums. The investigation has afforded no definite information as yet. The tests will be continued.

Peace News Cures Shell Shock.—Surgeon General Ireland is reported to have told the Senate Military Committee that more than 2,000 American soldiers in France who were suffering from shell shock were cured by the news of the signing of the armistice.

Red Cross War Work.—Details of the Red Cross work during the war show that the organization spent $22,114,209 in France, $16,964,048 in Italy, $8,458,516 in Russia and Siberia, $2,285,672 in Switzerland, $2,714,610 in Roumania, $5,118,505 in Palestine, $10,830,250 in England, and $3,379,699 in Belgium. Total home service expenditures amounted to $6,000,000, with an equal amount spent on cantonment activities. Up to June 30 last, the convalescent home service work had cost $1,512,000, with another $1,000,000 appropriated for it for the six months ending December 31. The Red Cross has approximately $13,000,000 worth of supplies on hand in France for future use. Finished supplies valued at $59,000,000 made by Red Cross workers all over the country have been turned out during the last seventeen months. It is estimated that during this time some eight million volunteer workers have turned out 253,196,000 surgical dressings and 22,255,000 articles for use in hospitals as well as over fifteen million knitted articles and garments for relief work.

The Annual Report of the Surgeon General, U. S. Army, for 1918 (including statistics for the calendar year 1917 and activities for the fiscal year ending June 30, 1918) has just been issued from the Government Printing Office. It contains a comparative study of the health of the Army, 1820-1917; an account of the health of the mobilization camps and of the Army by countries; a consideration (70 pages in extent) of the principal epidemics in the camps; and a discussion of fractures and operations. Nearly 200 pages are devoted to the special activities of the medical department — with the American Expeditionary Forces, and in the divisions of sanitation, hospitals, supplies, laboratories, and infectious diseases, internal medicine, general surgery, orthopedics, head surgery, neurology and psychiatry, psychology, food, and the Dental and Veterinary corps. In addition to the usual tables of illness, discharge for disability and death, there are given tables of battle wounds and operations; of complications of various diseases and of case mortality. The text is illustrated by 73 charts. Altogether the report is a study of health and morbidity in an army of over 1,500,000 men, for the most part yet in the period of training. It should be of interest to epidemiologists, vital statisticians, and army medical men.

MEDICAL RECORD.

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PARIS EPIDEMICS OF THE XVI CENTURY.

As a contrast to what New York encounters in the current decades one may read with interest of what was going on in Paris three centuries ago. Early in the XVI century the "pest" scourged the metropolis 70 years before the influenza is said to have appeared under the term coqueluche (now limited to whooping cough). But according to Paré this malady had already manifested itself in 1510 and was even then termed by the people coqueluche, with all the symptoms of influenza. The latter had many victims among rich and poor. The question arises, was this epidemic of 1510 a plague or grippe or did both appear in Paris contemporaneously? In 1519 the pest had not left Paris and assemblages of people were discouraged. In 1531-3 the pest was again prevalent and with the public fully possessed if not obsessed with the idea of contagion, the precautions ordered could readily have been exaggerated. Every possible avenue of contagion, direct or mediate, was respected. In 1561-2 a new plague appeared under the name of lues pestifera. The correspondent of *Le Progrès Médical* for October, from whom the above citations are taken, furnishes no clinical data for these outbreaks and prophylaxis centered on isolation of pest houses and inmates and destruction of substances proceeding from such houses. Another epidemic in 1578 was like dysentery or a choleriform affection. In 1580 occurred the epidemic which passes in history for the first Parisian experience with modern influenza.

The word coqueluche was one of several similar names for a headdress and was believed to have meant in the vernacular headache, and an epidemic in which the latter was the most striking symptom. The phenomena of the coqueluche agreed in all respects with the leading symptoms of influenza. Its contagiousness was so great that but a small fraction of the people escaped. But no one seems to have perished from the malady. It passed over the city rapidly but was soon followed by an epidemic termed the pest which required the intervention of the State in erecting temporary pest houses. Finally in 1596 another visitation appeared which killed many people with "pleurisies." It is evident that two pandemics occurred under the names pest and coqueluche, the latter answering to influenza while the former, probably bubonic plague, in part, could have applied likewise to typhus and even to less severe maladies like the graver types of influenza, although the latter has greater individuality than other pandemics. The term coqueluche came to mean an acute epidemic bronchitis and eventually whooping cough.

THE PROBLEM OF THE DECLINING BIRTH RATE.

A DECLINING birth rate seems to be a penalty or outcome of civilization. By some it is regarded as disastrous and as a prominent symptom of a nation's decay. By others it is looked upon as beneficial and of good augury when the decrease in births affects all classes of society alike. There is weight in the arguments brought forward by both sides and, in any event, it is wisest to look the matter in the face, as in civilized countries a declining birth rate has come to stay, and the more cultured the country the fewer the children. The movement began in France, Great Britain followed suit, and in Germany its course before the war was remarkably rapid; in fact, all Europe with the exception of Russia and the Balkan States, which chance to be the least advanced in civilization, has taken part in the movement. This country, more especially its native born population, and the British self-governing dominions are affected to the same extent as Europe. There is little doubt that in time Japan, China, and the East will fall into line when the movement will be absolutely world-wide. Now as to the causes of the declining birth rate: According to Dr. C. Killick Millard, writing in the *British Journal of State Medicine* for November, 1918, the fall in the birth rate is due chiefly, if not entirely, to the volitional restriction of the size of the family, that is to the adoption of birth control measures. This is, however, going too far, and it would be more discreet to say that birth control methods are partly responsible for decreased birth rate. It is obvious that social status has a very marked effect upon the birth rate. The best educated and most prosperous class have fewest children and the lowest infant mortality while the unskilled workmen average about twice as many children among whom the mortality is about twice as high. On the whole, though, while the high mortality among the children born where the birth rate is high largely reduces what may be termed the effective birth rate, the number of children surviving among the lower social groups still exceeds the number surviving in the higher groups, with the result that the lower strata are adding most to the population. This is the disquieting phase of the situation from the standpoint of eugenics, and is more disquieting, perhaps, in this country than in Europe, for the reason that the foreign born population, which is mainly obtained now from the most uncivilized parts of Europe, is increasing at a much

greater rate than the native born population of all grades of society. The members of the better instructed classes and the professions are among those who have the smallest, while the ignorant have the largest families. This appears to be a feature of dangerous import and one which should be looked into, considered in all its bearings and dealt with in the most fitting way. Overmaternity is bad for all concerned; for the women, because it wears them out and makes them old before their time; for the children, as they are ill nourished and do not develop physically or mentally as they should; and for the country and the race, as inhabitants which are not able to contribute their quota of brain or physical work constitute a detriment rather than an asset to a land. It may be allowed that quality is better than quantity and this statement applies to human stock. On the other hand, it would appear that if the educated classes, which naturally include the skilled artisans and laborers, do not have larger families they will be swamped by the unskilled and ignorant workers. The problem is one which calls for serious study.

SIDELIGHTS ON PEDAGOGY.

THE recently published report of some experiments from the psychological laboratory of Vassar College* furnishes data for speculation as to the intrinsic value of present-day pedagogy. It also throws light on the relation between literary and mathematical gifts. The tests were made on members of the Freshman class, who, it may be presumed, had come to college fresh from the intensive culture of the most approved preparatory schools.

The inquiry into the correlation between a taste for mathematics and for writing revealed that a student who reports that she dislikes to write is much more likely to say that she is interested in mathematics than is one who reports that she likes to write. A student who claims accurate verbal memory is likely to be fluent in oral recitation. More significant, however, is the finding that both the verbal memory tests and the "reading backwards" test are better indices of academic success than the "hard direction" tests. In other words, the *sine qua non* of getting along at school is a good memory. The ability to repeat by rote the substance of a lecture delivered by a poorly paid teacher who has gotten it from a text-book, written in turn probably by another poorly-paid teacher, will be followed by academic success, while the capability of original thinking, if accompanied by a poor memory, will meet with poor marks and failure.

The relationship between tastes for letters and for figures discovered by the psychologist harmonizes with the views of the laity who are inclined to think that a strong leaning towards either one of these branches necessarily precludes aptitude for the other. The general attitude is that literary proclivities are to be rated more highly than quickness at figures; there are three reasons for this. One is the existence of mathematical prodigies who are otherwise mentally deficient; the second is the somewhat contemptuous way in which Oliver Wendell Holmes speaks of mathematics, and the third is the fact that literary men form largely public opinion and naturally disseminate the idea that literary taste is the most desirable of all and literary men the most to be envied of all classes.

*"Minor Studies from the Psychological Laboratory of Vassar College. XXXIV. A Further Study of Freshmen." By M. Montague, M. Reynolds, and M. F. Washburn. *American Journal of Psychology*, July, 1918, pp. 327-330.

THE PROTECTIVE MASK IN CONTAGIOUS PLAGUES.

DOCTOR PLICQUE writes on this subject in the *Journal de médecine et de chirurgie pratiques* for October 25. The use of these masks goes back to great antiquity, and apparently was very extensive. Excessive fetor of the breath was regarded to a certain extent as indicative of contagion. In the plague of Athens, in 429 B. C., the fetor, which was cadaveric in type, was said to have been perceptible at a great distance. In the great pestilences of the Middle Ages, the custom of wearing a cloth before the face, saturated with some real or supposed antiseptic, is frequently mentioned by contemporaries. The modern, systematic use of a mask for lung plagues goes back only to recent years. It was originally suggested or devised by Broquet, according to the writer, who, however, gives no data as to time, place, etc. We are told that this mask was used in the severe epidemic of the Manchurian pneumonic plague which prevailed in 1910-11. The Japanese surgeons also devised a mask for this emergency, while others were extemporized. It is worthy of note that certain members of the profession ridiculed the idea of the mask (just as was the case in the recent epidemic of influenza); and they paid the penalty by contracting and dying from the disease. The conditions are by no means the same, for the deadly type of grippe-pneumonia was not transmitted as such, but as the basic influenza, and we were informed that but 3 per cent. of these grippe-pneumonias were primary, so far as New York was concerned. In the Manchurian plague, French and Russian physicians perished until they began to use the masks, while the Japanese, who wore them from the start, did not lose a man among physicians or medical auxiliaries. According to Plicque, the grippal bronchopneumonia may be very contagious, especially in the adolescent and younger men, and when these are poorly nourished the fulminant course is appalling. While patients cannot, of course, wear masks when actually ill, they should make use of them during the period of recovery to prevent their entourage. The author is inclined to regard, like the ancients, unusual fetor of breath as evidence of contagiousness.

SANITATION AND MEDICAL GEOGRAPHY IN PORTO RICO.

DURING the past year, Dr. Gonzalez Martínez delivered an address before the Porto Rico Senate on the above subject, which has been published in both Spanish and English, in the form of a Senate docu-

ment. The medical geography of the island, he says, is yet to be written. The chief causes of morbidity and death are still tuberculosis, malaria, and hookworm disease. The death rate from typhoid shows some improvement, but this is offset by a marked increase of dysentery. Neither of these maladies has a high incidence, however. Smallpox, not long ago believed extinct, has recently reawakened. All in all, sanitation has made little advance in endemic epidemiology. If we turn to infant mortality, conditions are much worse, for more children are dying than was the case seven or eight years ago. The new sanitary organization has been in operation now for six years past, and the death rate has remained constant at about 22 per 1000. This is, of course, far lower than in former decades, but it ought to show a further decline. What is the factor that is nullifying the efforts of the new sanitary organization? There is, as yet, no geographical census of malaria, dysentery, and certain maladies due to sensible parasites (not including hookworm). The mosquitos and other disease-transmitting insects have not been studied geographically. This omission goes back to the charge of deficient appropriations in 1912 and subsequently. After the conquest in 1898 the U. S. Government stamped out smallpox, and the island was protected from yellow fever. At a later period the discovery of the hookworm on the island led to a powerful campaign against it. These advances have been maintained by the insular authorities. But the island cannot be termed salubrious as long as malaria is so prevalent (nearly 2000 deaths a year in 1916-17). A survey of this affection on a small scale in 1914 gave results which showed its great prevalence in one locality, but despite this object lesson the crusade was not expanded. Even in this particular nest of malaria nothing has ever been done to relieve it. A medical survey of the island could be taken over in part by the agricultural and meteorological services. Different localities harbor different diseases in latent form. To search out and eradicate these foci requires, first of all, a suitable geographical census.

Physiology of Swimming.

This subject has recently been studied at first hand by Liljestrand and Stenstrom, who reported their results in the *Svenska Läkaresällskapets Handlingar* for September 30. There were 9 experiment subjects whose respiratory exchange was measured under varying conditions. Two of the men, who weighed 90 kilos (198 pounds) each, and were well developed muscularly, and also plump, were contrasted with a man who weighed but 51 kilos (112 pounds), and was thin and slender. The breast stroke was used, and over short distances only. The speed was about 50 meters a minute. The stout men, under the effort, developed rapid breathing and increased gas exchange. The respiratory quotient increased until it almost equaled 1.00. The oxygen consumption increased from about 800 c.c., to 2,800 c.c. The thin control under the same conditions showed a respiratory quotient which at times far exceeded 1.00, but the consumption of oxygen did not go beyond 2,000 c.c. per minute. For low and medium velocities the absolute consumption of oxygen was greater in the light man than in his adversaries. The consumption per 1,000 per stroke, with regard to speed, was estimated at 42 c.c., equal to 206 calories. These experiments were varied in numerous directions with especial reference to speed, resistance of the body, blood pressure, respiratory exchange, etc. It appears certain that the work of inspiration in water is increased, perhaps by 50 per cent., in comparison with efforts on dry land. The experiments on resistance in water were carried out in part by towing the subjects, and appeared to show that there was a notable coefficient in this respect, depending on the individual constitution. To a certain extent the resistance increased with the rapidity of towing.

Recrudescence of Rabies as a Result of the War.

Among the plagues to follow the great war rabies must be reckoned with. Already it has reappeared in England, while from the very beginning an increase was apparent in France. Before the struggle began, Belgium and the districts doomed to be occupied in Northern France swarmed with dogs and rabies was sufficiently common. This abundance was due in part to the extensive use of the dog as a draught animal in those localities. After the invasion these animals moved westward in large numbers. They appeared to breed as usual and were under little or no police supervision, although conditions for suppressing the danger were most favorable. Rabies showed an increase from the North Sea to Switzerland, and was carried far into the interior of France. Here police protection was as good as absent. The type too is virulent as shown by the short incubation period. Lenoir, who writes to the above effect in a health bulletin abstracted in the *Journal de médecine et de chirurgie pratiques*, was the officer in charge of an antirabies campaign in South Africa in 1902, and describes the manner in which the disease was suppressed at that juncture. After his arrival a preliminary investigation showed that rabies was really present. Orders were at once issued to dog owners to destroy or intern all dogs presenting symptoms suggestive of rabies. All other dogs were ordered chained up or muzzled. All unmuzzled dogs were ordered killed. Heavy penalties for noncompliance with the law were enforced. During the ensuing four months 80,000 dogs were destroyed. Thousands of muzzles were supplied by the Government at six francs each. As a result the disease was utterly stamped out, as has also been the case in Tunis and Canada. All three of these missions were conducted by the Paris Pasteur Institute.

News of the Week.

Influenza Reviving.—A warning was issued to the country, on December 11, by Surgeon General Blue of the Public Health Service that the influenza epidemic was by no means ended. Reports received by the service show a recrudescence of the disease in practically every part of the country. Surgeon General Blue advises the closing of schools on the first sign of the reappearance of the epidemic and observes that the disease

now tends to occur more frequently among school children. Conditions are said to be worst in Pennsylvania, Louisiana and on the Pacific Coast. In Boston and nearby cities there has been a recrudescence of the disease, 7002 new cases having been reported to the Massachusetts State Department of Health within a week; most of the cases in this locality are said to be mild in character. The conditions in Wheeling, W. Va., are as bad as at the height of the epidemic. There has been a sudden increase in the number of influenza cases in Cleveland. Baldwin-Wallace College at Berea and the Ohio State Normal School at Kent have been closed under quarantine. In New York City the number of cases reported daily is about the same as during the past three or four weeks, there being sometimes an increase and again a decrease in the number of new cases reported, the number running between 100 and 200 a day, which is but little above the average for this time of the year. Dr. Copeland warns that sporadic outbreaks of the disease are to be expected during the winter and that precautions against the spread of the disease, especially as regards coughing and sneezing, should not be relaxed.

A Drug Epidemic in London.—A special cable despatch from London to the New York *Sun* states that a drug epidemic of the worst nature has broken out in London within the past few weeks. The existence of an organization which might be termed a vice trust has been unearthed. It is said that women as well as men are victims of the drug craze and many soldiers have succumbed to the cocaine habit. The explanation of the serious and widespread nature of this epidemic of drug addiction is that the nervous tension produced by the stress and strain of war has sapped the vitality of the people and they have turned to drugs, sedatives, and stimulants largely because war conditions have closed other channels of distraction.

Rockefeller Foundatin Renews Fight on Disease.—Dr. George E. Vincent, President of the Rockefeller Foundation, which has an endowment of $100,000,000, announces that the organization, after diverting its activities for four years to war relief and army welfare work, in which it expended $21,000,000, will resume its work of attacking disease in every part of the world. The peace program contemplates the expenditure of millions of dollars. A campaign will be launched to wipe out the plague in China and other countries of Asia. The medical university in Peking, China, being erected by the Foundation at a cost of $6,000,000, will be opened not later than October, 1920. Another medical university will be built at Shanghai, China. Maj.-Gen. William C. Gorgas will soon head an expedition of scientists to Central and South America, where a campaign against yellow fever will be launched.

Anthrax at Bellevue Hospital.—Bellevue Hospital has recently had its fourteenth operation for anthrax, when a man was operated upon on December 13. The infection occurred through a slight cut on the cheek which the victim received while being shaved two days previously.

Bureau of Venereal Diseases.—The following permanent appointments to the staff of the Bureau of Venereal Diseases of the New York State Department of Health have been made: Chief, Dr. Joseph S. Lawrence; Consultant, Dr. Howard H. Marsh; Hospital and Dispensary Inspector and Organizer, Dr. Walter S. Goodale; Lecturer on Social Diseases, Dr. F. S. Honsinger; Supervising Nurse and Social Worker, Maud Casey.

Request for Medical Research Work.—Under the will of Captain Raphael De Lamar, his residuary estate, estimated at $10,000,000, is to be equally divided between the Harvard University Medical School, Johns Hopkins University, and the College of Physicians and Surgeons of Columbia University. The income of these funds is to be used for the study and teaching of the origin of human disease and the prevention thereof; for the study and teaching of dietetics, and of the effect of different foods and diets on the human system; and in connection with the foregoing purposes to establish and maintain fellowships, instructorships, scholarships; to construct, maintain and equip laboratories, clinics, and dispensaries, and other places for such study and research, and to provide for the publication and dissemination of the results of such study, not only in scientific journals and for physicians but also by popular education, public lectures, and other appropriate methods for reaching the people generally. The will requests that the fund be kept intact.

Work of Influenza Commission.—The commission for the study of the cause, prevention, and treatment of epidemic influenza appointed by Governor Whitman on October 21, of which Dr. Hermann M. Biggs is the chairman, announces that the first work which is being undertaken is the attempt to reach a definite conclusion as to the value of influenza vaccines in preventing the disease. A large number of different groups of people in institutions, cantonments, factories, hospitals, prisons, and the practice of various physicians, will be studied so that it is hoped that before long a definite statement may be made on this subject. Surveys of certain cities, not only in New York but in other States, will be made in order to study the cause of the local epidemic, the probable point of entry, the method of spread, types of the disease, the effect of age, sex and nationality, and the incidence, morbidity, and mortality rates. It is probable that in the States that have not been invaded, especially in the West, special studies will be made in regard to prevention by vaccines and the value of quarantine.

Cost of Medical Education.—In commenting on the gift of $10,000,000 bequeathed to the Harvard Medical School, the College of Physicians and Surgeons of Columbia University and Johns Hopkins by the late Captain Joseph Raphael De Lamar, Dr. Samuel W. Lambert, Dean of the College of Physicians and Surgeons, tells what this gift means to the institution with which he is connected in carrying it nearer the goal it has set for medical education in New York. Regarding the financial status of our large universities, he says there is no danger of their having more funds than they need. Neither Columbia University nor any other which he knows is operated at a profit. The school of medicine is one of the

most costly departments at Columbia University. It costs the University $3,000 to educate a man for the degree of M.D., yet of this sum the student pays only $1000. During the past five years the teaching staff of the medical school has contributed between $25,000 and $30,000 to the school for one purpose or another.

Bequests to Hospitals.—Under the provisions of the will of Edward Oppenheimer, Mount Sinai Hospital, New York, receives a bequest of $10,000, the Hebrew Benevolent and Orphans' Asylum and the Montefiore Home each receive $1,000, and the Lenox Hill Hospital $500.

Hospital for Diagnosis.—About two years ago an association called the New York Diagnostic Society was chartered by the State, the announcement of its organization being made at a dinner given to Dr. M. Joseph Mandelbaum, the founder. The society, which now has a membership of about 400, under the presidency of Dr. Mandelbaum, is about to erect a hospital on West Seventy-second Street, in this city, to be devoted exclusively to diagnosis. The institution, which is not really a hospital, will be known as the West Side Branch of the Diagnostic Clinics of the Academy of Diagnosis. The building will be six stories and basement, with Indiana limestone front, and will be provided with the most modern equipment required for diagnostic investigation and tests. The officers of the society are Dr. M. Joseph Mandelbaum, *President;* Dr. Monroe Bradford Kunstler, *Vice-President;* Dr. Lesser B. Groeschel, *Secretary;* Dr. J. Maxwell Van Dyk, *Treasurer.*

Committee to Study Influenza.—As the result of a long discussion in which opinion was about equally divided as to the value of certain practical measures for the prevention of the spread of influenza, the American Public Health Association, at its closing session, in Chicago, on December 13, appointed a committee of five to consider the question whether influenza masks and the closing of churches and places of amusement are of practical value in the spread of influenza.

Dr. A. E. Stanley, who has been first assistant superintendent of the State Hospital for the Insane at Waterbury, Vt., has been appointed superintendent of the State Board of Control, to succeed Dr. W. L. Wasson.

Dr. J. E. Vanderpool has resignated his position as city health officer of the city of Walla Walla, Washington.

Medical Society Elections.—The American Association for the Study and Prevention of Infant Mortality, at its ninth annual meeting, held in Chicago, December 5 to 7, 1918, elected the following officers for the ensuing year: *President,* Dr. S. Josephine Baker, New York; *President-Elect,* Dr. Phillip Van Ingen, New York; *First Vice-President,* Dr. William Palmer Lucas, San Francisco; *Second Vice-President,* Dr. W. S. Rankin, Raleigh, N. C.; *Secretary,* Dr. Henry F. Helmholz, Evanston, Ill.; *Treasurer,* Mr. Austin McLanahan, Baltimore; *Executive Secretary,* Miss Gertrude B. Knipp, Baltimore. There were 17 States represented, also the District of Columbia and Canada.

The Seaboard Medical Association, at its annual meeting, held in Kingston, N. C., December 5, 1918, elected the following officers for the ensuing year: *President,* Dr. W. L. Harris, Norfolk, Va.; *Vice-Presidents,* Drs. C. B. McNairy, Kingston, F. M. Burfort, Fentress, Va., J. H. Mitchell, Ahoskie, Va., and J. G. Goode, Cheriton, Va.; *Treasurer,* Dr. George A. Caton, New Bern, N. C.; *Secretary,* Dr. Clarence P. Jones, Newport News, Va.

The "Southern Practitioner" of Nashville, long so ably edited by Dr. Deering J. Roberts, has ceased publication with the December issue, and will be incorporated with the *Medical Review of Reviews* of New York.

The "American Journal of Orthopedic Surgery," which is the official organ of the American Orthopedic Association, announces that with the coming year it will enlarge its scope by serving also as the official organ of the newly formed British Orthopedic Association. Henceforth the name of the publication will be *The Journal of Orthopedic Surgery.* It has been felt by the two associations, which count among their members both the Director General of Military Orthopedics for the United States, Colonel Brackett, and the Inspector of Military Orthopedics for the British Empire, Maj.-Gen. Sir Robert Jones, that the best interests of the great mass of mankind now suffering from crippling disabilities will be furthered by such an amalgamation. The journal will be published as heretofore by Ernest Gregory of Boston. The committee appointed by the British Orthopedic Association consists of R. C. Elmslie M. S., F. R. C. S., T. R. Armour, F. R. C. S., W. H. Trethowan, F. R C. S., and H. Platt, M. S., F. R. C S. Dr. R. W. Lovett and Dr. C. F. Painter comprise the committee appointed by the American Orthopedic Association.

Influenza in Porto Rico.—It is estimated that there are 100,000 cases of influenza in the Island of Porto Rico. Governor Yager of Porto Rico, in compliance with a request from Dr. Ruiz Soler, the Commissioner of Health, has ordered all schools, churches and theaters closed and has put a ban on public gatherings. The Labor Federation has requested aid and has asked that the United States Public Health Service be placed in charge of the situation. Secretary Baker has advised Governor Yager that the Public Health Service would co-operate with the insular authorities.

The New York State Nurses Association, at its seventeenth annual meeting, held last week in Rochester, adopted resolutions favoring the Lewis Baker bill, now before Congress, which provides for military rank for nurses who serve in the country's war forces, and favors an eight-hour day for nurses and apprentices in hospitals. Miss Elizabeth Golding of New York was elected president, and Brooklyn selected for the eighteenth annual meeting of the association in October, 1919.

Deaths Due to Motor Vehicles Increase.—The National Highways Protective Society's report shows that during the month of November 131 persons were killed by automobiles in New York State as compared with 81 a year ago. In New York City, automobiles killed 64, trolleys 5, and wagons 3. In New Jersey they were 19 deaths by automobiles, two by trolleys, and two by wagons. Eight persons were killed at grade crossings in each State.

The Late Dr. Bissell.—The executive committee of the Medical Board of Bellevue Hospital records with profound sorrow the death of their esteemed colleague, Dr. Joseph Bidleman Bissell, major, Medical Corps, U. S. Army, chief of the surgical service at Fort McHenry, Md., and visiting surgeon and surgical director of the Fourth Division of Bellevue Hospital. His self-sacrificing devotion and unflagging energy were always given to the sick poor of this hospital. In his death Bellevue Hospital has lost a skillful surgeon, the community has lost a useful and patriotic citizen, and his colleagues have lost an amiable and lovable personality. At a time of life when most men of his age might reasonably expect that the defense of our nation's right might safely be left to younger men he volunteered for active duty in the service of his country. He died in that service as a result of the strenuous life incident to camp duty, and his death is no less glorious than if it had occurred in the face of the enemy and on the field of battle. George D. Stewart, M.D., *President;* Charles E. Nammack, M.D., *Secretary,* Executive Committee, Medical Board, Bellevue Hospital.

Obituary Notes.—Dr. Guy Halifax Wallace, a graduate of the University of Toronto Faculty of Medicine in 1909, died suddenly at his home in New York City on December 9, aged 32 years.

Dr. James Smith Ford died November 21 at the Loomis Sanatorium, Loomis, New York, where he was first assistant physician, aged thirty-three years. He was a graduate of the College of Physicians and Surgeons, Columbia University, in 1910; a member of the Medical Society of the State of New York, the National Tuberculosis Association, and the American Sanatorium Association, and was an associate editor of the *Journal of the Outdoor Life,* secretary to the Sullivan County Committee of the Medical Section of the Council of National Defense, local draft examiner, and examiner in tuberculosis for the War Risk Insurance Bureau.

Dr. David Cole Carr, a graduate of Bellevue Hospital Medical College in 1868, died at his home in New York City on December 7.

Dr. Charles Henry Shelton of Montclair, N. J., a graduate of the New York Homeopathic Medical College and Hospital in 1880, died at Lajolla, Cal., on December 11, aged 64 years.

Dr. Henry Gustav Beyer, Medical Director, U. S. N., retired, a graduate of Bellevue Hospital Medical College in 1876, died at his home in Washington on December 9, aged 68 years.

Dr. William Turner Parsons, a graduate of Johns Hopkins University in 1910, died of pneumonia at his home in Palmer, Mass., on December 9, aged 37 years. He was formerly instructor in pathology in Johns Hopkins University, and also connected with the Baltimore Eye, Ear, Nose and Throat Infirmary. He was a member of the American College of Surgeons and of the American Medical Association.

Dr. Joseph A. Marvin of Holyoke, Mass., died of pneumonia on December 7, aged 57 years. He was a graduate of Laval University Medical Department, Montreal, Can., in 1889, and a member of the Holyoke Board of Health. Dr. Marvin served as city physician in 1902 and alderman-at-large in 1899 and 1900.

Correspondence.

THE ABORTIVE TREATMENT OF INFLUENZA WITH QUININE DIHYDROCHLORIDE.

To the Editor of the Medical Record:

Sir:—The remarkable abortive results observed by us in the treatment of influenza through the intravenous injection of quinine dihydrochloride, leads us to believe, although the cases thus far treated are too few to permit of scientific certainty, that, properly used, the intravenous injection will prevent or astoundingly diminish the number of later progressive pneumonias and the corresponding high mortality. Without delaying further for the purpose of corroborating our results, we wish to submit the technic we have found effective.

Influenza, starting with a sudden onset, headache, backache, prostration, loss of appetite, chilly sensations, rise in temperature, pulse, and respiratory rate, is from the outset a lung infection with a patch of pneumonic consolidation and systemic toxemia. However, for a period of hours or for three to five days the process in the lung remains more or less localized, and physical signs in the chest may be lacking. The temperature ranges from 100.5° to 103°, but is irregular; the pulse rate is usually comparatively slow, about 90 or under 100 with the patient in bed, more rapid and with low pressure if ambulatory, while the respirations are increased to only about 26 per minute. The most marked subjective symptom, apart from headache, backache, or prostration, is the hacking, spasmodic cough, frequently leading later in the disease to rupture of lung tissue at the consolidated area or at the site of an old tuberculous infection, followed by pneumothorax and empyema. The urine examination shows increased acidity, and early a trace of albumin occurs which becomes a heavy cloud in progressively severe cases.

The disease may be controlled naturally and convalescence established upon the second, third, fourth, or fifth days. On the other hand, a rapid transgression into a probable septicemia may occur, and a fatal progressive massive pneumonia may involve one or both lungs. The cough increases, the temperature remains more constantly high, the pulse rate goes to 120, and the respirations to 36 or more. Mentality, however, remains remarkably clear in most cases. In the usual case of influenza, however, the course of the disease is slower, covering a period of seven to fourteen days before the fatal outcome, and the more insidious progression arouses false hopes. It is particularly in this, the usual type, that the time of election for the use of quinine dihydrochloride is lost, for although quinine has long been used in the treatment of pneumonia, in influenza we are convinced that it should be used before resistance is lowered and pneumonia is extensive. Nature is permitted to develop immunity, if possible, but when it is evidenced that spontaneous recovery is becoming doubtful the intravenous injection of quinine is given at once.

The positive indications for the intravenous quinine treatment are as follows: (1) When the disease shows no retrogression in three to five days.

(2) When the temperature climbs and remains more constantly high. (3) When the pulse, previously slow, crosses 100. (4) When the cough increases. (5) When rusty sputum or physical signs of definite pneumonic consolidation occur.

Quinine dihydrochloride is used in 3 to 10 per cent. solution. In the young, where a vein is not easily obtainable, it is used intramuscularly in a dosage of 1½ grains to each year of age. We have used 7½ grains in a very sick child, age 4, who had run a constant temperature of 104° to 105° for two days, with increasing cough, but no extensive lung consolidation, with the result that the temperature was 100.5° twelve hours later, and reached normal the following day with complete recovery. Intravenously, 7 to 20 grains are used. An intravenous injection of 22½ grains was given a private patient at the Park Hospital. He had a temperature of 104° at the time of injection, a pulse of 90 to 105, respirations 26, headache, severe pain at the pit of the stomach and in the back, and had been ill for five days with no evidence of a possible spontaneous recovery. The intravenous injection was followed by a temperature drop in 2 hours to 101.5°, resembling that in the crisis of lobar pneumonia. Twelve hours later it was 100.5°, and did not rise again above 100° and a fraction. The appetite returned, pulse and respiratory rates fell, all distress disappeared, and his only complaint was that he had been permitted to suffer five days. The irritative cough in these cases remains, gradually diminishing, for several days.

The quinine solution is injected slowly and warm during a period of from ten to twenty minutes. The sensations produced are those of relief from pain, tingling and warmth, at first a slight dilatation of the pupil, some dizziness, interference with hearing, slight mental aberration in some, and occasionally vomiting during the injection.

WATERS F. BURROWS, M.D.,
Asst. Surgeon ELLIOTT C. BURROWS, LT. (J.G.) U. S. N. R. F.
17 EAST THIRTY-EIGHTH STREET.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE MEDICAL PARLIAMENTARY COMMITTEE—REPORT ON SCURVY—INFLUENZA EPIDEMIC—DEMOBILIZATION OF THE MEDICAL OFFICERS OF THE ARMY.

LONDON, November 23, 1918.

AT a recent meeting in London, under the presidency of Sir Henry Morris, of medical men interested in obtaining for medicine more adequate representation in Parliament, a committee was formed to forward the necessary work. The committee, which has now definitely styled itself the Medical Parliamentary Committee, has developed its initial energies in two directions: (1) the preparation of a list of medical men willing to stand for Parliament; and (2) the institution of a sort of Medical Advisory Board to be at the disposal of medical men in Parliament who might require to be placed in possession of the accepted medical view upon new bills or current topics. For medical men who are able to leave their practices and enter Parliament must soon get out of touch with general professional life, however adept they may remain in special directions—it is doubtful whether the great Clemenceau remembers that he was once a general practitioner in the north of Paris, while Sir Auckland Geddes and Dr. A. Addison, in our Parliament, would be quick to repudiate clinical skill, even while they can claim to retain familiarity with the ancillary sciences. All these statesmen would require instruction to make them see fully the way in which a Parliamentary Bill might affect the professional life of medical men, prejudice the quality and conditions of their service, and so lead to mal-administration of sanitary machinery. The institution of a Medical Parliamentary Committee, which could take on consultative duty with regard to new legislation, is therefore a valuable move for the public and for the medical profession; but the committee can only succeed if it is supported in an important and representative manner by the medical profession as a whole. It is necessary that its advice upon doubtful professional points should be given with the authority of a common voice, and it is exactly here that some risk appears. At the original meeting, at which the Medical Parliamentary Committee came into being, the British Medical Association made a composite appearance. The president of the association blessed the movement; the late chairman of the most important of the central committees of the association contributed a forceful supporting speech to the debate, while a prominent official of the association followed in a speech denouncing the object of the meeting or the circumstances in which the meeting was being held. The representatives of the association were chosen upon this committee, believing the association to be in accord, but later they resigned upon the direction of the council of the association. The British Medical Association appointed this August a Parliamentary Election Committee with much the same objects, from the viewpoint of the association, as those which are held by the Medical Parliamentary Committee on general grounds. If the two bodies cannot work together neither will be of the slightest use as an authoritative voice to the public upon doubtful points.

Comments have already been made in these columns upon the valuable manner in which the highest scientific authorities available in the country have placed their expert knowledge at the disposal of the Government for such elucidation of broad and particular problems as might have general bearing on national health, including alike the health of Navy, Army, and the civilian population. In view of the fact that outbreaks of scurvy have occurred with the armies at various times both in Great Britain and abroad, the Food (War) Committee of the Royal Society decided to conduct an investigation with the object of making some definite pronouncement as to the cause, and therefore as to the logical prevention, of the disease. Some of the outbreaks during the war have been serious, and it is evident that they may recur. For the process of demobilization will be a long one and for an extended period of time vast British forces will have to be retained abroad, and sometimes at places far removed from sources of good food supply. The pronouncement of the committee, which has now been published, was based chiefly upon investigations which have been carried out at the

Lister Institute by Miss Harriette Chick, D.Sc., and the statement as to the cause has nothing new about it save the definite recognition of the presence in many foods of an accessory substance, "vitamine," whose nature remains unrecognized, but whose influence is indubitable and whose literature is now bewilderingly extensive. Scurvy, like beriberi, is due to the long-continued consumption of food lacking in vitamines—this conclusion of the Royal Society Committee was a foregone one. These substances, contained in a number of fresh foods, are a special characteristic of oranges, lemons, and fresh green vegetables, though turnips, potatoes, and other roots and tubers contain them, while they are found more sparsely in fresh meat and milk. Vitamines are deficient, or wholly wanting, in all dried or preserved foods, and are also destroyed by prolonged heating—a practical example of this phenomenon being that potatoes in stews possess no vitamines, while rapidly boiled potatoes still contain traces. Two other general points are that there is no association between scurvy and tainted food, and that, as alkalies destroy antiscorbutic properties, soda should not be added to the water used for the cooking of vegetables. One quite new thing in the Royal Society's Report has relation to "lime-juice," which is found quite useless for prevention in case of scurvy. This is very significant because the popular view, and one endorsed until lately by the medical profession, has been that in West Indian lime-juice we possess a specific against scurvy. Fresh limes have a faint antiscorbutic action—say one-quarter that of lemons—but lime-juice as popularly employed has no efficiency. At once an appeal will be made to history, and where contradiction might be expected confirmation will be found. The so-called "lime-juice," by the regular administration of which scurvy was eliminated from the British Navy during the first half of the nineteenth century, was lemon juice. Nares's famous Arctic Expedition of 1875 was embarrassed and well-nigh ruined by serious outbreaks of scurvy, and this expedition was the first to be provisioned by "lime-juice" which was lime-juice, and was prepared from West Indian limes and not from Mediterranean lemons. Further information in the statement of the Royal Society Committee is the fact that while potatoes and root vegetables are far less effective as antiscorbutics than oranges or lemons—the juices of which are equal in value—still a daily ration of three-quarters of a pound of rapidly boiled, *not stewed*, potatoes will prevent scurvy. Beans, peas, and lentils in the dried condition have no antiscorbutic properties, but if the dried seeds, having been soaked in water are allowed to germinate for 48 hours, they develop an antiscorbutic vitamine, and are at the same time valuable foods from other points of view. The method adopted for germination is as follows:

The beans, peas, or lentils are soaked in water at room temperature for 24 hours. The water is then drained away, and to permit germination the soaked seeds are spread out in layers not exceeding two or three inches in depth, and kept moist for a period of about 48 hours at ordinary room temperature (60 deg. Fahr.). They should not be allowed to dry after this operation, but should be cooked as rapidly as possible. It emerges from this advice that lime-juice should be replaced by lemon juice in the diet of all communities liable to scurvy; that germinated beans, peas, or lentils should form part of the regular daily ration in such communities, and that vegetable foods should be cooked for as short a time as possible at boiling point.

The last week of November is seeing, if figures may be trusted, the real abatement of the influenza epidemic. The Registrar General's reports for the preceding week were serious, but in the 96 great towns of England and Wales (including London) just short of 6000 deaths occurred as against 7500 in the second week of the month. The Local Government Board have made regulations to take effect in all places of public amusement, especially in respect of ventilation. No entertainment may last more than three consecutive hours, and if a second performance follows the building must be thoroughly ventilated for at least half an hour. No doubt, this procedure will be helpful, but those who point either to the efficacy of ventilation or the activity of the Local Government Board, when referring to the abatement of influenza, should remember that the mitigation of the evil started well before the measure of remedy.

As the British share in the enormous army of occupation holding German soil and key positions during the arrangement and discharge of peace terms will necessarily be considerable, it is clear that a certain proportion of the 12,000, or more, civilian doctors who are holding territorial or temporary rank in the Royal Army Medical Corps must still remain for some time away from their practices. But in what order should they return? Justice would say that those who had been in the service longest should return first, but such justice would be very rough, for all the conditions of medical service are not identical. Many of the territorial officers have been able to remain in touch with their practices, so that not only have their pecuniary interests been to some extent safeguarded by the retention of some of their civil practice, but their term of military employment has not been attended with any risk to life or limb. Some of these men have done full four and a quarter years' military work, but it is widely felt that other officers, temporary officers, who have served but two years, can put in better claims for preferential treatment. Those two years may have taken them far afield, and subjected them to all the risks of plague, pestilence, and famine, as well as the dangers of the fighting front. The price they have paid is shown by the apalling number (proportionally speaking) of deaths that have occurred in their *cadre*. These deaths have been registered among a class which includes most of those who have for varying and sometimes long periods been absent from their practises, and every medical man knows that if he severs all connections with his clientèle for an extended time he runs a great risk of having to begin again building up a connection. Clearly, the principle of demobilization upon the consideration of length of service only is but a partially just one, and may be in some instances a markedly unjust one. A writer to the *Lancet* suggests that the temporary medical officers required by the army should now be taken from those who have hitherto

not served, owing to their civilian work being "indispensable to the country." Does he speak humorously or bitterly? The suggestion, of course, is that these men were not indispensable—otherwise they would be wanted as much as ever—but that they did not want to go while there was fighting. This, in many or most cases, is an unfair inuendo. Many men were willing and anxious to go whose public or private affairs retained them at home. The whole matter of demobilization of medical men with the Army requires delicate handling.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

GRIPPE IN PARIS CAUSES INCREASED DEATH RATE—NATIONAL TESTIMONIAL AT SORBONNE TO AMERICAN RED CROSS—DANGER OF BATTLEFIELD SOUVENIRS—MISS JULIA STIMSON MADE HEAD NURSE OF ARMY.

PARIS, November 18, 1918.

THE grippe epidemic continues in France, and in allied, enemy, and neutral countries. At this time of the year the usual death rate in Paris is 721. Last week 1,944 were reported, and of this number, 880 were attributed to grippe and 202 to bronchial pneumonia. The steps taken in Paris to combat the disease seem to consist of increasing the number of doctors, ambulances, and beds to take care of victims. The French military authorities have placed seventeen doctors at the disposal of the municipality, and the American Red Cross has placed nine ambulances at the disposal of the city. Certain trains have been taken off the railroads in France because of the number of employees who are ill with the disease.

There is very little new to be said on the treatment of influenza. Many people who escape attribute their immunity to quinine or the ammoniated tincture; others pin their faith on cinnamon; and a very large number believe in inhaling eucalyptus oil. All these are often preventive as well as curative. The first great point is to avoid the occasion of infection. No one who can help it should go into crowds where people are coughing and sneezing. We know now that this is the way in which influenza is conveyed. Traveling in trains, tramway cars, and omnibuses should be avoided as much as possible. There is nothing like plenty of fresh air for warding off influenza. Railway carriage windows should be kept open and bedrooms well ventilated. People who are really well at the time are not likely to catch influenza. It is not easy to satisfy this condition, but the utmost care should be taken not to lower the resisting power by getting chilled, wet, or fatigued. No one should go long enough without a meal to make him feel faint. Plenty of sleep is a wonderful preservative from all infections, and it is, therefore, prudent to go to bed early. Pneumonia has always been a dangerous accompaniment of influenza, but it is more than usually common in the present epidemic. For this reason, even a mild attack of influenza should be taken seriously.

The American Red Cross received the homage of representative Frenchmen yesterday at a ceremony organized at the Sorbonne by the Comité Effort de la France et de ses Alliés. The meeting was presided by M. Louis Barthou, former Prime Minister, and the speakers included M. Mourier, Under Secretary of State for the Sanitary Service; M. Firmin Roz, Mme. Jules Siegfried, Admiral Touchard, General Malleterre and Mr. Henry P. Davison, president of the War Committee of the American Red Cross in Washington. The ceremony was attended by members of the Diplomatic Corps and of the French Government, and opened with the "Marseillaise," played by the band of the Garde Republicaine. Mme. Abby Richardson of the Opera Comique, sang the "Star Spangled Banner" and "Dixie" and M. Roger Gaillard, of the Comedie Française recited a war poem.

M. Mourier, who spoke in the name of the French Government, opened the meeting, affirming Franco-American fraternity and the feeling of France that she was not only aided, but also comprehended by America. The work of the American Red Cross was the subject of M. Firmin Roz's speech. He was followed by Mme. Jules Siegfried, who spoke as an Alsatian and in the name of the innumerable widows and orphans succored by the American Red Cross. Admiral Touchard spoke on behalf of the French Red Cross which has profited so much by the liberality of the American Red Cross, and General Malleterre, after expressing his personal recognition of the work of the American Red Cross, said that he brought also homage of the French maimed soldiers.

Responding to the many tributes to the American Red Cross paid by these speakers, Mr. Davison said in short that it has been the privilege of the American Red Cross to have in those great world events a share, in which practically every loyal American takes honest pride. Because it is a voluntary organization, the American Red Cross was able to operate with greater speed than is possible for Governments and armies and to precede the American Armies to France, in anticipation of their arrival with an assurance that the heart of the American people was enlisted with the heart of France in the great cause. As soon as America entered the war the American Red Cross mobilized its forces and resources and hastened to assist the French forces and their families to make preparations for the American soldiers. The success of the endeavors has been due as much to the cordiality of the French reception and coöperation as to American enterprise. The great amphitheatre of the Sorbonne, in which the ceremony took place, was packed to the doors.

Mlle. Germaine de la Valette, head of the American section of the Press Department of the French Foreign Office, has been killed by the accidental explosion of a hand grenade. Mlle. de la Valette picked up the hand grenade while conducting a party of American women through the reoccupied territories on the French front. It exploded with fatal results. A French officer with the party had an arm blown off. He had warned the members of the party to touch nothing.

Miss Julia Stimson, Chief Nurse of the American Red Cross in France, has just been appointed Chief Nurse of the Army Nurse Corps of the American Expeditionary Force. Her appointment took effect in the early part of November. Miss Stimson has been with the Red Cross since April, 1918. For ten months previously she had been serving at British General Hospital No. 12, with Base Hospital

Unit No. 21, which was one of the six hospital units to be assigned to the British forces just after American intervention. Miss Stimson joined the unit a year before our declaration of war, while she was still serving as head of the Washington University Training School for Nurses, in St. Louis.

Progress of Medical Science.

New York Medical Journal.

December 7, 1918.

1. The Blight of Theory on the Acquisition of Anatomical Knowledge by the Ancient Egyptians. Jonathan Wright.
2. The Site of Lessened Resistance in Focal Infection. Edward Steinfield.
3. Whooping Cough in the Newly Born. Herman B. Sheffield.
4. Problems in Obstetrics. Isidore Josephson.
5. Back Injuries and Their Relation to the Workman's Compensation Law. Joseph C. Scal.
6. The Treatment of Influenza. H. J. Novack.
7. Evolution and Dissolution of the Tubercle Bacillus Capsule. Max Staller.
8. Chemical Poisons in Warfare. Walter C. Allen.
9. Types of Men as Observed Among Recruits. J. Madison Taylor.

5. Back Injuries and Their Relation to the Workmen's Compensation Law.—Joseph C. Scal refers to the difficulty of diagnosing correctly injuries of the back, the most successful of all malingerers being the workman who claims such injury, and he points out that since the Workmen's Compensation Law has been in effect more back injuries among workmen have come to the attention of the profession than ever before and that a long course of energetic treatment is required before the patient will resume work. Pain in the back may be caused by lumbago, in which case it is usually unilateral, relieved by pressure, and especially acute with movement. Kidney conditions, tumors, and uterine displacements should be eliminated before a diagnosis of lumbago is made. Pain may be caused by overtaxation of a muscle for a long period of time, when there is generally a temporary loss of full contractile power, in which case patient's description is of great value; a throbbing pain indicates pus; a dull, boring pain means pressure increase on a deep local part, as in osteomyelitis; a constant annoying pain means hyperemic inflammation, while a burning pain indicates that the skin only is involved. In strained back the muscular tissues have been overtaxed beyond the physiological limit; in this condition it should be noted that a painful muscle is painful only when that muscle is thrown into action and, therefore, an injured man should be asked to place himself in the exact position he occupied at the time of the accident. This will undoubtedly cause pain and prove the veracity of the man's statement. Pain in a strained muscle has an acute onset and should get well in from two to three weeks, provided no complicating focus of infection exists in some other part of the body; in the latter case the pain diminishes with rest, but reappears with exercise until the infecting focus is eradicated. Rupture of the muscles—another possible cause of pain—is rare, but may result from the force of opposing muscles brought suddenly into play. External force or violence may result in contusion of the muscles, and if severe may cause temporary muscle paralysis; in permanent paralysis the injury is to the nerve and not to the muscle. Straining of ligaments results in an effusion of blood into the joint or surrounding tissue and causes overdistension with resultant pain. Pain in the bones of the back is generally due to bone disease, such as tumors or syphilis, when the pain is worse at night. In fractures, when impacted, no pain may be present—particularly in spinal fractures. If the lesion is in the vertebral or intervertebral joints, pain will result if the patient rises on his tiptoes and comes down suddenly on his heels. Sacroiliac sprains are infrequent and are usually due to severe falls or wrenching. The symptoms are localized pain on pressure, increased by walking, sitting, or rising. Treatment indicated is absolute rest, obtained by strapping the pelvis and later by applying an elastic belt, local remedies, hot applications, massage, etc. In injuries involving the spinal cord, there is gradual onset of paralysis from hemorrhage. If the cord itself is involved, paralysis is immediate and more or less permanent. In fracture of the spine, if the cord is not affected, there is often absence of symptoms. With involvement of the cord, there is definite corresponding paralysis of the nerves that pass through that location. In "railway spine" no actual damage exists, the symptoms coming on weeks after the accident and persisting until litigation is at an end. Weakness of the back is a purely subjective symptom, and in the absence of local nutritional disturbances, it is fair to assume that exercise in the form of light work will be more beneficial than harmful. Stiffness of the back may be due to muscular spasm or structural changes. The author adds that in examining alleged painful backs in patients suspected of malingering, he has found it advantageous to mark the spot indicated as painful with a blue pencil; then, after distracting the patient's attention, to ask him again to indicate the spot. If he is malingering, the second spot indicated will be a few inches away from the first.

Journal of the American Medical Association.

December 7, 1918.

1. Obstetric Science and Art in the Service of the Nation Edward P. Davis.
2. Otolaryngology in the First Year of the War: An Informal Report. Harris P. Mosher.
3. Pollakiuria as a Functional Disturbance Due to Eyestrain: Causes of Excessive Frequency of Micturition W. W. Kahn.
4. Disciform Keratitis. John E. Weeks.
5. The Effect on the Kidney of Ureterovesical Anastomosis: Experimental and Clinical Report. Andres Peterson
6. The End-Results of Operations for Cancer of the Rectum, with Suggestions for Improving Them. J. Rawson Pennington.
7. Treatment of Colon Bacillus Infection of Kidney and Bladder by Surgical Measures Applied to the Ascending Colon. Granville MacGowan.
8. Epidemic Pneumonia (Spanish Influenza) in Pregnancy: Effect in One Hundred and One Cases. Wesley J. Woolston and D. O. Conley.
9. The Prophylactic Value of Leary's Vaccine. Harry Lee Barnes.
10. The Pandemic in the Army Camps. George A. Soper.
11. Barrack Life and Respiratory Diseases: Some Epidemiologic Observations on the Recent Outbreak of Influenza. Victor G. Heiser.
12. Mustard (Yellow Cross) Burns. Leonard D. Frescoln.
13. Effects of the Injection of Epinephrin in Soldiers with "Irritable Heart": Preliminary Note. Francis W. Peabody, Harry D. Clough, Cyrus C. Sturgis, Joseph T. Wearn, and Edna H. Tompkins.

3. Pollakiuria as a Functional Disturbance Due to Eyestrain: Causes of Excessive Frequency of Micturition.—W. W. Kahn points out the importance of a strict differentiation between polyuria and incontinence of urine and pollakiuria, or excessive frequency of micturition. He concludes from his observations on 1,500 cases that in a great percentage of cases pollakiuria is a neurosis, brought about by malfunction of a distant organ, especially the eye, and he reports two cases in which pollakiuria was found to be caused by eyestrain. These cases led him to make a systematic inquiry as to the frequency of micturition in refraction cases which came under his observation, with the result that of 1,500 cases, 316 (140 men and 176 women) were found to be suffering from pollakiuria. In this series the percentage of recoveries in women was twice as large as in that of the men, a fact attributed by the author to the greater nervous instability in women. Kahn concludes from his observation of these cases that the frequency of pollakiuria as a neurosis is immensely larger than has been thought, and that, contrary to the general medical opinion, the condition is nearly as frequent in men as in women. He is of the opinion that pollakiuria as a symptom of eyestrain is due to two causes: the local pathological change in one of the urinary organs and hyperirritability of the nervous system caused by eyestrain. If the local lesion is slight relief of the nervous system will effect a cure. Before a surgical interference is tried, this author believes that a careful refraction should be indicated in all cases of pollakiuria, unless the operation is necessary for some reason other than excessive frequency of urination. Although the disturbing cause in his series of cases was eyestrain, he would not exclude malfunctions of other organs from having similar effects.

The Lancet.

November 16, 1918.

1. Presidential Address on Some Principles of Neurology. Delivered before the Neurological Section of the Royal Society of Medicine. Henry Head.
2. War Nephritis: A Clinical Study of Early Cases. Major H. B. Day.
3. Nephritis in Relation to the Recent Epidemic of Influenza. The Results of an Investigation of 22 Cases. Captain C. P. Symonds.
4. Tuberculous Disease of Hipjoint: A Sign of Pathological Activity. H. J. Gauvain.
5. A Routine Treatment for Septic Sores and Nile Boils. Captain H. Warren Crowe.

2. War Nephritis: A Clinical Study of Early Cases.—Major H. B. Day points out that the course of war nephritis is marked by more or less evident changes at regular intervals of five to six days, a periodicity which is also exhibited in trench fever, but in no other disease prevalent in the war. The question therefore arises: Is war nephritis a complication of trench fever? Certain cases of war nephritis do show all the signs of trench fever, but such cases are infrequent enough to be mere coincidences. On the other hand, mild types of trench fever are extremely prevalent, and the liability of trench fever to recur months after apparent recovery is notorious, particularly after exhaustion or chill, exposure to poison gas, or receiving a wound; and this may happen to patients who have no recollection of previous fever. In such cases chronic enlargement of the spleen is usually present. However, when we consider the identity of the diseases from a closer aspect, we are confronted by points of difference: (a) Ordinary and experimental cases of trench fever, as studied in the wards, show little or no tendency to develop nephritis; (b) there is no proportion between the severity of the fever in war nephritis and the degree of renal damage—many severe cases of nephritis show no definite damage; (c) war nephritis has a seasonal variation which is not apparent in trench fever. In ordinary cases of trench fever albumin, often accompanied by microscopical amounts of blood, is often present in the urine during the initial stage; and certain patients show a remarkable oliguria independent of the pyrexia and possible early albuminuria. The urinary flow may be almost suppressed for from twelve to twenty-four hours, or there may be a marked reduction for several days, or a moderate quantity of low specific gravity urine without albumin may be passed after fever has subsided. Under unfavorable circumstances, the renal injury may progress to actual nephritis. Although there is a close similarity between the general features of the two conditions, war nephritis is distinguished by a definite periodicity, the seasonal incidence pointing to cold and exposure as predisposing agents. These factors may well turn the scale in trench fever, since a large proportion of milder cases do not report sick; consequently, they are exposed to cold and wet and continue on a full meat diet, with the result that considerable strain is thrown on kidneys injured by trench fever infection, resolution is impossible, and nephritis results. Whether or not the coincidence observed between the two diseases depends on an identical infection can only be satisfactorily settled by experimental and laboratory work.

5. A Routine Treatment for Septic Sores and Nile Boils.—Captain H. Warren Crowe is of the opinion that the septic sores which have been common from time to time among troops in Egypt, in Salonica and Mesopotamia, are due to some cause associated with a hot, dry climate or special dietary, and that the lesion produced is infected with the prevailing microbes. Nile boils, which have also been prevalent in these armies, he believes to be caused by a white staphylococcus allied to the *S. epidermidis albus* of the skin. He believes that the great majority of these cases can be cured by vaccines used in conjunction with certain surgical measures, which he describes. The vaccines are prepared as follows: *Septic sore vaccine.*—Cases showing freely discharging superficial sores are chosen. A sore is cleaned up with alcohol; exuding serum is taken up in a sterile pipette and dropped into Wright's pneumococcus broth; after twenty-four hours' incubation, the broth is shaken up and examined microscopically, when it will be found to contain streptococci, 2,500 million to the c.c. Lysol to make ½ per cent. solution is mixed with the culture, and twenty-four hours later the sterile culture is poured into a stock bottle. *Boil vaccine.*—A series of typical young boils in different patients are cleaned up with alcohol, the head lifted, and serum made to exude by means of a heated test tube; subsequent procedure is the same as for the septic sore vaccine. The two stock bottles are then capped with rubber caps, paraffined, thoroughly shaken up, and tested for sterility, and from them a lower strength stock containing 400 million of *each* vaccine to the c.c. is made. For use in treatment the following dilutions are needed: two million, eight million, and thirty-two million to the c.c. of each vaccine, according to the syringe to be used. The vaccine is given in bi-weekly doses of 500,000 until all lesions are cured, no fresh ones appear, and no old superficial scars start weeping afresh after an inoculation. The author has found that the small doses, which are the best for cure, have no effect in preventing relapse, and that the omission of even one dose is frequently followed by a fresh outbreak. It is essential to continue the vaccine when cure is apparently complete, with increasing doses for prophylactic purposes. After-treatment should consist in giving doses as follows: one million, two million, four million bi-weekly, then at intervals of seven days, eight million, sixteen million, thirty-two million.

British Medical Journal.

November 16, 1918.

1. Preliminary Note on Investigations Upon One Thousand Consecutive Cases of Peripheral Nerve Injury. Captain J. Le Fleming Burrow, assisted by Lieut. H. S. Carter.
2. The Past and Future of the Crusade Against Tuberculosis. Sir Malcolm Morris.
3. Treatment of Ante-natal and Post-natal Syphilis. John Adams.
4. A Method of Overcoming the Adherence of Tendons After Suturing. P. C. Collingwood Fenwick.
5. The Evolution of the Voluntary Hospital and Its Future. W. Thelwall Thomas.
6. Flexed Kneejoints in Below-the-knee Stumps. Major W A. Chapple.
7. Supraorbital Zona. F. B. Judge Baldwin.
8. An Early Sign of Heart Incompetence. Frank Elvy.

3. Treatment of Ante-Natal and Post-Natal Syphilis.—John Adams reports the results of treatment of thirty cases of pregnant syphilitic women at the Travies Inn Venereal Centre for Pregnant Women, London, which he points out is the first, and at present, only hospital of its kind. Disregarding patients suffering from gonorrhea, since the hospital was opened thirty cases of syphilis have been admitted and these cases furnish the basis of the author's remarks. On admission to hospital a Wassermann test is done, and as soon as syphilis is diagnosed treatment by one of the salvarsan substitutes is commenced, combined with intramuscular injections of grey oil, 40 per cent. B. P. C. emulsion. The salvarsan substitutes used have been galyl and novarsenobillon, galyl in glucose solution being used exclusively for babies. Having the highest opinion of salvarsan for the treatment of syphilis, the author also considers the administration of mercury of the greatest importance, but believes that the methods advocated are not wholly satisfactory. Immediately on the birth of a child a specimen of blood is taken from the vessels of the divided umbilical cord in a cubic centimeter glass tube, and a similar amount of the mother's blood is secured for the purpose of a Wassermann test. A small portion of the placenta is also obtained for examination for spirochetes. Should further specimens of the child's blood be required, from a quarter to half a cubic centimeter is obtained by pricking the heel with a medium sized Hagedorn needle in three or four places near together and letting the blood drip into the glass tube; if necessary, this should be repeated at intervals of a month or six weeks. In this series of cases, the author has been impressed most of all by the large doses which newly born infants have been able to take and the excellent results which have ensued. Adams concludes that: (1) Syphilitic pregnant women can be treated with salvarsan, even up to the day of their confinement, with safety and every advantage. (2) A mother whose blood gives a positive Wassermann reaction may, after treatment, be delivered of a child whose blood gives a negative reaction. The child may continue to thrive and give a negative

blood test. (3) Syphilitic children can safely be treated by salvarsan immediately after birth. (4) Salvarsan, combined with treatment by mercury, has a more certain and quicker action in producing a negative Wassermann reaction in the child than in the mother. (5) In nearly all syphilitic children born alive, treatment can convert a positive Wassermann reaction into a negative, and such children appear to become healthy and show a regular weekly gain in weight. (Between a syphilitic mother and a child who gives a negative Wassermann reaction at birth the placenta seems to act as an interceptor of syphilitic virus, probably brought about by the chorionic ferments.)

Berliner klinische Wochenschrift.

September 30, 1918.

The Splenic Functions in Man.—E. Blumenfeldt reviews some of the procedures proposed for estimating the extent of preservation of the spleen and its functions, such as the injection of adrenalin, which should produce a temporary lymphocytosis on account of the resulting contraction of the unstriped muscle fibers of the organ with the consequent expression of numerous lymphocytes, the changes in the cell resistance to hypotonic solutions, or the presence of nuclear débris in some red corpuscles. These various methods were applied to a subject who had undergone a splenectomy three years and a half previously, on account of a traumatic lesion of the organ. The results were negative, in as much as the reactions of the organism were those of a healthy subject possessing his spleen. In the case of injections of adrenalin particularly, a leucocytosis with a relative lymphocytosis resulted, just as is met with in any normal subject. The writer therefore concludes that there exists an insufficiency in the above mentioned diagnostic methods. This fact is, for that matter, not to be wondered at, since the spleen is not a unique organ which cannot be replaced, but is in fact part of a lymphatic system extending over the entire body and all its composing elements may undoubtedly assure the functions of the missing spleen perfectly.

A Case of Temporary Cyanosis Without a Valvular Lesion.—W. Augenete gives a detailed description of the case of an infant who, slightly cyanotic during the first few days, became intensely so between the fifteenth and twenty-fifth days after birth. From this time on the child, who also developed eclamptic seizures, became perfectly normal. At no time did cardiac auscultation reveal a single abnormal sign. The writer is of the opinion that the case was one of an interventricular communication with a slight pulmonary stenosis. The appearance and disappearance of the cyanosis were related to the tension in the two sides of the heart. The effect of various treatments essayed corroborate this influence of the differential pressure in the two hearts on the mixture of their blood and the resulting cyanosis.

Münchener medizinische Wochenschrift.

October 1, 1918.

Clinical and Experimental Researches on Hemolytic Icterus.—H. Lüdke offers an exposé of the present-day conceptions of this subject and, what is extraordinary, gives full credit to French writers. He records four personal cases characterized by icterus, anemia, diminished globular resistance, and tumefaction of the spleen with or without tumefaction of the liver. The icterus was of the acholuric type and the blood serum contained bilirubin but no urobilin. For that matter, generally speaking, the bilirubin of the blood does not pass into the urine unless there is a high concentration, while urobilin passes through the renal filter with greater ease. The urine contains urobilin in hemolytic icterus, especially in the acute types. The feces were acholic in the four cases observed by the writer and only assumed their normal color during the hemolytic paroxysms. As to the anemia, which only involved the red corpuscles, Lüdke noted that the blood offered the usual changes of secondary anemia. He did not constantly observe the granular red cells, mentioned by Chauffard, in this affection. The resistance of the cells was especially evident when the procedure of hemolysis of displasmatized blood was employed. The resistance to saponin did not offer any typical change. The writer was also able to observe the presence of isolysins in all four cases, while the autolysins were less constant. He also studied the question as to what extent these substances could be considered as the cause of the hemolysis in his patients. He was able to experimentally verify the production of these substances in dogs under certain conditions after injection of this type of red corpuscle. Lüdke concludes in favor of the probable etiological part played by the autolysins in the genesis of hemolytic icterus. These substances probably develop at the time of the paroxysms of anemic icterus and their production is more particularly splenic.

Periodical Vomiting or Periodical Acetonemia?—F. Hamburger is of the opinion that this form of vomiting is not the result of acetonemia, but is, on the contrary, the cause. He founds his belief on a personal case in which the acetone in the urine only increased the day following the paroxysms of vomiting and on the ease with which acetone appears after symptomatic vomiting, such as occurs in meningitis or appendicitis, for example.

Deutsche medizinische Wochenschrift.

October 3, 1918.

The Gastric Secretion in War-Time.—L. R. Grote has noticed, besides a relative increase in the number of gastric cases in general, a serious increase of cases of hyperchlorhydria. As the writer's cases were among both country and city people, insufficient or poor food cannot be the cause of this phenomenon. Hyperchlorhydria of wartime has been noted by a number of observers. It has been attributed to the abuse of coffee and tobacco, but Grote does not admit either of these etiological factors, believing that the syndrome of the hyperacidity is due to an exaggerated sensibility of the gastric nerves. Therefore the best treatment consists in the internal exhibition of cocaine and a 2 per cent. silver nitrate solution. These patients do not enter into the class of true gastropaths, but should be regarded as possessed of neuropathic states.

The X-Ray Treatment of Graves' Disease and Malignant Goiter.—P. Sudeck studies the indications of radiotherapy in these two morbid processes. In the goiter of Graves irradiation is insufficient, unreliable, and even dangerous on account of the possibility of thyroid and parathyroid atrophy. On the other hand, radiotherapy may serve as a preliminary to operative interference in cases where the gravity of the disease is a contraindication for an immediate operation. In malignant goiter the results have been most encouraging, to such an extent that the success must be regarded as much due to a particular susceptibility of the neoplastic tissue as to the superficial situation of the growth. The writer has not noted that any particular type of neoplasm (carcinoma, sarcoma, sarcocarcinoma) reacts better than the others. Inversely, the surgical treatment of these malignant goiters is unsatisfactory. The necessity of performing total extirpation and at the same time saving the parathyroids makes radiotherapy preferable to operation in malignant disease of this gland.

Studies in Chemiotherapy in Chronic Malaria.—F. Kalberlah and H. Schlossberger have experimented on the action of certain dyestuffs which are efficacious in the trypanosomiases and metallic compounds of salvarsan in chronic malaria without any practical results.

Wiener medizinische Wochenschrift.

September 7, 1918.

Reform in Medical Instruction.—E. Franz offers a contribution on this subject, which appears to considerably occupy the minds of the Vienna profession, of really practical import. He proposes the following schedule of study: Four terms of anatomy, physiology, chemistry, and biology; four terms of practice in different clinics; two terms given up to theoretical lectures. Teaching should comprise only matter that is really useful and necessary for the student. The examinations in each branch should be held by two pro-

fessors at the same time in order to limit the questioning to well established facts. The writer, who makes some very interesting remarks relative to his plan of instruction, does not, however, tell us how this system of study will permit the recruiting of a scientific teaching corps.

The Treatment of Addison's Disease.—P. Leitner has observed a case of "essential" Addison's disease of the most typical sort cured by the exhibition of capsules containing fresh suprarenal gland at the dose of one, two, or three capsules daily. Recovery resulted in the disappearance of the pigmentation and a gain of 28 pounds in weight, as well as the disappearance of the anemia. Adrenalin glycosuria, negative before treatment, afterward became positive. It is to be noted that the gastric achylia present before treatment was begun was in no way influenced by it. This case adds one more to the number already reported by Strümpell of Addison's disease cured by suprarenal opotherapy.

La Presse Médicale.

September 23, 1918

Lethargic Encephalitis.—Sainton recalls that last spring Netter drew the attention of the profession to an epidemic affection which had already prevailed in Austria and had apparently broken out in Paris. The English neurologists now announced that a similar malady had been seen in their country, where it had been diagnosticated botulism. The total number of French and English cases at latest accounts was seventy-one, about equally divided. It has, therefore, become possible to draw up a formal exposition of the disease and the author has had some personal material on which to draw. He sums up by stating that the leading symptoms are somnolence or lethargy, paralyses or pareses of the nerves of the mesencephalon, notably the motor nerves of the eye, and a febrile infection. The process is a more or less diffuse encephalitis predominating in the mesencephalon. Any age may be attacked, but it is far more common in the adult. The initial symptoms are chills and fever, headache, prostration, vomiting at times. Apparently there are two or three weeks of prodromes of an equivocal character. The mental state combines hypersomnia with lethargy, for when roused with difficulty from sleep the lethargic state is completely in evidence. Cema never develops save in fatal cases. In certain cases the patient cannot be roused at all. If the lethargy is not obvious when the patient is aroused the movements are automatic. Somnolence may not be incompatible with nightmares and an oniric delirium. In some cases after consciousness has once returned it may again be lost. During convalescence the patient may show narcoleptic crises. A certain type of amnesia is evidently present, as the patient has not the slightest idea how long he has slept. The mortality has been from 4 to 35 per cent., the low figure occurring only in the Austrian cases, which may conceivably differ from the others. The diagnosis of this affection could not of course be made at first, and it was mistaken for typhoid fever, pneumonia with delirium tremens, acute meningeal tuberculosis and cerebrospinal meningitis. The closest similarity is to the latter. All of these remedies can be excluded. The malady was heard of during the influenza pandemic of 1889-90, when it was in part regarded as of grippal origin, an influenzal poliencephalitis. This possibility has not yet been cleared up, and it is certainly singular to see the recrudescence appear in an influenzal year, but the bacteriological proof is wanting. The possibility of botulism is not to be thought of in the French cases, however suggestive it may have been to the English observers.

Correspondenz-Blatt fuer Schweizer Aerzte.

August 24, 1918

Autopsy Finds in Influenza Cases.—Glaus and Fritzsche (Basle) have made autopsies on 53 cases of influenza, of which 38 were in male and only 15 in female patients. The ages ranged from 19 to 30 years in 41 of the 53. The limits of age were one year and 59 years. In 40 of the subjects the general condition, aside from the ravages of the disease, was perfect. It may have been a coincidence that six of the women were pregnant. Three women had aborted, and in the others the fetus was dead and macerated. Four patients, including two pregnant women, had mitral stenosis. Three of the victims were tuberculous. There were several others with emphysema or other chronic lung affections, so that the chief predisposing factor was cardiopulmonary disease, a fact readily comprehended. In regard to the ravages of the disease proper, there was a type of lung which predominated —the large piebald or motley-colored lung, condensed for more or less of its mass, with diminished air content. Incised, this tissue oozed foamy, blood-tinged fluid, and the section showed a mixture of hemorrhagic, pneumonic, necrotic or abscessing form of lung tissue. Amid these were stretches of a relectatic or permeable lung substance. Some of the foci were infarcts. Some of the subjects, instead of the preceding picture, showed a more typical broncho-pneumonia. The bacteriological examination showed the presence of the diplococcus lanceolatus in 45 cases, in 17 of which the same germ was cultivated from the heart's blood. Other germs showed much less constancy, and Pfeiffer's bacillus was conspicuous only by its complete absence. On account of the presence of the usually found morbific germs, pneumo-, strepto-, and staphylococci, in sufficient numbers, despite the inconstancy of any one form, the authors held all three responsible for the fatalities, acting in concert. Apparently the mixture of infection did not obtain in the individual patient but only for the epidemic *per se*.

Hygiea.

July 31, 1918

Treatment of Diabetes with Prolonged Fasting.—Arnell emphasizes the importance of diet fat in the genesis of acidosis, and gives an account of the principles and technic of the Joslin prolonged fast in the management of diabetes. The favorable influence of this plan is shown in a case history of a diabetic with strong acidosis tendency, who had withstood four attacks of coma in a year. Through prolonged fasting and withholding of fat in the nourishment the patient was rendered free from both sugar and acidosis and he was even rendered tolerant, to a limited extent, to carbohydrate. Moreover he obtained advantage through the fact that he no longer had to take daily doses of bicarbonate of soda (he had used from 20 to 100 gms. of this substance daily for two years at a stretch). The fasting treatment of severe diabetes is worth an augmented interest.

Case of Chylothorax.—Gullbring reports a case of chylothorax in a boy of 13 with far advanced tuberculosis, the phenomenon being in evidence shortly before death. The chemical composition of the pleural fluid corresponded well with that of chyle—albumin, 4 per cent.; sugar, 2.4 0/00 (or 0.24 per cent.); fat, 1 per cent. At autopsy no cause could be found for the exudate, and the author had to conclude that there was an abnormal permeability of the chylous radicles which run along the pleura.

Operative Treatment of Bladder Tumors.—Neander states that from 1901 to 1915 the surgical clinic of the Seraphine Hospital supervised 49 cases of vesical tumor, of which all but 7 were submittd to operation. Of the 42 operative cases, the intervention was palliative only in 11, and of this number 5 deaths resulted. There were therefore 31 radical operations for the following: Carcinoma, 9 cases; sarcoma, 2 cases; quasi-benign tumors, 20. Of the 9 cancer patients, 2 died of the operation, 4 soon suffered relapse, and the other three still live in good health after 9 or more years. One of the two sarcoma patients is also living. Of the 20 patients with quasibenign growths, 9 have died of recurrence and 3 have had relapses treated and still live. Five others are symptom free, and one said to have relapsed has not been seen. The author likes Squier's operation for bladder tumors, and apparently oudinisation has been used only for certain recurrences when beginning. Radium results are not encouraging, but one excellent result is set down to röntgen rays in controlling recurrence.

Book Reviews.

RADIO-DIAGNOSIS OF PLEURO-PULMONARY AFFECTIONS. By F. BARJON. Translated by JAMES A. HONEIJ, M.D., Assistant Professor of Medicine in Charge of Radiography, Yale Medical School. Price, $2.50. New Haven: Yale University Press, 1918.

THIS volume comprises 175 pages of text, over 50 radiographs, and 27 other illustrations. The five sections are devoted respectively to methods of examination, study of the pluræ, study of the bronchi, study of the lungs, and projectile wounds. The present volume is a most faithful translation, with reproduction of all illustrations. The translator has confined himself strictly to his task, refraining scrupulously from the temptation to edit the work. Such impersonalism is rather rare in these days, but we are not sure that it is not the proper course to pursue in the case of a work of such excellence as this.

THE HODGEN WIRE CRADLE EXTENSION SPLINT. The Exemplification of This Splint with Other Helpful Appliances in the Treatment of Fractures and Wounds of the Extremities and Its Application in Both Civil and War Practice. By FRANK G. NIFONG, M.D., F.A.C.S. With an Introduction by HARVEY G. MUDD, M.D., F.A.C.S. Pp. 162 with 124 illustrations. Price, $3.00. St. Louis: C. V. Mosby Co., 1918.

FOLLOWING chapters on pertinent anatomical facts and on fractures of the femur, the author discusses splints of various kinds and for various purposes, such as splints for immobility, for immobility and extension, for immobility and ambulation, and for immobility, extension, and suspension, finally devoting elaborate attention to the Hodgen splint and its use. The author finds something good in many of the splints in use before, or developed during, the war; but for him the Hodgen splint is so simple of application and so efficient that there is but little room for any of the rest. In fact, he appears to think that the best of the newer devices are merely more or less complicated elaborations and their value depends largely upon the fidelity with which they follow the fundamental principles of the Hodgen splint. In this he is to a certain extent correct; for Hodgen may well be called the father of the suspension-extension principle in the treatment of fractures of the femur. The book is well written, is profusely illustrated, and is very practical.

SURGICAL CLINICS OF CHICAGO. Volume 2, Number 1, February, 1918. Pp. 226, with 73 illustrations. Published bi-monthly. Price, per year, $10.00. Philadelphia and London: W. B. Saunders Co., 1918.

THIS volume contains sixteen clinical lectures, one of which, on gunshot wounds of the head, was given by Major Kellogg Speed at one of the hospitals of the British Expeditionary Force. There are an unusual number of interesting clinical lectures in this issue. Among these we may mention that by Andrews and Mix on duodenal ulcer; Bevan's remarks on gall-stone ileus; Eisendrath's lecture on varieties of ureteral strictures; Vaughn's on acutely strangulated intra-abdominal tumors; and one by Straus on acute ileus. There are also lectures on bone and joint surgery and on other subjects.

BIPP TREATMENT OF WAR WOUNDS. By RUTHERFORD MORISON, Professor of Surgery, Durham University; Senior Surgeon, Northumberland War Hospital. Pp. 72, with 9 illustrations. Price, $1.00. London: Henry Frowde, Hodder & Stoughton, Oxford University Press, 1918.

THIS excellent little book was written by request as a war contribution and gives a concise description of the composition, technique of application, and clinical experiments with Bipp, its uses and limitations in the various types of wounds, such as fractures, sinuses, and chronic bone cavities, joint wounds, amputations, injuries to the soft parts, etc. "Bipp" is composed of bismuth subnitrate, 8 parts; iodoform, 16 parts; liquid paraffin, 8 parts, or a sufficient quantity to form a thick paste.

In writing this book Morison endeavored to avoid two difficulties: first, an explanation of results which he knew would plunge him into ventures from which he could not escape unscathed; second, "to avoid any overestimation, from excess of enthusiasm, of the value of this method of wound treatment." Hence, he limited the information offered to what he knew and rejected any other matter, however interesting it might be. He has given the facts, therefore, as the treatment has been developed by him and his associates in the handling of several thousand cases at the Northumberland War Hospital. He admits the possibility of iodoform or bismuth poisoning, but believes that such cases rarely develop when Bipp is used at the proper time, in the proper quantity and with the proper technique. He considers the method "so simple that a clever surgeon is unnecessary for the achievement of the best results, though a *careful* one is."

SYMPTOMS AND THEIR INTERPRETATION. By JAMES MACKENZIE, M.D., LL.D. (Aber. and Edin.) Lecturer on Cardiac Research, London Hospital; Physician to the Mount Vernon Hospital; Consulting Physician to the Victoria Hospital, Burnley. Third Edition. Price, $3.75 net. New York: Paul B. Hoeber, 1918.

IF a physician is content to practise medicine by symptomatic, empiric, specific, and diplomatic methods, there is no reason why he should add this book to his library. If, on the other hand, his is the type of mind which searches behind effects for causes and from the symptom seeks to visualize the disordered physiological process itself with its meaning to the patient, he will read this book with a keen intellectual delight. Dr. Mackenzie's study of pain in all its relations to diagnosis and treatment is unsurpassed and his account of cardiac abnormalities, especially as they affect the patient's well-being, should be read by every general practitioner, especially these days, when he may be called upon to pass upon the effect which some irregularity of the heart may have upon military service. In the present edition Sir James has included two valuable appendices, one on hyperalgesia in abdominal disease and an especially suggestive one dealing with clinical investigation.

IL COLPO DI CALORE. By Dott. SALVATORE GUNGI. Catani: V. Giannotta, 1915.

THIS work on heart stroke was written before Italy had entered into the war. The scope of it is universal —insolation as seen in all geographical areas. Much book research has been necessitated and the large bibliography seems to be legitimate, made up of works actually consulted. As recent monographs on this subject are rare—almost nonexistent—this volume might be worthy of a translation into any one of the current tongues.

ANATOMY OF THE HUMAN BODY. By HENRY GRAY, F.R.S., F.R.C.S., Lecturer on Anatomy at St. George's Hospital Medical School, London. Twentieth Edition thoroughly Revised and Re-edited by WARREN H. LEWIS, B.S., M.D., Professor of Physiological Anatomy, Johns Hopkins University, Baltimore, Md. Illustrated with 1,247 Engravings. Price, cloth, $7.50. Philadelphia and New York: Lea and Febiger, 1918.

SURELY a book which has enjoyed an uninterrupted existence of 60 years (the first English edition of Gray's Anatomy appeared in 1858) and has appeared in a new edition at an average of every three years has been so thoroughly reviewed as to leave little to be said. The older generation of medical men were brought up on Gray, and though other more modern works now dispute its old-time supremacy, these men still look back with affection to this, their first text-book. Its face has so changed with time, however, as in many sections to be unrecognizable. It is only in the section on Osteology and in isolated places here and there that one sees the familiar illustrations—rather ugly but more informing than many of the new and in part colored pictures which have replaced the original ones. The text also has been extensively altered, although some of the descriptions of the first writer still exist. Much that is new relates to histology, which is the major part of anatomy that has advanced in the three score years that have passed, though the Basle anatomical nomenclature also would trouble Henry Gray if he should happen to reincarnate as a medical student and try to pass off his old knowledge on an up-to-date State medical examiner.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held October 28, 1918.

THE PRESIDENT, DR. HOWARD CANNING TAYLOR, IN THE CHAIR.

Executive Session.—Dr. JOHN P. DAVIN introduced a resolution requesting the Health Department not to hold physicians strictly accountable to the letter of the law requiring the prompt reporting of cases of infectious disease, inasmuch as many physicians were working under such pressure during the epidemic of influenza that they did not have time to make up their reports promptly.

Dr. FREDERIC E. SONDERN opposed a motion to refer these resolutions to the Comitia Minora on the ground that it would put the society on record as seeking to evade or break a law.

Dr. DAVIN replied that the resolutions did not ask any one to perform an illegal act, but simply asked mercy for the hardworking physician who found it a physical impossibility to report his cases of influenza promptly.

On motion these resolutions were laid on the table.

Dr. ABRAHAM J. RONGY called the attention of the Society to the advisability of issuing a warning to pregnant women urging them to isolate themselves during the present epidemic, since they were peculiarly susceptible to the disease. In the presence of influenza there was a great difference of opinion as to whether or not it was advisable to induce labor. In order that the obstetrician and the general practitioner might have some guide in deciding this question, he moved that a committee be appointed to make an investigation, and if possible, express an opinion on this point.

Dr. J. MILTON MABBOTT expressed the opinion that it would be unwise for the County Medical Society to lay down a rule of practice for all cases. He thought it unnecessary for the Society to take up the matter as the law now gave any physician the privilege of calling in a consultant and, if both were agreed that the induction of labor was indicated, the pregnancy could be terminated, so there was no need for the Society to take any action on this question.

Dr. J. RIDDLE GOFFE said it would be difficult for any committee to lay down hard and fast rules that would cover all cases. Each case had to be decided on its own merits. He hoped the motion would not be approved by the Society.

This motion was lost.

The Present Status of the Influenza Epidemic in New York City.—Dr. ROYAL S. COPELAND, Health Commissioner, made this address, by invitation. He reviewed the measures that were being employed by the Health Department to combat the epidemic and quoted figures to show that New York had fared far better than other large cities of the United States. He said he was sure that no overworked doctor would be sent to jail because he had not reported his cases of influenza as promptly as he would ordinarily be expected to do. From September 14 to October 19, there had been in 46 States a total of 35,000 deaths from influenza and pneumonia. In addition to this there had been about 15,000 deaths from these diseases in the military camps in this country, making a total of about 50,000 deaths which were attributable to the epidemic. In some localities the epidemic had not yet reached its highest point, while in others it was on the decline, and he believed that in the course of a week a definite decline would be observed in this city. The figures of the Health Department gave no actual index as to the prevalence of the disease, for there had been no complete reporting of cases. Dr. Copeland explained that the reasons why the Health Department wished to have as complete reports as possible was in order that it might concentrate the forces of its own staff and those of the various social agencies in those districts in which the disease was most prevalent. To date about 101,000 cases of influenza and 13,260 cases of pneumonia had been reported. It was found that in the Army the mortality from influenza averaged a little over 4 per cent. In civil communities the mortality rate was considerably lower. Making allowance for the deaths that under ordinary conditions would have occurred from pneumonia during the period of the epidemic and for the deaths of Navy men of whom there had been a considerable number cared for by the hospitals of the city, it was estimated that the mortality in New York City from influenza was 2½ per cent. Reckoning on this basis there had been probably about 500,000 cases of influenza in New York City since the beginning of the epidemic. In other words, about 10 per cent. of the population had been affected, whereas in many communities as many as 25 to 40 per cent. of the population contracted the disease. The death rate in some cities had reached appalling proportions during the height of the epidemic. In Philadelphia it was 150 per 1,000 population; in Boston 101, while in New York it was 50. Dr. Copeland spoke of the organized emergency relief work, which he said was important and interesting, not only because of what it was doing during the epidemic, but because it marked the beginning of a new activity on the part of the Health Department. There was no provision by law for work of this kind on the part of the Health Department, but it seemed that in the present emergency they were justified in entering this field, and they were now planning to make at least the skeleton of such an organization permanent, so that in case of emergency it could quickly be put in operation. There should be a number of community centers that could distribute clothing and food, where advice could be obtained, and from which investigators could quickly go over the district and cover the city. If necessary the city should support such centers.

Dr. JOHN H. BRANTH said that it was very laudable indeed that our Health Commissioner should come here to discuss with us measures regarding the existing epidemic. Regarding the treatment of the present scourge we had not fully scratched the surface. Surely one was struck by the fact that this influenza led often to a pneumonia which was rapidly fatal. The bacteriologist should find the reason for this. It must also be recognized that disease and its phases could not be worked out entirely in the laboratory; bedside observation was still a factor in diagnosis. The invasion of the Pfeiffer bacillus, which was credited with being the cause of former influenza epidemics, and by some was claimed to be the cause of the present scourge, was not then followed so often by fatal pneumonia. There must be in the present epidemic another factor not present in former epidemics. Could it not be that breeding with other microbes, as the pneumococcus, etc., was the cause of this virulence? There was no doubt that some microbe was at the bottom of this epidemic. It was stated that the microbe was an anaerobe, living in moisture and darkness. Sunlight and pure dry air destroyed it. The surgeon and physician in fighting such an invading enemy used bactericides and cleanliness, both of which were helpers to the always working phagocytes. At all times those who knew medicine depended upon the action of the phagocytes in combating invading microorganisms; if their action was too weak, then, and then only, was an invasion by an enemy possible. In applying remedies we must respect the fact that the individual cell life of higher organisms was more vulnerable than the cell life of lower organisms. It had been discovered that the influenza microbe entered by the upper air passages. If it entered the mouth, it was met by a surface which was always bathed in saliva; the latter contained ptyalin, a very destructive agent for nearly all microbic life. So it seemed possible, to the speaker at least, that this route was not a frequent channel of invasion, except the mouth was not kept clean. The tears flowing from the lacrymal gland over the eye-ball and finally reaching the nostril through the nasal duct contained no such destructive agent as ptyalin. In fact, all the conditions in the nose favored the rapid multiplication of microbic colonies. In medicine they had found that the mercurials were the best bactericides. Why should these mercuric mixtures not act as well in cases in which there was an invading enemy in the nose as they did when directed against invading organisms in other parts of the body? The speaker had on many occasions advised the following: A mixture of 15 to 20 grains of yellow oxide of mercury in one ounce of lanoline to which a little pix liquida was added. This

was applied with the little finger as high up in the nose as possible. The salve "Aseptinal" acted as well but as this was a patent article a regular physician was not likely to prescribe it. A thin coating of the above ointment resisted the invader. Two to four applications of this ointment should be made daily. It was very essential that the natural functions of the body be kept near par and it was especially important to avoid fatigue, for upon these factors the activity and efficiency of the phagocytes depended. Mixed vaccines and serums offered another line for the stimulation of phagocytes which attacked and destroyed the microbes that had invaded the body.

Dr. BEVERLEY ROBINSON said that perhaps he was trespassing on time not supposed to be given to this subject, but he could not forbear calling attention to a remedy that he had used for coughs, colds, and influenza for many years, and which he had found more effective than any other remedy. This was salicylate of ammonium. He might add that this was particularly effective in preventing influenza. The dose depended on the age and condition of the patient, from five to ten grains in solution with a little pepsin where the patient was really ill and could remain at home. When used simply as a preventive it might be administered in capsule form. Dr. Robinson said that in a recent number of the *New York Medical Journal* reference was made to an article by E. B. Turner who gave his experience in 2,000 cases of epidemic influenza in which he found that salicin was the best remedy that could be given. The speaker had used salicin and diverse salicylates, and finally the salicylate of ammonium and could say that the latter was unqualifiedly the best and the least injurious.

Dr. L. W. ZWISOHN asked how a man was to make a diagnosis of influenza and report the case when the circumstances were as follows: A man was called to see a case and found the patient presenting only the symptoms of a slight cold. At the end of three days the patient would have no elevation of temperature, then suddenly on the third or fourth day he developed pneumonia. How could one report such a case as one of influenza unless he reported every case of cold?

Dr. COPELAND replied that it was sometimes very difficult to tell which were cases of influenza and which merely colds. All a physician could do was to report what he thought was influenza.

Treatment of Enteroptosis, Medical and Mechanical.—Dr. ANTHONY BASSLER presented this paper. (See page 1066.)

The Surgical Treatment of Intestinal Ptosis.—Dr. J. RIDDLE GOFFE presented this phase of the subject. After briefly reviewing the etiology of intestinal ptosis and discussing its relation to focal infection, he said that he believed that a frank confession from the general practitioner or internist would reveal the fact that the majority of his patients were suffering from some form of infection due to constipation or intestinal stasis. His prime business was to keep the alvine current moving, and to destroy the toxic forming bacilli of the intestinal canal. An extreme enteroptosis, when it had reached the stage of redundancy, persistent dilatation, angulation, kinks, and adhesions produced by stasis, afforded the most perfect culture tube for the multiplication of bacilli and the manufacture of toxins. These were the cases that required surgical interference to effect a cure either by stitching up the intestines, by an ileosigmoidostomy, or by complete colectomy. Not only must the intestines be secured in position, but the normal intraabdominal pressure re-established by diminishing, if necessary, the capacity of the abdomen when injured or relaxed and restoring perineal supports. The kidney, too, when displaced must be re-implanted to avoid drag on the flexures of the colon. The tests to apply to any operation were: (1) Did the operation meet the indications; relieve the condition and cure the patient? (2) Was it safe? That was, did it involve risks out of proportion to expected or actual benefits? The results as exemplified in the author's cases, if examined with an open mind, and discrimination, he believed, would not only justify, but commend the operation. Dr. Goffe said that his first experience with this operation was gained, in 1889, in the case of a young woman, 25 years of age, an expert stenographer and typewriter, a nervous dyspeptic and a neurasthenic wreck. She had a ptosed and dilated stomach. After treating her medicinally and washing out her stomach, morning after morning before breakfast, for weeks and months without improvement, she announced to the writer one day that she was tired of treatment and was ready for the operation which he had discussed with her some weeks previously. She entered the Polyclinic Hospital and was made ready for operation. Through a free incision above the umbilicus the anterior wall of the stomach was plicated with a row of sutures, parallel to the long axis. Just above this line two sutures were passed perpendicularly to it through the peritoneal and muscular wall of the stomach. Both ends of each suture were then carried up through the peritoneum and fascia of the abdominal wall, not through the skin, and made to appear each on its own side in the upper angle of the abdominal wound. After the closure of the peritoneum the two ends were tied, cut short, and buried in the closure of the abdominal incision. On putting the patient to bed the foot of the bed was elevated by putting a chair under it, thus securing what was familiarly known as the Trendelenburg posture. This was maintained for two weeks when the bed was gradually lowered to normal at the end of three weeks, the patient leaving the hospital at the end of the fourth week. Perfect success attended the procedure. The patient gained flesh and nerve power, returned to her work in three months, and continued it while under the writer's observation for several years. From this experience the author had gradually evolved the method he now employed in cases in which both the stomach and colon were involved in extreme ptosis with adhesions. By this method a procedure similar to that just described for the stomach was applied also to the transverse colon, and the hepatic and splenic flexures. The technique of this operation Dr. Goffe described and illustrated by lantern slides.

Dr. ARNOLD STURMDORF stated that within the last five years the treatment of enteroptosis has been the object of very intensive study by surgeons and internists; both recorded many successes, yet both experienced many failures by ignoring the fundamental causative factors of the condition. Normal visceral topography was the result of balance between the displacing force of intraabdominal pressure and the correct deflection of that displacing force by bony and muscular planes, presented within the abdominal cavity. The essential angle presented by these planes demanded correct skeletal and postural poise, neither of which existed in patients with enteroptosis. It followed that the therapeutics of the condition could deal with end results only and not with its etiology. Prolapsed abdominal viscera were normal and essential to these abnormal skeletal types. This was amply proven by the many in whom the *x*-ray revealed enteroptosis without symptoms and we should carefully discriminate in attributing a functional disturbance of the gastrointestinal tract to an existing ptosis, simply on *x*-ray evidence. The ptosis as such was unproductive of any discomfort whatsoever and all the complicating elements should be alleviated and excluded before deciding upon operative correction. What we needed in the management of these patients was a means of correct classification and for this our present data were insufficient. When such classification was possible, we should be in a position to separate those amenable to medical treatment from those demanding surgical intervention and a comparison of final end results on such a basis only would establish the relative value of our therapeutic measures.

Dr. HENRY A. COTTON of Trenton said that, being connected with a hospital for the insane, he had tried to gather information in regard to the relation of gastrointestinal disorders to mental conditions, inasmuch as he realized that many of these patients were suffering from gastrointestinal disturbances. He presented charts showing the excellent results secured by the method of treatment, which consisted in taking cultures from the tonsils and stomach contents, and if infection with a streptococcus or the colon bacillus was found to be present they treated the patient with lavage

and vaccines made from the organism or organisms found in the culture. Since they had adopted this method of treatment they were discharging fifty patients a month, as against thirty-six during the previous year. He was convinced that many of these insane patients were greatly benefited by treatment directed to the gastrointestinal canal. It had brought about a reduction in the population of the Trenton hospital for the insane such as had not occurred in eighteen years.

Dr. Robert T. Morris was of the opinion that Dr. Cotton was going at this problem in the right way. He said that if there were no brilliant surgical successes in these cases no surgery would be done; but, on the other hand, if the internist always satisfied the patients none would go to the surgeon. If one gave due consideration to the subject of ptosis he would find that most of the "acquired cases" had also stigmata of decline—they belonged to the vagatonics, with stigmata of degeneration, such as a high arched palate, defective ear or scapula, and ptosis was one of the stigmata. Under these circumstances one must remember that function and structure were so closely allied that if there was a variation in structure a corresponding difference in function must be expected. The speaker stated that he had applied all the various forms of treatment that had been described by the different speakers, and he had learned that unless one took into consideration the fact that he was dealing with the stigmata of decline in this class of patients his results might not be satisfactory. There was no doubt that Dr. Goffe's operation was suitable to certain cases, just as other suspensory operations had been successful in certain cases and just as the Wier Mitchell rest cure and other forms of non-operative treatment had been successful in certain cases. The race had gone over the high point of its cultural development and the tendency to decline was now shown in various stigmata; enteroptosis was one of them. In order to make a satisfactory showing for any form of treatment it was essential to have reports on consecutive cases and not only selected cases. Dr. Bassler spoke of depressing surroundings. Now the negative attitude toward life was commonly due to defective structure. Many of these neurasthenics, vagotonics, etc., were persons who had brought upon themselves the very social conditions which were depressing to them. In these patients treatment properly applied to relieve toxic features and peripheral irritations were often effective, and the speaker hoped that Dr. Cotton's report would be given the attention it deserved.

Dr. Fenton B. Turck said that, in speaking of enteroptosis, we must recognize two classes of patients, those who had symptoms and those who had not. In those who had symptoms, the symptoms were not due to displacement, whether the displacement was sidewise or downward, or in whatever direction it might be the symptoms were not the effect of mechanical deviations from the normal position. In searching for the etiology of these displacements we must go back of the mechanical factors. We had in enteroptosis an etiology similar to that seen in acute conditions. For instance, in pneumonia the toxins of that disease frequently produced acute dilatation of the stomach and blood vessels, with collapse and death. In patients having infections in other parts of the body we found the same kind of dilatation of the stomach and intestines, and similar effects resulting from autolyzed tissue toxins from these infections. We had as a consequence a combination of dilatation and atony. Twenty years ago the speaker conducted experiments showing that stasis, atony, and dilatation were the result of autolysis of injured tissue which produced toxins responsible for both acute and chronic conditions. Quite recently he had repeated these experiments. He had taken tissue from an injured animal and transplanted it to another animal with the result that the latter animal became toxic, and if the dose was sufficiently large the animal went into collapse and died. The presence of microbes likewise set up an autolysis of the tissues which gave rise to tissue toxins that produced the phenomena of atony, stasis, and dilatation. In his laboratory experiments on animals he found that the autolyzed products of the tissue walls of the stomach and intestine, when absorbed or intravenously injected, produced atony and dilatation of the stomach and intestines. Why should any one in search for the etiology of these conditions go back to the psychoneuroses when the real cause was a biological one, and one so easily demonstrable? The writer stated that he had published a large number of cases in which he used the colon bacilli in connection with other organisms and made an antigen with human tissue, which, after repeated injections into a horse, furnished a most powerful antigen against the patient's own toxemia. Inasmuch as, according to Dr. Bassler's statement, 50 per cent. of his patients with enteroptosis suffered from intoxication, we must recognize that this was a very important factor in this condition. Another point came up and that was whether in some of the cures attributed to surgery the successful outcome might not be due to an immunity induced by the operation itself. Possibly the operation itself, by injury to the tissue, was instrumental in setting up the process whereby an autovaccine was produced which caused immunity in the subject. In seeking the reason why surgery failed in these cases—for it did fail—such a reason would be found in the fact that the dynamic and mechanical features of the disease which surgery sought to correct were secondary, while the real etiological factors of the disease were to be found in the underlying biological conditions, namely, tissue autolysis caused by microorganisms.

Dr. Bassler, in closing the discussion, said that the failure of surgery, in his observations, had been that the cases were not operated on in the way Dr. Goffe suggested. The operations employed had not cleaned up the abdomen completely whether it was a Coffee operation, a Beyea operation, or a plication of the cecum. When operation was decided upon and carried out there should be a complete job done. A second reason why operative procedures had been failures was that these people who suffered from enteroptosis were characteristically non-adhesion makers. It seems it is the robust and strong type of individual in whom adhesions readily formed; in these thinned-out individuals adhesions were very rare. As to the patients that in his experience were surgical there were first those that did not have the time to go through a course of treatment, and that were still not too young or too old to be suitable for a surgical procedure. He thought it was a mistake to operate on patients in the early twenties or in those who were quite old. Second those cases in which there had been a logical effort made to benefit the patient and no permanent benefit had been obtained. Third, these cases in which we found what he called the diamond-shaped pelvis; almost all of these were surgical cases. Fourth, cases in which there was a marked atony of the stomach and right colon with prolapse of the hepatic flexure; these in great proportions were surgical cases. Fifth, cases in which there was a marked ptosis as well as uterine procidentia; these were almost always surgical cases. This, in his experience was the best reply he could give to Dr. Sturmdorf's request for information.

Dr. Goffe, in closing, asserted that the surgical cases must be selected. Since 1889 he had operated on 17 cases. He did not think any one could accuse him of rash surgery when he had operated on only seventeen cases of this kind in thirty years. These patients with relaxation of the abdominal wall, dilatation of the stomach, and ptosis of the colon could not be braced up with medicinal and mechanical treatment so that the abdominal viscera would perform their functions; operation seemed to be the only course that offered relief. If one could get rid of the toxins he conferred a great benefit on the patient; if he could prepare a vaccine that would make the patient perfectly immune that was a great benefit, but there was always a question as to the length of the immunity. He thought therefore that if one drained the culture tube and kept it drained permanent relief was much more certain. Of these 17 patients four were between the ages of 20 and 30 years; nine between 30 and 40; three between 40 and 50, and one was 59 years of age. Fifteen of these patients made satisfactory recoveries—some of them quite phenomenal—one was unsatisfactory, and one death was the direct result of a complication, modification, or supplementary procedure.

AMERICAN PEDIATRIC SOCIETY.

Thirtieth Annual Meeting Held at Lenox, Mass., May 27, 28, and 29, 1918.

THE PRESIDENT, DR. LINNAEUS EDWIN LAFETRA OF NEW YORK, IN THE CHAIR.

(Special Report to the MEDICAL RECORD.)

(*Concluded from page* 1054.)

Migraine in Childhood.—Dr. WILDER TILESTON of New Haven reported a case of migraine occurring in a boy of six years. He stated that the onset was observed at the age of three years. Phenol was found in the urine in large amounts. Meat, fish, and eggs were eliminated from the diet, and only those vegetables were allowed which contained a small amount of protein. Under this régime the amount of phenol excreted in the urine was greatly diminished and the attacks of migraine gradually became less frequent.

Dr. OSCAR M. SCHLOSS reported a case of migraine occurring in a boy eight years of age. This boy also complained of the classical symptoms of migraine, and had a distinct aura of the Gower type. The urine showed a great deal of phenol and indican constantly. The child was put on an almost protein-free diet, getting only the protein contained in a few vegetables with a low protein content. The child had been under observation for five months, and now was having only about one attack in three weeks. There was still some phenol and indican in the urine, but much less than formerly.

The Energy Metabolism of an Infant with Amaurotic Family Idiocy.—Dr. FRITZ B. TALBOT of Boston read this paper. He stated that the diagnosis of amaurotic family idiocy was made by finding the cherry-red spot on the eye with the ophthalmoscope during life, and by post mortem examination. At the time the metabolism observations were made the child was 2 years and 4 months of age. Its metabolism was obtained in the apparatus of the nutritional laboratory of the Carnegie Institution, under the direction of Dr. G. E. Benedict. The nasal metabolism was very low in comparison with that of a normal infant of the same weight, which obviously was very much younger. The metabolism as compared with that of normal infants of the same age was very low. The basic metabolism of the amaurotic family idiot was 39 calories per kilo body weight. Dr. Talbot also compared the metabolism of this subject with that of a cretin and an infant with congenital absence of the cerebral hemispheres which he had previously reported.

Is the Present Frequency of Acute Otitis Media and the Subsequent Mastoid Operation in Some Measure a Reproach to the Pediatrist?—Dr. THOMAS S. SOUTHWORTH of New York presented this paper, in which he showed that little progress had been made in recent years along preventive or abortive lines, and that no studies had been published by pediatricians in whose practice the majority of such cases originated. The essayist, during the past winter, had had 25 cases of acute otitis media in a service averaging about 80 infants under fifteen months of age. These had been under the close supervision of a visiting otologist who had found in some five of them indications of mastoid involvement, yet all had escaped mastoid operation, and the discharge had ceased under treatment in all of the infants save one, which at the time of writing was nearly well. Combinations of cocaine, adrenalin, carbolic acid, alcohol, and glycerin, designed not only to relieve pain but to reduce engorgement and act antiseptically by absorption or osmosis, had been used from time to time. Should we not again ask ourselves if these posssessed absolutely no efficiency, and whether they could not be made to have abortive power in a certain percentage of cases which might thus be saved paracentesis? The warning against blowing the nose in the recumbent or supine position was of such eminent wisdom that the writer had extended it to routine directions in all cases of acute infectious diseases in which there was danger of middle-ear involvement through the Eustachian tube. They would do well to consider the following questions: 1. Were there any therapeutic measures which tended definitely to prevent middle-ear infections in acute nasopharyngeal conditions? 2. Were there any abortive measures which were reasonably efficient in beginning otitis media? 3. Could not some measures be devised by well directed research? 4. Were we correct in assuming that immediate early paracentesis was always indicated in all cases of effusion into the middle ear? 5. To what degree and under what circumstances, after paracentesis, was the pediatrician justified in counselling delay in the presence of the classical indications for mastoid operation. 6. Was the frequency of acute otitis media and of mastoidectomy inevitable, or was it due to a complacent neglect of further research in this field? The members of this Society, from their wide experience, should contribute something toward the solution of these problems.

Dr. SAMUEL S. ADAMS of Washington said that the otologists objected to the preparations usually put in the ear to allay earache, but he felt that he had allayed earache with a 5 or 10 per cent. solution of carbolic acid and glycerin when there was inflammation of the middle ear, but not bulging. When the membrane was bulging he believed they should call in a skillful otologist.

Dr. GODFREY R. PISEK said he was inclined to be rather conservative in the treatment of middle-ear conditions, but he thought the otologists leaned more to the side of operation.

Dr. FRITZ B. TALBOT of Boston said he thought the problem of prevention lay in the prevention of colds, which were the source of most of our ear troubles. The baby's nose should be wiped, and not blown, and the same was true of older children. As a rule, he was opposed to operations on the ear during the course of the acute infection, though there might be instances in which an operation favorably affected the course of the disease.

Dr. ISAAC ABT of Chicago said the membrane should be punctured only when it was bulging and when there was a reasonable suspicion of pus in the middle ear. So far as the mastoid was concerned, the pathological studies showed that in the exanthemata and grippal diseases there was more or less inflammation of the mastoid and antrum, and many of these cases recovered without operation.

Dr. HERRMAN of New York said he had fewer mastoid operations at present than in former years, and he was inclined to be conservative as regarded operation. It was frequently better to wait a little if one could keep the case under observation. He had seen as many cases of mastoid disease follow incision of the drum as when he had allowed the drum to remain red for some time. It was a mistake to teach that every red drum should be opened. He warned against the snuffing of salt water, which, he stated, was a very dangerous procedure.

Dr. L. EMMETT HOLT said that he thought there was much unnecessary operation on ears and that it was time for the pediatricians to urge a more conservative attitude.

Dr. ROWLAND G. FREEMAN of New York said he believed no one operated on a drum that was not red and bulging, and he could not agree that there was a tendency to operate too frequently.

Dr. HOWARD C. CARPENTER warned against the digital examination of the nasopharynx for adenoids. By putting the fingers into the nasopharynx one might stir up an infection that was inactive. He thought that both sides of the nose should be open while the nose was being blown. He also made a plea for a conservative position as regards mastoid operation.

Dr. HENRY DWIGHT CHAPIN of New York spoke of the difficulty of seeing the drum in young infants. Many children were operated on who would probably get well without operation, but no one seemed to be able to tell in what cases recovery would occur without operation. It seemed to him that in blowing the nose, keeping the mouth open was better than trying to keep one or both nostrils open.

Dr. CHARLES GILMORE KERLEY of New York said that the mastoid operation was not a terrible one and that most cases recovered. It was just as well to open the mastoid and drain posteriorly as to run the risk of getting adhesions and chronic deafness.

Dr. LANGLEY PORTER of San Francisco said that one

way to prevent infection of the nasopharynx in children was to have the nurse or mother wear a respiration veil when she had a cold.

Dr. ALFRED F. HESS of New York said that in an institution where there were 400 children they had had but four cases of mastoiditis in the past five years. The plan they had carried out was to puncture red and bulging ears. He believed that frequently the systemic condition had much to do with the ear condition, and that in considering prophylaxis this should be taken into consideration.

Dr. WILLIAM P. NORTHRUP of New York called attention to the importance of the pediatrician looking out for otitis media during measles. This was a point he should not forget where there was a rise in temperature during measles or pneumonia.

Dr. HERBERT B. WILCOX of New York said that sometimes frequent irrigations so devitalized the drum membrane that the superficial layer was raised like a blister, and in some of those cases it might be necessary merely to incise through the outer layer. One criticism that might be made of the pediatrician was that when he opened a membrane he neglected to take a culture at times, and then when the otologist was called in he had difficulty in interpreting the condition because he did not know what organism was causing it.

Dr. DEWITT H. SHERMAN of Buffalo warned against the use of the two-way tubes for irrigation. In the prevention of otitis media they would have to take into consideration the lack of immunity; that was the predominating influence that determined the extent of the involvement.

The Relative Morbidity of Breast and Bottle Fed Babies.—Dr. H. M. MCCLANAHAN of Omaha presented this communication, which was based on the answers received to a questionnaire sent to prominent pediatricians throughout the country, asking their experience as to the relative susceptibility of breast and bottle-fed infants (*a*) in reference to contagious and infectious diseases, and (*b*) in reference to general infection. They were also asked the relative rate of growth and development (physical and mental) of breast and bottle-fed infants, and a request was made for any literature on the subject. Seventy answers were received to the questionnaire, among which were comprehensive data from Dr. Sedgwick on 700 infants and a table from Dr. Pisek which the writer had permission to use. A summary of this data showed the following: (1) Superiority of breast milk might be due to chemical and biological differences which rendered it more readily usable by the infant. As a result, it had a more natural energy which it could apply to the invading organism. (2) Breast milk might contain natural antibodies or protective ferments, both specific and non-specific. (3) Breast-fed infants were less susceptible to infection, the two exceptions being influenza and tuberculosis. (4) Breast-fed infants resisted infection more quickly and with less injury. (5) Breast-fed infants have less morbidity than properly fed bottle infants; that larger group of badly fed infants had a still greater disadvantage.

The Disadvantages of Low Fat Percentages.—Dr. ALFRED HAND of Phildelphia read this paper. He stated that he looked upon anything less than 2 per cent. as a low fat percentage, from 2 to 3 as moderately low, from 3 to 3.5 as a fair percentage, from 3.5 to 3.8 as normal, and anything above 4 as a high fat percentage in the artificial feeding of infants. For a while past the advantages of low fat feeding had been overemphasized. Because a child's digestion had been upset by a mixture too rich in fats it was hardly necessary to brand that child as having fat intolerance for the rest of this life. If a low fat percentage were given over a long period, the general nutrition of the child would be more or less permanently damaged. The main way in which this damage was brought about was summed up in the one word "rickets." Constipation and failure to gain in weight were the two conditions that might be troublesome with the low fat percentages, and low protein as well, unless the carbohydrates were raised considerably above the amount existing in either human or cow's milk. As a temporary measure this might be of value, but it appeared to the essayist that a more lasting benefit was obtained by raising the fat percentages as rapidly as possible. Several factors that seemed to influence the handling of fat in the dietary were climate and the breed of cows. A child what showed intolerance to fat in the summer would often handle even a higher percentage with ease when cool weather came.

Ascending Infection of the Urinary Tract.—Dr. HENRY F. HELMHOLZ of Evanston, Ill., after reviewing the routes by which infection of the urinary tract might take place reported experiments in a series of rabbits that were infected by the injection of a pure culture of colon bacillus isolated from a spontaneous case of pyelitis in a rabbit. In a series of 32 intracystic injections, 15 of the animals showed a definite pyelitis. Of this entire series of animals only one showed abscesses of the kidney. The presence of pyelitis was controlled both pathologically and histologically. The histology of the ureters and kidneys could be grouped roughly into two groups: (1) Those in which there were definite evidences of ureteral and periureteral infiltration and infiltration of the pelvis and (2) those in which the findings in the kidneys were practically only pus in the pelvis. In the first group there were five instances and in the second ten. In all probability there were two routes by which infection was accomplished, namely, by way of the lymphatics and by direct extension up the lumen of the ureter.

Immunity Reactions in Hydrated and Concentrated Tissue.—Dr. FREDERIC W. SCHULTZ of Minneapolis presented this paper. He stated that it was well recognized that certain types of organisms succumbed more readily to the invasion of disease than others. This had crystallized into the idea that apparently fat plethoric organisms showed on the whole a lesser degree of resistance than the lean and fairly emaciated organism. The work here reported was undertaken to show whether there was any difference in the defensive mechanism of hydrated or concentrated tissue, using determinations of immune reactions as an index. Parallel series of guinea pigs were selected as nearly alike as possible in age and weight. During the preliminary feeding stage, covering a considerable period, the attempt was made in the fat series to cause increase in weight as rapidly as possible through the use of liberal carbohydrate feeding, particularly maltose. The weight increase occurred rapidly if the pigs were kept under good conditions. Some allowance was made for normal growth. The lean series of guinea pigs was kept on a balanced ration just sufficient to sustain them. The weight loss was brought about gradually and amounted to 25 to 35 per cent. of the original body weight. The lysin reaction was then compared in 15 fat and 18 lean animals, the animals being immunized against blood cells by intraperitoneal inoculations. The precipitin reaction was carried out on 11 fat and 11 lean animals. The agglutination was carried out on seven fat and seven lean animals. The tables presented showed that the lysin reaction was negative or nearly so in practically all of the fat animals, but was positive, sometimes to a marked degree in over 60 per cent. of the lean animals. The precipitin reaction was uniformly negative in both the fat and the lean series. For some unaccountable reason the guinea pig serum did not give the precipitin reaction. Far reaching conclusions from a study of this kind were not warranted. If, however, immunity reactions were a good criterion of tissue resistance the rather striking behavior of both lysin and agglutinin reactions would seem to indicate that there was a difference in favor of concentrated tissue and that the theoretical consideration expressed by Czerny and other observers were substantially correct.

A Protective Therapy for Varicella, and a Consideration of Its Pathogenesis.—Dr. ALFRED F. HESS presented his communication, in which he described an attempt at immunization against varicella in 38 children about three or four years of age. These children were vaccinated intravenously according to the technique previously described by the writer. None of these children developed any local or general signs, nor any eruption suggestive of varicella, with the exception of one case, in spite of proximity with the disease. Vaccinations of this kind induced neither local nor general reactions. The acquisition of immunity likewise indicated that the specific virus was contained in the vesicles. The application of the lymph to broken skin or mucous membranes failed to bring about satisfactory immunity, although it also occasioned no disorder. These investi-

gations had a secondary bearing as to the natural portal of entry of the varicella virus into the body. As the skin and mucous membrane could be excluded in this connection, it seemed most probable that the virus entered by way of the respiratory tract, and that contagion came about through the air. This mode of infection would account for the almost unexampled communicability of the disease.

Intrathecal Injections of Horse Serum in the Treatment of Chorea.—Dr. LANGLEY PORTER of San Francisco presented this preliminary study of seven cases of chorea treated by the injection of horse serum. He also reported another case treated by the method Mahrtens of Standford University was using in the treatment of cerebrospinal syphilis, namely, the injection of salvarsan six to twelve hours after the preliminary intrathecal injection of horse serum. The first four patients received an initial injection of 20 c.c. of normal inactivated horse serum, half an hour after a half of c.c. of the serum had been given subcutaneously, in order to test whether the patient was sensitive to the serum. Five of the patients received a second injection on the fourth, fifth, and sixth days following the initial treatment. Two sets of unpleasant reactions had followed the use of the serum within the spinal canal, an immediate reaction evidenced by prostration, headache and sometimes by severe vomiting, and a reaction that appeared after a week and was evidenced by the usual symptoms of serum disease. The most striking results followed the use of the horse serum in maniacal and severe cases. While the number of cases treated was too few to warrant the drawing of definite conclusions, their experience had been such that they felt that they had a right to hope that further investigation would establish the sera as a valuable measure in the treatment of suspected cases of chorea.

Dr. OSCAR M. SCHLOSS of New York related some of the results that they had had on Dr. LaFetra's service at Bellevue Hospital with the method of Goodman. They had tried this treatment in twelve cases and these cases did no better than twelve control cases that did not get the serum. Some chorcics might have become better after the first, second, or third dose of the serum, but one frequently saw the same improvement in children treated by the usual means.

Dr. CHARLES HERRMAN asked whether a certain amount of spinal fluid was removed before the serum was employed and whether it was possible that the improvement was the result of the relief of intraspinal pressure.

Dr. LAFETRA said that it was not altogether a simple matter to draw off the blood, keep it sterile, and then inactivate it according to the method of Dr. Goodman. For some reason they did not get good results with this method, and they did not feel that they were justified in continuing to use it. Dr. LaFetra said he would like to see someone try Dr. Porter's method for he thought there would be advantages in using other than an autogenous serum.

Dr. PORTER said that reference had been made to the fact that the psychical element might be responsible for the favorable outcome of cases under this treatment. In his paper he had called attention to the fact that the psychical disturbances of chorea could never be overlooked, and that it might be that the results which followed the use of the serum were evidence of a successful if unwitting application of suggestive therapy. He thought it was better to withdraw more spinal fluid than the amount injected. All of these cases showed high intraspinal pressure. There was, however, nothing in the spinal fluid to lead one to believe that there was an infection. The cell count and the globulin of the spinal fluid were normal.

A Comparison of the Carbon Dioxide Tension of the Alveolar Air, the Bicarbonate of the Blood Plasma, and the Hydrogen Ion Concentration of the Urine in Infants with Acidosis.—Dr. OSCAR M. SCHLOSS of New York presented this paper, which recorded observations made on cases of acidosis which occurred as a complication of gastroenteric disorders, and were of the type described by Howland and Marriott. He stated that he had attempted to compare the reaction of the urine, the carbon dioxide tension of the alveolar air, and the plasma bicarbonate, with special reference to the diagnosis and treatment of acidosis. He found that the plasma bicarbonate was probably the most accurate index of the alkaline reserve of the blood, and this was used as a standard by which the other methods were compared. The reaction of the urine of infants was more acid than that of adults on a mixed diet, and it was definitely influenced by diet. The fact that the urine of infants was more acid than that of adults was probably due to the fact that the diet of infants was poorer in bases than that of adults. Correspondingly, the carbondioxide of the alveolar air and the plasma bicarbonate were also lower. In acidosis the urine was always very acid, but in moderate degrees of acidosis the urine was no more acid than in some normal infants on an acid-producing diet. Urine with a hydrogen ion concentration of six or less excluded the possibility of acidosis. The carbon dioxide tension of the alveolar air corresponded very closely to the plasma bicarbonate in normal infants and in cases of acidosis before sodium bicarbonate had been administered. In acidosis, after the bicarbonate had been given and the plasma bicarbonate brought to normal, the carbon dioxide of the alveolar air was often much too low. This was probably due to continued irritability of the respiratory center.

Dr. W. M. MCKIM MARRIOTT of St. Louis said that his experience had been practically the same as that of Dr. Schloss, particularly in regard to the failure of the alveolar carbon dioxide to indicate the presence of acidosis after sodium bicarbonate had been administered. In regard to the reaction of the urine, if one took as his guide for treatment the alkaline reaction to litmus he might make a mistake and give too much bicarbonate. Creosol purple was a much more accurate indicator.

Medical Prophylactic Work in the Army and Its Application to the Civil Population.—Dr. PAUL ARMAND-DELILLE of France read a paper on this subject. (See MEDICAL RECORD, June 22, p. 1104.)

Child Welfare Work in France.—Dr. WILLIAM PALMER LUCAS spoke on this subject. (See MEDICAL RECORD, June 22, 1918, p. 1105.)

The Massachusetts Child Conservation Committee. The Details of Organization and Work.—Dr. RICHARD M. SMITH of Boston read this paper, in which he stated that the popularity of child welfare campaigns had led to the formation of many new organizations, and that this had resulted in much overlapping and reduplication of work. In Massachusetts they had worked out a plan whereby they had secured a proper coordination of the lay child welfare organizations and the Health Department. They had a central committee, known as the Child Conservation Committee, which had carried on a campaign through which they had obtained the cooperation of local committees in a scheme whereby the actual child welfare work was done by trained public health nurses. A survey of the children of the State had been made and accurate and complete records were kept and filed with the Department of Health. The officers of the Health Department acted in an advisory capacity to the nurses and organizations that were helping them. Some $50,000 had thus far been appropriated to carry on this work, and they were getting very good results and working harmoniously.

Dr. S. MCC. HAMILL of Philadelphia told what was being done in Pennsylvania in the work of organization for child welfare work, where they had some difficulty in getting the State Health Department to cooperate with the women's committees. They had finally succeeded in getting the women's committees to work in accordance with a plan by which the work was to be carried out under the division of child hygiene of the State Department of Health. The character of the survey now being made was very much like that which had been made in Massachusetts, reports were being presented, and suggestions for new work were being considered.

Dr. FRITZ B. TALBOT explained that the funds that Dr. Smith spoke of as being appropriated were raised by the individual committees throughout the State. He related specific instances showing how the trained public health nurses awakened public opinion on this subject and aroused enthusiasm in the work. The $50,000 represented work that had been done by their committees and by the trained public health nurses.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting Held Wednesday, November 13, 1918.

MAJOR JOHN W. WEST, PRESIDENT, IN THE CHAIR.

THIS meeting was held jointly with the Babies' Welfare Association.

What the American Red Cross Is Doing for the French Children, and Its Application at Home.—Dr. J. H. MASON KNOX of Baltimore, Assistant Director, Children's Bureau, American Red Cross in France, regarded the preservation of the baby as the most important public health proposition at present before the civilized world. The problem deserved the unreserved resources of the State and was entitled to the co-operation of private citizens. Working as a detached agency the Red Cross had been able to bring into harmonious co-operation all organizations having to do with the betterment of child life in France. He regarded the situation in France as critical. While the death rate was not exceedingly high, being in one or two provinces under 10 per cent., the birth rate averaged somewhat less than fifteen per thousand. A slowly falling birth rate before the war had, with the withdrawal of men to military service and women to munition work, become a rapidly falling one. The twofold problem presented in France was that of bringing about an increased birth rate and a lower infant mortality. The low birth rate of France was attributed in part to the inborn desire of the French people to live comfortably. The laws of France requiring equal inheritance among children might also be a factor. Since families were thus so small, it was twice as important to save a French baby as that of any other race. The work of the Children's Bureau in France consisted in (1) meeting immediately pressing conditions, and (2) constructive effort. Under the first were included care of the babies of the soldiers, those of the city population, and the children of the refuge families. In a small village near the German front a large number of children who had been subjected to gas attacks had been placed in large military barracks under the medical care of Dr. Lucas of San Francisco. A hospital for these children was afterward developed. A further work of the Children's Bureau had been the establishment of a chain of rural dispensaries illustrating to the poor people of the small villages the method of caring for children; also the institution of automobile dispensaries with the personnel of a doctor, a nurse, and one or two nurses' aids, which made two visits a week in each town. Where there was need, the nurse or aid would be left in the village. A clinic was held twice a week. Two or four automobiles had thus covered the area of thirty or forty miles in the vicinity of Toul and Nancy. A number of tuberculosis camps were also established. In one vicinity nearly a thousand children had been taken to the seashore for the summer, where they had done wonderfully well. A great difficulty to be confronted was that of returning these children to their families, the adults all being needed for the commercial life of the town. Under the Belgian Commission, with which there had been close association in the work of the Red Cross, Dr. Park of Johns Hopkins had opened a clinic for children. The splendid spirit and character of the Belgian children, in Dr. Knox's opinion, gave much promise for the future of Belgium. The Refugee Bureau co-operated with the French officials in finding homes for the people and supplying them with furniture and other needed articles. Every child under twelve years of age, coming through the convoys of refugees, was examined for the detection of infectious disease or other condition which might prove a menace. Twenty miles from Lyons a large château with 200 acres of ground had been acquired by the Children's Bureau, where convalescent cases were kept until able to go to their destination. The German consulate had been taken over by the bureau and converted into a hospital. Two other buildings in the vicinity of Lyons had also been thus used.

Paris was regarded as the center of activities and there the Children's Bureau had opened twenty dispensaries; always, however, after most careful examination that they did not conflict with French organizations and only with the support and encouragement of the French physicians. The nose and throat work in France was regarded as exceedingly important; the complete removal of tonsils was not there done as often as was thought by some of the American physicians it should be done. A small private hospital had been secured for this work and here perhaps a hundred cases a week had been treated. It was the experience of the bureau to find that many of the children needed food rather than drugs. The principal meal of the day was given at the school and this the bureau had supplemented, that the same amount might be given them as before the war. In one section sweetened bread and chocolate had been supplied, the children being told that the children of America were sharing their bread with the children of France.

While the touch of the bureau with the Army was not intimate, the bureau assumed the care of the orphans supported by the American soldiers. The *Stars and Stripes* had given opportunity for groups of soldiers to be responsible for these children, and the Children's Bureau had supplied the orphans and the care, while the soldiers supplied the money. One service rendered by the bureau was the sending by the nurse of postcards written by the mothers to husbands at the front, saying that they had been assisted by the American Red Cross and would be taken care of. Many evidences had been received that such little service was appreciated.

For the constructive work in France there was said to be, of course, at this time unique opportunity. One form of educational propaganda carried out was by the use of automobiles equipped to present infant welfare and tuberculosis work. Reference was made to the work of the Rockefeller Foundation in connection with tuberculosis. A result of bringing together various agencies was the availability of a personnel always ready for follow-up work after interest had been aroused. Crowds of people attended the exhibits showing the pre- and post-natal care of the baby; illustrating also playground work. In these exhibits the "Punch and Judy" show had been used to much advantage in showing the ignorant mother brought to terms. Dr. Knox thought that in America as well this demonstration might be used in putting over some of the practical truths concerning baby welfare work. In three weeks approximately 140,000 people had visited this exhibit. The great need of trained nurses in France was mentioned. To supply this need short training courses had been given, the French physicians giving lectures and the training being received in the dispensaries, and in institutions where mother and baby were cared for. The promotion of the training of the French nurse was regarded by the speaker as one of the most important phases of constructive work the Children's Bureau had been permitted to do.

Intensive work designed to reach every baby had been organized under the French officials. In this plan a ward was divided into certain sections and in a central office a record was made of every child born in the various divisions and the name given to the organization responsible. The mother was visited and a certain allocation made to her if she could keep the baby with her. If by such plan the death rate could be demonstrated to be lowered the ready co-operation of the French people could be readily obtained.

On the non-medical side of the work reference was made to scholarships which had been established in France. A big national organization in association with the American Red Cross had agreed to select promising children of a family to whom scholarships would be awarded.

In closing Dr. Knox observed that infant welfare, the same the world over, should be taught in the schools. Until this were done the teaching must be carried into the homes, and for this the nurse, as the social visitor, was the instrumentality of choice. The relation of infant mortality to the daily wage was said to be very close. For the sake of the baby there should be willingness to supplement the low wage by some form of allocation. Lantern slide demonstration of the work of the Children's Bureau in France closed the address.

Serum for Sycosis Barbae.—This affection is said to prevail extensively in Germany, and Bruck, of Wassermann reaction fame, has prepared a serum against it.—*La Presse Medicale.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

PENNSYLVANIA BUREAU OF MEDICAL EDUCATION AND LICENSURE.

July 9-11, 1918.

(*Concluded from page* 1014.)

OBSTETRICS AND GYNECOLOGY, PHYSIOLOGICAL CHEMISTRY.

1. Should a woman with a deformed pelvis (early in pregnancy) engage your services, name the three most important methods by which you would aim to secure her a living child? In each instance name the limits of measurement of the conjugata vera.

2. Given a pregnant woman (within the first three months) of doubtful intrauterine or extrauterine location, describe in detail how you would determine the correct diagnosis.

3. During the birth of an infant what dangers threaten it? Name the three most important dangers and discuss their prevention.

4. How would you deduce the presence of uterine cancer: (*a*) early? (*b*) late? Describe carefully the difference. Name the most important method of treatment.

5. Name the distinguishing points of difference between uncomplicated retrodisplacement of the nongravid womb, a small uncomplicated pelvic tumor, and fecal content of the lower bowel.

6. When is the induction of premature labor justifiable? In any three cases in which you would consider the advisability of performing any other operation, explain in detail why you would prefer them to premature labor.

7. If, at the third month, a primipara should engage you to care for her through the period of gestation and labor, give in detail your care of the case, including measurements and tests.

8. What symptoms would lead you to the apprehension of an oncoming attack of eclampsia before the convulsions set in? What measures would you take to prevent the threatened attack?

9. Discuss the thyroid gland from the chemical and therapeutic standpoint.

10. (*a*) What are the most prominent organic constituents of commercial meat extracts? (*b*) What is the nutritional value of such extracts?

ANATOMY AND SURGERY.

1. What are the early symptoms of hip-joint disease? What is the anatomical explanation of each of these symptoms?

2. State the avenues and possible points of metastasis of malignant growth of the breast. Upon what symptoms may an early diagnosis of cancer of the breast be based?

3. State the varieties and causes of hemorrhoids, together with the complicating surgical conditions which may follow their presence. Mention two operations for their cure.

4. Given a severe scalp wound, upon what would you base your opinion as to the safety of immediate closure of the wound?

5. What conditions would demand a circumcision (*a*) in the child? (*b*) in the adult? Describe the operation.

6. State in detail the conditions necessary to be present which would warrant the amputation of an extremity. State the structures severed in an amputation through the middle of the arm.

7. How is Colles' fracture produced? What displacements occur and what is their anatomical explanation? State the method of reduction of the fracture.

8. Describe the principles involved in the Carrel-Dakin treatment of wounds. Give a detailed description of the application of the method. Point out the essential differences between this method and the dichloramine-T method.

9. Detail the possible traumatisms produced in a sprain of the ankle. Outline the principles involved in its treatment and the method of securing the result.

10. State the conditions caused by gonorrhea that may require surgical intervention (*a*) in the male, (*b*) in the female. State what operation would be indicated in each instance.

PRACTICE, MATERIA MEDICA AND THERAPEUTICS, HYGIENE AND PREVENTIVE MEDICINE.

1. Name the principal alkaloids in opium. How would you treat a patient addicted to the use of opium?

2. How would you treat: (*a*) diarrhea of cholera infantum? (*b*) diarrhea of an acute gastro-enteritis? (*c*) diarrhea of tubercular disease of the intestinal canal?

3. What medication might be employed in the treatment of chronic digestive inadequacy? What articles of diet would be indicated and what ones contraindicated, especially where fermentative action is pronounced and symptoms of autointoxication are present?

4. Outline the treatment of (*a*) chorea; (*b*) locomotor ataxia.

5. Name two conditions under which each of the following named remedies might be used and give the rationale of their administration: (*a*) oleum terebinthinae, (*b*) oleum tiglii, (*c*) camphora, (*d*) atropine sulphate, (*e*) argenti nitras.

6. Outline the treatment of pernicious anemia and of simple anemia.

7. Discuss the subject of the treatment of pain as it may present itself in the course of any three diseases of your own selection.

8. Discuss the subject of the prevention and treatment of syphilis.

9. Give the average and the maximum dose of the following named drugs: (*a*) hyoscyamine hydrobromide, (*b*) corrosive mercuric chloride, (*c*) santonin, (*d*) tincture of digitalis, (*e*) tincture of aconite, (*f*) strophanthin, (*g*) fluid extract of ergot, (*h*) caffeine, (*i*) amyl nitrite, (*j*) dilute hydrocyanic acid.

10. Discuss the therapeutic application of sodium bicarbonate, of sodium chloride, and of sodium benzoate.

ANSWERS.

OBSTETRICS AND GYNECOLOGY. PHYSIOLOGICAL CHEMISTRY.

1. In contracted and deformed pelvis, the different methods to be considered in delivery of the child are: (1) Induction of premature labor; (2) Forceps; (3) Version; (4) Craniotomy; (5) Cesarean section, or one of its modifications; (6) Symphyseotomy.

So many things have to be taken into consideration that it is quite impossible to lay down any hard and fast rules to govern every case. The following table (from King) is a safe guide:

WHEN CONJUGATE OF DIAMETER OF BRIM MEASURES	THE MODE OF DELIVERY AT TERM IS:
Between 4 and 3½ inches.	By Forceps.
Between 3½ and 2¾ inches	By Forceps, Version. Symphyseotomy. Cesarean section, or Craniotomy, *pro re nata*.
Between 2¾ and 2 inches.	Cesarean section, if child alive. Craniotomy, if child dead.
At 2 inches or less	Cesarean section always. Craniotomy excluded, whether child dead or alive.

2. "When a woman in the reproductive period, after some irregularity of the menses, such as going over the proper time a few days or having only a small, or even a more profuse flow, complains of cramping pains in the lower abdomen, mostly unilateral, with irregular uterine hemorrhage, the suspicion of ectopic pregnancy is aroused. If, suddenly, an excruciating pelvic pain occurs, with dizziness, faintness, or collapse, the diagnosis is almost certain, and is confirmed by finding an extrauterine tumor or the discharge of a uterine decidua. The direct diagnosis of fluid blood in the peritoneal cavity is seldom easy. A sense of soft resistance is found in the posterior vaginal fornix, but the uterus is not displaced. Puncture of the fornix with a long

sharp needle may reveal the blood, but it usually is not necessary for the diagnosis. After twenty-four hours to forty-eight hours the blood-clots become readily palpable and now displace the uterus—that is, a hematocele forms. When the discharge of blood is slower, a peritubal hematocele forms, which increases from day to day, and one can trace the advance of the progress with the finger by successive examinations. The hematocele may be retrouterine, before the uterus, at the side, before or behind, and the organs are displaced in typical directions. A broad-ligament hematoma can more easily be diagnosed from the stormy beginning and the firm, tender tumor at the side of the uterus, displacing it to the side and upward. In all cases where the history of the patient gives only a hint of the possibility of an extrauterine gestation, the examination must be conducted with the utmost gentleness to avoid rupturing the sac. . . . In the early months confusion is often caused by a long cervix softened at its upper part, which allows the fundus to bend backward or to the side. The cervix is hard, is held to be the uterus, and the fundus is thought to be the ectopic sac. By straightening out the uterus the diagnosis may be made certain, but before attempting to do so the presence of an eccyesis must be ruled out. Or the pregnancy is situated in one horn of the uterus and distends this side, the rest remaining hard. This is an 'angular pregnancy,' and is not seldom the cause of error.

INTRAUTERINE ANGULAR PREGNANCY.	EXTRAUTERINE PREGNANCY.
1. History is that of normal pregnancy, though, not seldom occasional slight hemorrhages and pains are present.	1. History of colicky pains and peritoneal irritation for several weeks; then a stormy event (rupture) with severe pain, shock, etc.
2. No expulsion of membrane, unless abortion.	2. Expulsion of decidua.
3. No anemia.	3. More or less anemia.
4. Demonstration of tube and round ligament on outside of the tumor.	4. Tube and round ligament not palpable, or medial to the tumor.
5. Can feel the wall of the uterus pass over onto tumor, especially during a contraction.	5. The mass is separated from the uterus by a groove. This is especially deep in pregnancy in an accessory horn.
6. The tumor is soft, feels like a pregnancy, is high up in the side of the pelvis, and movable as a part of the uterus.	6. The tumor is harder, lies at the side of the uterus or in the cul-de-sac, and is not movable.
7. The angular portion of the uterus contracts.	7. No contractions of the sac.
8. Gradually the typical shape of the uterus returns.	8. The tumor becomes more and more asymmetric at successive examinations.

"Angular pregnancy cannot be differentiated from interstitial pregnancy except by the clinical course. It is well, therefore, to place the patient in a hospital for observation." (From De Lee's *Obstetrics.*)

3. *Dangers which threaten an infant during birth:* Deformity of the head; caput succedaneum; cephalhematoma; fracture of bones; rupture of intracranial blood vessels; injuries to the brain; hematoma of sternomastoid muscle; paralysis (central or peripheral); meningeal apoplexy; asphyxia; atelectasis; infection of eyes.

Prevention of three important dangers: (1) *Ophthalmia.* Take all antiseptic and aseptic precautions, and in every case wash the eyelids of the new-born child with clean warm water, and drop on the cornea of each eye one drop of a 1 or 2 per cent. solution of nitrate of silver, immediately after birth.

(2) *Asphyxia.* Tedious labors should be accelerated, and prolonged pressure upon the fetus (chiefly the head) should be prevented; pressure upon the cord must also be prevented; prolapse of the cord, and winding of the cord around the neck must be looked for, and (if possible) corrected; the air passages must be cleansed as soon as the head is born.

(3) *Paralysis.* Prolonged pressure on the fetal head must be avoided; care must be exercised in the use of forceps; and undue delay in the use of forceps should be avoided.

4. The presence of *early* uterine cancer may be deduced from the presence of an irregular uterine hemorrhage, an offensive discharge from the vagina, and sometimes pain in the pelvis. A microscopic examination may aid in the diagnosis.

Later, the tumor is noticeable, and the patient shows the characteristic cachexia; the uterus may be curetted, and the scrapings examined microscopically. Metastatic growths may be noticed in the pelvis. The growth (if on the cervix) is friable.

Treatment, to be of any value, depends on an early diagnosis. If the cancer is diagnosed quite early, before cachexia and metastasis are present, and before any other structures are involved, complete hysterectomy may prolong the patient's life.

5. In all three of these conditions a mass (or tumor) will be felt in the posterior vaginal fornix, but on bimanual examination, the fundus of the uterus will be absent from its proper position, and the cervix will point toward the vaginal outlet in case of *uncomplicated retrodisplacement. Fecal accumulations* may be removed by the use of cathartics and enemata. In the case of *uncomplicated* pelvic tumor, the mass may be separated from the uterus, and it will be found to differ from the uterus in size, location, and consistency; further the judicious use of the sound will help to differentiate this from the uterus.

6. Conditions that justify the induction of premature labor: (1) Certain pelvic deformities; (2) placenta prævia; (3) pernicious anemia; (4) toxemia of pregnancy; (5) habitual death of a fetus toward the end of pregnancy; (6) hydatidiform mole; (7) habitually large fetal head.

And see Question 1.

Cesarean section is recommended in the following cases: (1) Extreme deformity of the pelvis, in which delivery by forceps and version is excluded, and in which craniotomy is either impossible or would be more dangerous to the mother than cutting into the abdomen and uterus; and in which there is not room for a successful symphyseotomy. Such cases present the "*positive*" indication for cesarean section; there is nothing else to be done. Flat pelves having a conjugata vera of 2¼ inches or less, and justo-minor pelves with a conjugata vera of 2½ inches or less, present this positive indication; (2) recently the operation has been done in eclampsia cases, where more conservative methods of rapid delivery were impracticable; and (3) in placenta prævia, chiefly with a view to lessen the infant mortality attending the usual treatment of this complication.

7. A primipara should be instructed fully in the hygiene of pregnancy, by which is meant the care which should be observed by the pregnant woman for the preservation of health and strength both of herself and of the fetus. The pregnant woman should take moderate exercise in the open air; in the last month massage may take the place of exercise. Daily bathing in tepid water, care of the teeth, regularity of the bowels, ample sleep in a well-ventilated room, plenty (but not too much) of simple, nourishing and easily digested food, at regular hours, clothing not too tight, especially about the abdomen and breast; attention to the nipples, regular examination of the urine, and the restriction of marital relations are the main points to which advice should be directed. In addition certain measurements are necessary; a pelvimeter will be required to make these measurements. The interspinal and intercristal diameters are measured, also the distance between the ischial tuberosities and the anteroposterior diameter, as well as the external conjugate. It is well to notice if the subpubic arch is narrowed; the diagonal conjugate is also estimated; from the latter the true conjugate can be obtained.

8. *Symptoms of impending eclampsia:* Headache, nausea, vomiting, pain over stomach, vertigo, ringing in ears, flashes of light, blindness, mental disturbances. *Preventive treatment:* (1) The amount of nitrogenous food should be diminished to a minimum; (2) the production and absorption of poisonous materials in the intestines and body tissues should be limited and their elimination should be aided by improving the action

of the bowels, the kidneys, the liver, the skin, and the lungs; (3) the source of the fetal metabolic product and the peripheral irritation in the uterus should, if necessary, be removed by evacuating that organ.

9. THYROID GLAND. *Chemistry.* "Fresh thyroid extract is alkaline, but if the extract is obtained some time after death it is acid, due to the presence of sarcolactic acid. Thyroid substance contains water, 82 per cent.; solids, 18 per cent. The solids consist of nucleoprotein and iodothyrin (thyroiodine). The latter substance constitutes about 10 per cent., and contains the elements C, H, O, N, P, and I. The iodothyrin is contained in the colloidal substance, which is derived from the granules in the cubical cells lining the thyroid vesicles."—(Lyle's *Physiology.*)

Therapeutics. It is used: (1) *In Myxedema and Cretinism.* In these conditions the effects are most striking. In myxedema the mentality and the physical characteristics are restored; in cretinism the patient may be changed from a maldeveloped and hopelessly idiotic child to a well-developed and more intelligent one.

(2) *After thyroidectomy*—to prevent the usual train of symptoms. It is effective if the parathyroids have not been removed.

(3) *In hypothyroidism*, as after some partial thyroidectomies, and in the late stages of exophthalmic goiter where reversion to colloid has taken place. It is believed that there are many cases of hypothyroidism, with ill-defined symptoms, in which thyroid may be of benefit; but the distinguishing features of this condition have not been satisfactorily determined.

(4) *In Colloid Goiter.* (5) *In Obesity.* (6) *In Rheumatoid Arthritis.* (7) *In Infantile Wasting.* (8) *In Osteomalacia, Rickets, and Delayed Union of Fractures.*

It is contraindicated in the hyperplasia stage of exophthalmic goiter, as it increases the symptoms.—(Bastedo's *Materia Medica, etc.*)

10. *Meat extracts* in themselves have very little food value. They contain a trace of protein and gelatin, but the peculiar value of meat extract lies in the presence of the so-called nitrogenous extractives, namely: creatine, xanthine, hypoxanthine, adenine, guanine, etc. These substances are likewise stimulants. They also call forth a copious secretion of gastric juice, and for this reason have been called secretogogues.—(From *Reference Handbook of the Medical Sciences.*)

ANATOMY AND SURGERY.

1. *The early symptoms in hip joint disease* are: (1) *Pain*, which is referred to the knee, due to the distribution of the obturator nerve to both hip and knee joints. (2) *Flexion of the limb*, with *abduction* and *eversion*, because in this position the capsule of the joint is most relaxed and there is more room for the fluid, and this position affords most comfort to the patient. In *abduction* the upper part of the capsule and the outer part of the Y-ligament are chiefly relaxed; in *eversion*, the inner part of the Y-ligament is chiefly relaxed. (3) *Apparent lengthening of the limb*, due to a tilting down of the pelvis to counteract the shortening produced by flexion and abduction. (4) *Flattening of the buttock and loss of the gluteal fold*, due to flexion of the hip; later on the gluteal muscles may atrophy. (5) *Lordosis*, due to the forward movement of the vertebræ to minimize the inconvenience of the flexed hip.

2. *Malignant growths of the breast* may spread (1) to the axillary glands, (2) the subclavian glands, (3) the retrosternal glands and the mediastinum, (4) and also to the other breast. "A cancerous breast is coextensive with the lymphatics which drain it."

An *early diagnosis of cancer of the breast* is made on the presence of a "lump" in the breast which is at first somewhat moveable but later there is adhesion of the gland to the pectoralis major, puckering of the skin, retracted nipple (if the tumor is in the part immediately below the nipple).

In *doubtful cases* it is well to imagine the growth to be malignant until it is proved otherwise. If the breast is removed, and the tumor is proved benign, the woman has lost a breast; whereas, if it is not removed, and should prove to be malignant, she will lose her life. The best plan is (with the consent of the patient) to prepare for a radical operation, excise a piece of the tumor, have it examined microscopically, and if it proves to be benign, remove the tumor; if it is malignant, remove the whole breast and neighboring lymphatic glands.

3. *Hemorrhoids. Varieties:* External and internal. *Causes:* Dilatation of the hemorrhoidal veins, pressure of the blood in the portal system, absence of valves in the portal veins, constipation, pregnancy, stricture of the rectum, cirrhosis of the liver, and the anastomosis between the portal and systemic veins which occurs between the hemorrhoidal veins. *Two operations for their cure:* (1) Clamp and cautery, (2) Whitehead's operation (removal of the whole pile-bearing area of mucous membrane). *Complications:* Fissure in ano, prolapse of rectum, strangulation of piles, inflammation of piles with thrombosis.

4. In a severe scalp wound, the surgeon should not immediately close the wound if there are any signs of sepsis, or fracture of the skull.

Symptoms of fracture of base of skull: Hemorrhage (from nose, into orbit, from ear, or into tissues), escape of cerebrospinal fluid from nose or ear; concussion or laceration of brain, with coma; various nerve lesions (blindness, ocular paralysis, facial paralysis, deafness).

In a *simple depressed fracture* there is usually some concussion, which is followed by compression from hemorrhage in the neighborhood. The depressed bone also causes compression later by the *spreading edema* it sets up in the brain. If the depression is over the motor area convulsions or paralysis are quickly induced.

In a *compound depressed fracture* the blood escapes and does not produce compression. Concussion may or may not be present. The advent of sepsis produces inflammation of the bone, membranes, and brain, which may be limited if the drainage is free; but if not death soon follows from compression by the inflammatory exudation.

5. *Circumcision is indicated, in children,* in congenital phimosis when accompanied by hydrocele or hernia, balanitis, preputial calculi, ballooning of the prepuce in voiding urine, and certain reflex symptoms such as dysuria, epilepsy, convulsions due to phimosis. *In adults* the operation is indicated for the same set of troubles as in children, and for phimosis dependent upon inflammation, excited by venereal sores, gonorrhea, etc., as well as for simply redundant prepuce without phimosis, when there are any local irritative or reflex symptoms, as spermatorrhea.—(From *Reference Handbook of the Medical Sciences.*)

"*Circumcision* is performed by drawing the prepuce forward and then enclosing it in a pair of clamp-forceps placed obliquely just in front of the glans. The prepuce is next divided with a straight bistoury, and the forceps removed, when the skin and mucous membrane retract. The mucous membrane, if adherent, is dissected loose from the glans; if redundant, it is trimmed with scissors to make it correspond to the line of skin incision; the cut edge of the mucous membrane is next fastened to the cut edge of the skin by a few sutures of silk or catgut."—(Wharton's *Minor Surgery.*)

6. *The indications for amputation* are (1) to save life, *e.g.* in extensive crushes, virulent infections, gangrene, septic diseases of bone, tumors, and aneurysms; and (2) to provide for the fitting of useful artificial sunports when the limb is functionless from disease or deformity. To amputate or not to amputate is a question which often taxes the surgeon's judgment to the utmost, as absolute rules cannot be formulated. The age and general condition of the patient may be such as to necessitate amputation, which under other circumstances would be inadvisable. Furthermore, a laborer who must support a large family can often be more quickly and better prepared to meet life's responsibilities with an artificial limb than with a badly crippled extremity, which to his more fortunate brother is an inconvenience only. In injuries the principal questions to be answered are: (1) Will the blood supply be adequate to prevent gangrene; (2) is the injury to the nerves and muscles so great that a useful limb cannot be obtained; (3) Can infection be prevented or kept under control? 1. Laceration of the main artery or bone alone is not an imperative indication for amputation, as either may be sutured or even tied without

gangrene following, providing the collateral vessels are intact. If both artery and vein require ligation, however, amputation must be performed, unless the injury, a gunshot wound, for example, has not compromised the collateral circulation. Moszkowitz tests the efficiency of the circulation by elevating the limb, applying a tourniquet, then lowering the limb, and after five minutes removing the constrictor. If the circulation is active, the whole limb becomes hyperemic in a few seconds. Parts which remain anemic are devitalized, those which improve in color very slowly will probably become gangrenous. Matas, in order to ascertain the condition of the collateral circulation, maintains the pressure on the artery after removing the tourniquet. 2. Nerves and muscles may be sutured in suitable cases, but they are often so extensively damaged that they either cannot be approximated or repair cannot be expected. Extensive loss of skin in itself is rarely an indication for amputation. 3. Infection is practically never an indication for *primary amputation;* a finger may, however, be amputated immediately after a bite by a venomous snake or after a known infection with very virulent organisms. Unless amputation is positively demanded, *e.g.* in pulpification of the whole limb or a segment thereof, or in cases in which the main artery and vein are destroyed, one is always justified in making an effort to preserve the part by careful disinfection and free drainage. If gangrene or extensive cellulitis follow within a few days, the limb may then be removed (*intermediate amputation*). *Secondary amputation, i. e.* after a number of days, may be required for secondary hemorrhage, osteomyelitis, chronic sepsis, exhaustion, or amyloid disease, or to remove a useless limb after healing has occurred.—(Stewart's *Surgery.*)

The *structures severed in an amputation through the middle of the arm* are: Skin, fascia; *muscles,* biceps, triceps, coracobrachialis, and brachialis anticus; *vessels,* brachial artery and venæ comites, superior and inferior profunda vessels, basilic and cephalic veins; *nerves,* median, ulnar, musculospiral, internal cutaneous, and musculocutaneous; *bone,* humerus.

7. *Colles' fracture* is a transverse fracture at lower end of radius; it is due to falls on the outstretched palm. The line of fracture is about an inch above the wrist, and runs obliquely downward from behind. The lower fragment is driven backward and upward, and rotated to the radial side, carrying the hand with it into the position of abduction and leaving the tip of the radius at the same level as, or higher than, the tip of the styloid process of the ulna. The internal lateral ligament of the wrist is ruptured or the styloid process torn off. The fracture is usually impacted, the upper fragment being driven into the lower. The deformity is characteristic, *viz.:* (1) The hand is abducted; (2) the styloid process is on the same level as, or lower than, the tip of the radius; (3) the upper end of the lower fragment projects above the back of the wrist; on the front is a corresponding depression, while above it the upper fragment projects forward. Union occurs readily, but it is common to get deformity and adhesions about the site of fracture. *Treatment:* Disimpaction and reduction are brought about by grasping the hand by the "shaking hands" grip, extending and adducting the hand and lower fragment. The arm is then fixed on a splint. It is very important in this fracture to start massage and passive movement not later than the end of the first week, to prevent stiffness. Union is firm in three weeks.—(*Aids to Surgery.*)

8. *Carrel-Dakin treatment of wounds.* "The instillation method of sterilization, commonly called the method of Carrel and Dakin, introduces into every part of an infected wound a continuous amount of an antiseptic fluid, not for irrigation, but for aseptization. Sodium hypochlorite 0.5 per cent. solution is used. The wound is first cleansed under strict aseptic precautions; all foreign matter is removed. The skin is sterilized with iodine. Necrotic tissue is cut away. Hemostasis is secured. Counter openings are rarely needed, and when made they are not placed at the dependent parts, as the object of the treatment is to cause the retention of the antiseptic fluid. For superficial wounds several layers of gauze are placed over the wound and a circular rubber tube perforated with many holes is placed on the gauze. As applied in France the method consisted in wrapping the ends of the tubes in Turkish toweling, and laying the tubes on the wound surface. For deeper wounds a tube is passed to the depths of the wound. If the wound is a penetrating one, an unfenestrated tube should reach the bottom of the wound, and the fluid allowed to return around the outer sides of the tube. If the wound passes all the way through a part or has an opening at the bottom, the tube should be passed into the dependent opening to the top of the wound. The fluid then flows back along the tube. The upper opening should be plugged with a tampon of gauze to cause the retention of the fluid. Deep wounds may be dressed in such a way that the tubes pass through the dressings. It is always best that the tubes enter closed cavities which will retain the instilled fluid. Discharge of pus need not be provided for, because when properly carried out this treatment prevents suppurative discharge. Wounds which are widely open should be immersed every two hours for ten or fifteen minutes in the hypochlorite solution. The skin may be protected from irritation by covering it with sterile petrolatum. In wounds which require dressing, the surrounding skin should be covered with gauze saturated with petrolatum. In compound fractures the same principles apply. In large wounds with multiple passages and excavations, a tube should pass into every crevice and cavity. Each tributary tube should have its extreme end closed by tying it about with a ligature. The tubes should have many perforations. All of these tubes should be connected with the common tube coming from the irrigating reservoir. For this purpose a Y-glass tube may be used or a glass tube with multiple nipples for attachment. The tubes are left constantly in place. The fluid is allowed to flow into the wound every two hours by releasing the shutoff. The flow should be enough to bathe all of the wound but not enough to cause much overflow. The flow may be allowed to be free enough once a day to constitute an irrigation. Every second day a drop of secretion should be taken from the wound, and the number of bacteria in a given amount recorded. When bacteria have been absent for three days the wound may be regarded as sterile. It is customary in some hospitals to take a loop full of secretion from the wound once a day; when only one bacterium is found after examining twenty loopfuls, the wound may be sutured and healing expected. By this treatment wounds of the soft parts are usually rendered approximately sterile in from five to ten days. Wounds with necrotic tissue require longer. Compound fractures require from two to five weeks. Secondary sutures may always be applied when the wound has been found free of bacteria. This bacterial control is a highly important feature of the technique."—(Warbasse's *Surgical Treatment.*)

"The *dichloramine-T method* is an outgrowth of experience with the first Dakin solution of the hypochlorite of soda. Dakin has substituted the dichloramine salt, twice as rich in chlorine, for the chloramine-T which he first used. This new preparation in some important respects seems to be better than the first hypochlorite of soda. It is, however, only a change in one portion of Carrel's method. The rest of Carrel's technique, the wide excision of all damaged tissue, the later substitution of the paste dressing, the constant bacteriologic testing of the degree of sterilization are quite as important as the particular chlorine salt employed."—(Keen's *Treatment of War Wounds.*)

9. The *possible traumatisms in a sprain of the ankle* are: Rupture of one or more ligaments, bruising of the synovial membrane, loosening a separation of cartilages, hemorrhage into the joint and surrounding tissues, laceration or displacement or stretching of muscles and tendons, injury to vessels and nerves, contusion of the skin, and sometimes separation of a piece of bone or cartilage.

Treatment: "Sprains are best treated by early massage and movement, combined with firm, elastic pressure. In the ankle, for example, massage should be commenced at once, the part being gently stroked upward. The process is painful for the first few minutes, but soon ceases to be so and becomes soothing. The rubbing is continued for from fifteen to twenty minutes, the patient being encouraged to move the toes and ankle. A moderately firm elastic bandage or strips of adhesive plaster are then applied, care being taken not

to constrict the limb and so interfere with the circulation. The massage is repeated once or twice a day, the sittings lasting for about half an hour. The patient should be encouraged to move the joint from the first, beginning with the movements that put least strain upon the damaged ligaments, and gradually increasing the range. In the course of a few days he is encouraged to walk, or otherwise to use the joint without subjecting it to strain. Alternate hot and cold douching, or hot-air baths, followed by massage, are also useful. Complete rest and prolonged immobilization are to be condemned."—(Thomson and Miles' *Surgery.*)

10. In the *male*, gonorrhea may cause: Buboes (treated by incision), abscesses (treated by incision), balanitis (if complicated by phimosis, the foreskin must be slit up, or circumcision performed), suppuration of Cowper's glands (incision is indicated), stricture (treated by dilatation), retention of urine (treated by catheterization), prostatitis and vesiculitis (may require incision). In the *female*, abscesses (need incision), pyosalpinx (treated by removal of the infected tube), ovaritis (may need removal of ovary), peritonitis, and adhesions.

PRACTICE, MATERIA MEDICA AND THERAPEUTICS, HYGIENE AND PREVENTIVE MEDICINE.

1. The *principal alkaloids of opium* are: Morphine, codeine, thebaine, narcotine, narceine, papaverine.

Treatment of a patient addicted to the use of opium is thus summed up by Bastedo (*Materia Medica*, etc.): (1) Isolation from friends and hirelings. (2) Gradual withdrawal of the drug in from two or three days to a week. Accompanying the withdrawal there may be diarrhea, cramps in abdomen, back, and legs, intense restlessness, and mental and physical suffering. (3) The substitution for a time of other drugs, of which great favorites are atropine and hyoscine. Keeping the patient in a state of partial narcosis for several days tends to prevent the discomforts which cause the craving for morphine. (4) Nourishing food, to the extent of overfeeding. (5) Massage, baths, and general measures to improve the hygienic conditions of living.

2. The *diarrhea of cholera infantum* is treated by the administration of castor oil or calomel, followed by lavage and intestinal irrigation; afterward, a sedative astringent, such as bismuth subnitrate or chalk, may be administered. The child must not receive any milk during the first few days, but must be nourished with barley water, plain boiled water and fresh beef juice.

The *diarrhea of acute gastroenteritis* is treated by castor oil or magnesium sulphate, followed by opium.

The *diarrhea of tuberculous disease of the intestinal canal* is treated by administration of bismuth subnitrate, and an antiseptic such as guaiacol carbonate; sometimes lead acetate or nitrate of silver may be of more benefit.

3. *Treatment of chronic indigestion:* "The medicinal treatment should be based upon the state of the gastric secretion. In conditions of subacidity, dilute hydrochloric acid (15 minims), in a glassful of water, should be given with each meal. In many cases, however, instead of supplying the deficient hydrochloric acid, we can stimulate the secretion and improve the motor power of the stomach with tincture of nux vomica, beginning with 15 minims three times a day and gradually increasing the dose to 60 minims or more. The bitter tonics, gentian, cinchona, quassia, calumba, condurango, cardamoms, etc., are extensively used and are of value in improving the appetite and stimulating the secretion and motor power of the stomach. Digestive ferments (pepsin, pancreatic preparations, etc.) may be of service in supplying a deficient digestive ferment pending the restoration of the gastric functions, but they are less important than was formerly believed, the hydrochloric acid being the more important factor and activating the zymogens already present. In protracted cases silver nitrate, ⅛ grain combined with extract of belladonna or hyoscyamus, ⅛ grain three times daily, if there is much pain and hyperacidity, is of value.

"Tea, coffee, alcohol, tobacco, pastry, hot bread, hot cakes, fats, sweets, pork, veal, etc., must be prohibited. In some cases mere regulation of the diet suffices to dissipate all the symptoms. In other cases a strict dietetic regimen is imperative, for a time at least; in some cases, especially those occurring in liver cirrhosis, Bright's disease, etc., a milk diet for several weeks may be tried. The milk should be given in stated amounts at regular intervals and about 2 liters in the twenty-four hours. It may be diluted with Vichy or lime water, or, especially in the event of nausea, sodium bicarbonate (5 to 10 grains) may be added to each glassful. For a short time the milk may be peptonized, or buttermilk may be substituted. In most cases it is unnecessary to restrict the diet to milk; most patients can digest, in addition to milk, dry toast, chicken, and roasted or broiled red meats. Farinaceous foods, especially potatoes and coarse vegetables, are a fruitful source of trouble and must be interdicted, especially in the event of flatulence or acid eructations. As the patient improves, the diet may be made more liberal by the addition of eggs, broths, and rice; and green vegetables, such as spinach, lettuce, fruits, etc., may be allowed; but pastry, fried foods, coarse vegetables, strong condiments, and meats, such as pork and veal, must be prohibited."—(From Kelly's *Practice of Medicine.*)

4. *Treatment of chorea.* "Rest of body and mind is an essential element of the treatment. The child should be taken from school and placed under the most favorable hygienic conditions. Amusement in the open air when the weather is fine is to be recommended. As the child is usually anemic, iron is indicated in the majority of cases. Among the special remedies arsenic holds the first place. Fowler's solution may be given in doses of two drops thrice daily, gradually increased to eight or ten drops thrice daily. If arsenic fails, cimicifuga should be tried. A dose of 10 minims of the fluidextract may be given after meals and gradually increased to ½ fluidram or more. Salicyl compounds and antipyrin are sometimes useful. If the movements are very violent and interfere with sleep, recourse must be had to chloral, bromides, trional, or hyoscine."—(Stevens' *Practice.*)

Treatment of Locomotor ataxia. "Rest is an important factor in the treatment. Erb advises that the patient should live as if he were an old man, quietly, regularly, and with no excitement. Mental fatigue should also be avoided. Sexual excesses are exceedingly injurious. The diet should be nutritious and easily digestible. Alcohol and tobacco should be used sparingly, if at all. Flannel should always be worn next to the skin. Massage affords a valuable means of securing the benefits of exercise without the expenditure of energy. Systematic reeducation of coordinating movements, as originally recommended by Frenkel, has been found the most effective remedy for the ataxia. Even in advanced cases, in which there is marked disturbance of sensation, this method of treatment is not without benefit, and the improvement may last for years if the disease is stationary or only slowly progressive. Tepid baths of 80°-85° F. are sometimes of distinct service. They should be suspended, however, while the exercise treatment is being used. Salvarsan, mercury, and iodides should be given a thorough trial in all cases in which syphilis is suspected."—(Stevens' *Practice.*)

5. *Oleum terebinthinæ* may be used (1) in case of tapeworm, as an anthelmintic and teniacide; (2) in case of muscular rheumatism, as a counterirritant.

Oleum tiglii may be used (1) in case of apoplexy, as a cathartic; (2) in a liniment in case of chronic bronchitis, as a counterirritant.

Camphora may be used (1) in a liniment in case of sprains, as a rubefacient; (2) in whooping cough, as an antispasmodic.

Atropinæ sulphas may be used (1) to facilitate ophthalmoscopic examination, as a mydriatic; (2) to check the night sweats of phthisis, as an anhidrotic.

Argenti nitras may be used (1) in ophthalmia neonatorum, as a germicide and antiseptic; (2) on ulcers, as a stimulant.

6. *Treatment of pernicious anemia:* "Fresh air, rest, and a diet as liberal as the digestive powers of the patient will permit are requisite. Warm salt baths and massage are valuable adjuvants to internal treatment. The teeth should receive careful attention. If there be gingivitis or pyorrhœa alveolaris, antiseptic mouthwashes should be used at frequent intervals. Arsenic

is the most valuable drug. It may be given in the form of Fowler's solution, the dose being gradually increased from 2 or 3 to 15 or 20 minims three times a day. Iron is rarely of service. Bone-marrow is sometimes efficacious. Inhalations of oxygen have been recommended. Appropriate anthelmintic remedies should be given, of course, in the cases in which intestinal parasites are present. Digestive disturbances are often benefited by the administration of diluted hydrochloric acid and a bitter."—(Stevens' *Practice.*)

Treatment of simple anemia (chlorosis): "Fresh air, sunlight, open-air exercise, and nourishing food are valuable aids in treatment. Very severe cases require complete rest in bed. If there be a good reaction, warm baths, followed by short cold douches, are efficacious. Iron is almost a specific. It is most frequently prescribed in the form of Blaud's pills, of which the dose is three pills, gradually increased to nine, a day. Laxatives, preferably mild salines, rank next in importance to iron. Arsenic is distinctly less valuable than iron. Superacidity of the gastric juice is best treated by alkalies."—(Stevens' *Practice.*)

7. *Pain* in *locomotor ataxia* may be treated by antisyphilitics, antipyrin, acetyl salicylic acid, or morphine.

Pain in *mucous colitis* may be treated by codeine, heroine, belladonna, or (as a last resource) morphine; morphine should be avoided if possible, because it is constipating.

Pain in *gastric cancer* may be treated by opiates given by the mouth, by rectal suppositories, or by hypodermic injection.

8. *Prevention of syphilis* may be brought about by (1) scientific and practical control of prostitution (this is always opposed); (2) the education of the public on the dangers of venereal diseases (this is generally opposed); (3) adequate instruction in sexual hygiene; (4) the use of a protective, such as calomel ointment, before and after sexual connection.

Treatment of syphilis: Intravenous or intramuscular injection of salvarsan in dose of 0.5 gram, to be repeated twice at intervals of a fortnight. Intramuscular injection of calomel or administration of mercury with chalk by mouth. Iodide of sodium or potassium must also be administered during the second year. This may be combined with the mercury by the administration of the protiodide of mercury. Sometimes mercury may be given by inunction. The patient must have his teeth attended to, use a mild antiseptic mouth-wash, and should give up alcohol and tobacco. Calomel or iodoform may be used as a dusting powder for the chancre.

9. *Hyoscyamine hydrobromide*, average dose 1/200 grain; maximum dose 1/120 grain. *Corrosive mercuric chloride*, average dose 1/20 grain; maximum dose 1/10 grain. *Santonin*, average dose 1 grain; maximum dose 5 grains. *Tincture of digitalis*, average dose 8 minims; maximum dose 20 minims. *Tincture of aconite*, average dose 5 minims; maximum dose 15 minims. *Strophanthin*, average dose 1/60 grain; maximum dose 1/50 grain. *Fluidextract of ergot*, average dose 30 minims; maximum dose 60 minims. *Caffeine*, average dose 2½ grains; maximum dose, 5 grains. *Amyl nitrite*, average dose, 3 minims; maximum dose 5 minims. *Dilute hydrocyanic acid*, average dose 1½ minims; maximum dose 3 minims.

10. *Therapeutic uses of sodium bicarbonate:* "In solution or powder in burns, acute tonsilitis, and poisoning by Rhus toxicodendron; also to relieve itching. Internally, much employed in dyspeptic conditions, especially hyperacidity of the stomach, and in the acid diarrhea of infants. The effervescence resulting from the successive employment of sodium bicarbonate and tartaric acid has been made use of in the stomach to excite emesis in cases of narcotic stupor and in the intestine to overcome intussusception. Good results have been reported from large doses of sodium bicarbonate and carbonate in diabetic coma."

Therapeutic uses of sodium chloride: "Locally, it is of service in affections of the mucous membranes, and salt baths are invigorating as well as cleansing. A strong solution constitutes one of the best injections for threadworms, and salt solutions are also used to limit the action of silver nitrate. Hot salt, enclosed in bags, is a good application in lumbago and various other painful conditions. Internally, as an emetic and also in dyspeptic conditions, administered in carbon dioxide water or in the form of natural mineral waters. Solutions of salt in distilled water are given by intravenous injection or hypodermatoclysis in conditions where the body has lost much fluid, and also in carbon dioxide or coal-gas poisoning and in uremia and similar intoxications. In poisoning by silver nitrate sodium chloride arrests the corrosive action."

Therapeutic uses of sodium benzoate: "Locally, wounds, ulcers, sinuses, etc.; chilblains; the itching of urticaria or eczema; chapped lips, hands, or nipples; catarrhal affections of the pharynx or larynx. Internally, disordered conditions of the urine (as ammoniacal urine and phosphaturia); vesical calculi; chronic gonorrhea; incontinence due to alkalinity of the urine; chronic Bright's disease; diarrheal diseases; respiratory affections."—(Wilcox's *Material Medica*)

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION†
Alabama*	S. W. Welch, Montgomery	Montgomery..... Jan. 14
Arizona*	A. H. Williams, 219 Goodrich Building, Phoenix	Phoenix..... Jan. 7
Arkansas	T. J. Stout, Brinkley	Little Rock
California	C. B. Pinkham, Sacramento	Los Angeles..... Mar. 17
Colorado	David A. Strickler, Empire	Denver..... Jan. 8
Connecticut*	Chas. A. Tuttle, New Haven	New Haven..... Mar. 11
Delaware	J. H. Wilson, Dover	Wilmington
Dist. of Col'bia	E. P. Copeland, Washington	Washington..... Jan. 14
Florida*	W. M. Rowlett, Tampa	
Georgia	C. T. Nolan, Marietta	Atlanta
Idaho*	Ray H. Fisher, Rigby	Pocatello..... Apr. 1
Illinois	F. Dodds, Springfield	Chicago
Indiana	W. T. Gott, Crawfordsville	Indianapolis..... Jan. 14
Iowa	G. H. Sumner, Des Moines	Des Moines
Kansas	H. A. Dykes, Lebanon	Topeka..... Feb. 11
Kentucky	J. N. McCormack, Bowling Green	Louisville
Louisiana	E. W. Mahler, New Orleans	New Orleans
Maine	F. W. Searle, Portland	Portland..... Mar. 11
Maryland	J. McP. Scott, Hagerstown	Baltimore
Massachusetts*	W. P. Bowers, 1 Beacon St., Boston	Boston
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor..... June 10
Minnesota	T. McDavitt, St. Paul	Minneapolis..... Jan. 7
Mississippi	J. D. Gilleylen, Jackson	Jackson
Missouri	G. H. Jones, Jefferson City	St. Louis..... Jan. 28
Montana*	S. A. Cooney, Helena	Helena
Nebraska	J. J. Hompes, Lincoln	Lincoln
Nevada	S. L. Lee, Carson City	Carson City..... May 5
N. Hampshire	Walter T. Crosby, Manchester	Concord
New Jersey	A. MacAlister, Trenton	Trenton
New Mexico	R. N. McClanahan, East Las Vegas	Santa Fe
New York	G. M. Wiley, Univ. of State of New York, Albany	New York Albany..... Jan. 28 Syracuse Buffalo
N. Carolina	H. A. Rosyter, Raleigh	Raleigh..... June
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks..... Jan. 7
Ohio	H. M. Platter, Columbus	Columbus
Oklahoma	J. J. Williams, Weatherford	Oklahoma City..... Jan. 7
Oregon	B. E. Miller, Portland	Portland..... Jan. 7
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia..... Jan.
Rhode Island	B. U. Richards, Pawtucket	Providence..... Jan. 2
S. Carolina	A. E. Boozer, Columbia	Columbia..... June 10
S. Dakota	P. B. Jenkins, Wanbay	Pierre..... Jan. 14
Tennessee	A. B. DeLoach, Memphis	Memphis Nashville..... June Knoxville
Texas	M. F. Bettencourt, Mart	Dallas
Utah	G. F. Harding, Salt Lake City	Salt Lake City..... Jan. 6
Vermont	W. Scott Nay, Underhill	Burlington..... Feb. 11
Virginia	J. W. Preston, Roanoke	Richmond
Washington*	C. N. Suttner, Spokane	Spokane..... an. 7
W. Virginia	S. L. Jepson, Charleston	Charleston
Wisconsin	J. M. Dodd, Ashland	Madison..... Jan. 14
Wyoming	H. E. McCollum, Laramie	Laramie
National Board	J. S. Rodman, Philadelphia	

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

The Leading Physician of Quebec a Century Ago.—According to Ahern this was J. Mervin Nooth, an Englishman and Fellow of the Royal Society, who arrived in Quebec in 1786 as military physician in Lord Dorchester's command. He had practised in Halifax and New York before the American Revolution. He became general superintendent of all of the hospitals in the Province of Quebec and was appointed to investigate the mysterious "Mal de la Baie" to succeed Bowman after the latter's death in office. His report, which would have been important, has unfortunately been lost. He was also a director of the Quebec Agricultural Society. He died in Bath, England, in 1828.—*Le Bulletin Médical de Quebec.*

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CLINICAL FEATURES OF THE RECENT INFLUENZA EPIDEMIC.*

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NEW YORK.

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IT is very unfortunate that when the recent pandemic reached New York it was called by a new name. The term "Spanish Influenza" connoted, in the lay mind, a new and mysterious visitation, and the mysterious is always terrifying. When the headlines of the newspapers and the placards in the street cars blazoned forth this new designation, it is small wonder that a large proportion of the people, and these by no means the least intelligent, should become panic-stricken. This panic was assisted by the entirely undeserved criticism leveled at the Health Officer of the Port, and at the City Commissioner of Health, especially by their official predecessors. It was assumed that our Board of Health should have possessed some omnipotent powers by which they could exclude the atmosphere from the lungs and homes of city dwellers. The history of previous pandemics, air-borne over the whole world, was entirely ignored by these believers in the theory of personal contact as the only means of spreading the disease. The history of the present pandemic shows that communities entirely isolated have been reached by the infection. The *New York Times* of the day this is written gives an account of the heavy toll of lives in Seward Peninsula, Alaska, in which 175 out of 250 Eskimos died, and 75 out of 85 soldiers at Fort Davis contracted the disease. Another column of the same paper records the death in Auckland, New Zealand, of a New Yorker from pneumonia following influenza. Its spread on the Atlantic seaboard has been equally extensive, and the City of New York, although sorely tried, has fared better in morbidity and mortality than any other important port. This visitation of 1918 came at a time when all the world was suffering from profound physical, mental, moral, and financial depression. Scarcely a home in New York but has its star in the window, and while we bore our sorrows and deprivations with stout hearts and summoned all our conscious will power to sustain the possibilities of death and disaster, it cannot be denied that subconsciously every American soul was carrying the shadow of anxiety.

*Read before the Society of Alumni of Bellevue Hospital December 4, 1918.

Morbidity.—The morbidity statistics of the Health Department cannot be accepted as accurate, because many overworked physicians entirely neglected to report many of their cases. Those of us who were in general practice during the epidemic of 1889-90 will remember the long hours, the hurried visits, the hasty diagnoses mostly made from the patients' symptoms. But at that time the medical profession was not depleted, and when a colleague fell ill it was usually possible to find another willing to take up his work, and the people generally were able to obtain adequate medical advice and nursing. It is difficult to state at present what percentage of our city population were attacked in this epidemic, and whether it will equal or exceed the 40 per cent. credited to 1889-90. Some idea may be gathered from bodies of men and women whose diseases are made matters of record and whose duties and environment, including exposure to the disease, are similar. My own practice includes the supervision, when sick, of all the members of the city police force residing within a designated territory, to wit: the east side of the city from Twenty-seventh to Seventy-ninth Streets and Fifth Avenue to East River, and the west side of the city from Fifty-ninth to 110th Streets, and from Central Park to the North River. These men are between 21 and 55 years of age, live in tenement and apartment houses of the comfortable class, are well fed, warmly clothed, and have sufficient hours of rest, under a new time schedule which happily had been put into operation just before the epidemic started. My first case reported sick on September 14, my last on November 8, thus showing a duration of the epidemic of eight weeks. My highest sick list during this period was 6 per cent. as against our usual non-effective sick rate of 2.3 per cent. Through the courtesy of Chief Surgeon Patrick J. Murray, I am able to report that the total number of cases among the 11,000 members of the entire uniformed force, in all boroughs, was 1266, or 11½ per cent., of influenza, with a mortality of 0 per cent, and 118 cases of pneumonia, or 1 per cent, with a mortality of 45 per cent. These numbers include all the cases developing between September 14 and November 16, 1918.

The 374 female nurses of Bellevue Hospital developed 149 cases of influenza, of which 13 became complicated with secondary pneumonia, causing 7 deaths. I may be pardoned here for bearing testimony to the unswerving loyalty and tireless devotion shown by the nursing and interne staffs of Bellevue Hospital to their patients. The names of three of our house doctors have been added to the Roll of Honor of those who died in the discharge of duty, duty no less glorious than if encountered on

the field of battle, or with the colors, where many of their former colleagues now are, upholding the traditions of old Bellevue.

Age.—As in previous epidemics, no age can be said to be exempt from the infection. In my private practice, I have had a case at 18 months, and one at 91 years, both recovering, although complicated with bronchopneumonia. The majority of cases, however, have occurred between 15 and 45 years.

Immunity.—It is thought that those who lived through the epidemic of 1889-90 acquired a relative immunity to this attack. My own experience would bear this out.

Etiology.—The overwhelming rush of cases into Bellevue, and the depletion of our nursing and house staffs incident to war, left little time for bacteriological studies. In cases where they were made, many other organisms as well as the Pfeiffer bacillus were found, the most frequent being the *Streptococcus hemolyticus* and the pneumococcus. Inasmuch as invasions by these latter organisms cannot be differentiated clinically from that caused by influenza bacilli, time, which was urgently demanded for the care of patients, could not be spared for laboratory work. Pathologists, male and female, were assigned to ambulance duty, and medical students to ward work.

Pathology.—If we exclude the cases in which pneumonia became a complication, we have no pathological data. In my opinion, uncomplicated influenza does not kill unless injudicious attempts are made to relieve pain by opiate dosing, or to reduce temperature by coal-tar products. I am convinced that every death certificate which gives influenza as a cause of death is a confession of failure to find a complicating bronchopneumonia. In consultation practice I often find it difficult to convince a physician that pneumonia is present because we cannot demonstrate dullness and râles. Yet many persons have died during the present epidemic in whom neither was evident, but instead there existed that acute generalized infectious septicemia which *is* pneumonia, either with or without a localized expression in the lung. In some of the fatal cases, Symmers has found hemorrhagic confluent lobular pneumonia, not detectable during life by ordinary physical signs, and presenting many variations from the ordinary type of septic or croupous pneumonia.

Symptoms.—The incubation period is undoubtedly short, probably 2 or 3 days. Most cases begin suddenly with chilly sensations, fever, headache, general pains, and a feeling of marked prostration, which is strikingly in evidence. Subsequent symptoms depend upon the system of organs involved and the disease resolves itself into various types which may be classified as respiratory, nervous, gastrointestinal, circulatory, genitourinary, and those particularly affecting the eye and ear. A detailed recital of these would severely tax your patience and would be entirely unnecessary to this audience. Of the various complications, bronchopneumonia has stood easily at the head during the recent epidemic as regards both frequency and mortality. The lungs are usually invaded by extension from the bronchi, this invasion beginning about the fourth day. Its diagnosis is often difficult or impossible, as the usual objective signs of pulmonary consolidation may be entirely lacking. On the other hand, signs of consolidation may be evident early and may long outlast the fall in temperature, and give rise to a suspicion of fluid. This should be verified or disproved by early exploratory puncture. Cough and expectoration may also persistently remain for several weeks and arouse a fear of developing tuberculosis. In these cases I have found a tablet of terpin hydrate, creosote, and strychnine most useful.

In the domain of the nervous system there is scarcely a symptom or clinical entity which has not been assigned to a preceding influenza. Some cases, especially those in children, begin with marked gastrointestinal symptoms, but these probably result from the toxemia rather than from any specific action of the invading organisms upon the digestive apparatus. The effect of the influenzal poison on the circulatory organs is usually one of inhibition, and a proportionately low pulse rate has been a marked incident of my cases. Therefore I do not add to this depression by administering an inhibitory drug like digitalis. The leucocyte count in uncomplicated cases is low, this leucopenia being a valuable differential point in diagnosis. The genitourinary symptoms are not marked except in the rapidly fatal fulminating cases of pneumonic septicemia which at autopsy will show hyperemia and acute parenchymatous kidney degeneration. As compared with the epidemic of 1889-90, there have been comparatively few ear complications. I have seen in private practice but one case of double otitis media—the 14 year old son of a physician—and no case of mastoiditis. Invasion of the accessory sinuses has also been far less frequent than in previous epidemics.

Diagnosis.—During the prevalence of epidemic influenza, we are apt to classify hastily all cases of catarrhal respiratory inflammation under that heading. But the suddenness of onset, the severe general pains, the very marked feeling of prostration and weakness, especially in robust individuals, and the number of persons affected often in the same household, furnish sufficiently distinctive points. When pneumonia develops, the picture changes and may require careful study for its recognition. Typhoid fever and acute miliary tuberculosis will give most trouble in differentiation at the outset, but will soon become plain by the development of their characteristic features.

Prognosis.—Uncomplicated influenza has almost no mortality. Of 55,623 cases in the Prussian Army during the pandemic of 1889-90, only 59 died from influenza, and of these 42 had pulmonary symptoms. In Munich death was ascribed to influenza in 133 cases out of 22,972, and 69 of the 133 had pulmonary disturbance, and 88 of them were between 51 and 90 years of age. Every complication that may develop brings with it its own dangers, and the pneumonia that has accompanied or followed the present influenza cases has seemed to be particularly virulent. Autopsy protocols will show how futile have been our attempts to conquer disease of this type.

Mortality.—The Health Department figures, as quoted in the *New York Times* of November 17, 1918, give a total of reported cases of "Spanish in-

fluenza" of 127,999 and of reported deaths of 10,428. I believe that 128,000 cases does not truthfully represent the percentage of our 5,000,000 inhibitants that were affected. A 2½ per cent. ratio would not explain the widespread sickness and suffering. Neither do I believe that the present epidemic carried a death rate of 8 per cent. of cases of uncomplicated influenza. That is contrary to our experience in all the hospitals. The same figures give 18,932 reported cases of pneumonia with 9,450 deaths, a mortality of 50 per cent. This agrees with our hospital records. The Fourth Division of Bellevue Hospital treated 338 cases of influenza with no deaths, and 312 cases of pneumonia with 195 deaths, or 62½ per cent. Bellevue patients are made up of the poorest classes of the city, comprising the underfed, scantily clothed, overworked, and, I regret to say, in many cases, the rum-soaked and syphilis-ridden members of the community. The statistical record of the entire hospital shows 1,993 cases of influenza with 428 deaths, or 21½ per cent.; 693 cases of pneumonia with 482 deaths, or 72 3/7 per cent. A great many of the Bellevue cases are admitted in a moribund condition. The statistics just issued by the Government Bureau of the Census group the deaths from influenza and pneumonia together, and show 82,306 fatalities in 46 cities having a combined population of 23,000,000. In St. Vincent's Hospital the number of cases treated in the medical services from September 16 to November 16, 1918, was as follows: Influenza, 199 cases; 0 deaths, mortality 0 per cent.; pneumonia, 151 cases, 58 deaths, mortality 38 per cent.

Prophylaxis.—I have administered the preventive vaccine furnished by the Board of Health to many of my patients and it has given them great mental comfort like that blessed word Mesopotamia in the Highland lady's system of theology. One mother and her son developed the disease two days after the first injection, but in a much milder form than the cases already existing in that household. All my other injected patients escaped the infection. The general measures of prophylaxis are those we would adopt in the case of any infectious disease and need not be gone over here.

Treatment.—As there is no specific for influenza, treatment could be dismissed in a few words were it not for the fact that many cases are grossly maltreated; generally by the patients themselves, or by obliging drug clerks, in following the alluring promises of the various sure cures and preventives so widely advertised. I am confident that a much lauded German coal-tar product has been responsible for more deaths than has so-called Spanish influenza. I regret that some of our own profession advocate its use, in doses up to 60 grains a day. Why any one should want to add to the poison of a disease so depressing as that of influenza, a poisonous depressing drug, passes my comprehension. Influenza demands isolation, ventilation, elimination, and sustentation. Only these, and nothing more. But we are expected by the patient and his family to order some prescription for his pain and for his fever. Pain is "the prayer of the nerves for healthy blood," and the four measures I have mentioned will soon free the blood from the toxin which is poisoning it. Fever is "a specific reaction against injurious materials which affect the tissues and is, in its essentials, a protective reaction." Will the patient accept these definitions instead of physic? He will not. Therefore, if I must get the collaboration of the druggist in the management of the case, I order a combination of ammonium carbonate, grs. 5, to facilitate expectoration, ammonium salicylate, grs. 5, to mitigate pain with the least depressing effect, and aromatic wine of erythroxylon coca (National Formulary) one-half ounce as a nerve stimulant and muscle invigorator. This wine is one introduced by the American Pharmaceutical Association many years ago to take the place of a proprietary wine advertised to be in use by most of the crowned heads of Europe. Plain port wine is probably equally effective and more generally used at the present time, the example of crowned heads not now being so eagerly followed. The formula itself is very popular with the patients in Bellevue, where it is known as the Anti-Grippe Mixture.

379 Park Avenue.

THE ARSENICAL TREATMENT OF SYPHILIS.

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In a paper recently published in this journal I described the diverse forms under which mercury has and is being used as a curative agent in syphilis, giving a history of the development of treatment by this agent and coming to the period of the discovery and introduction into our therapeutics of arsenic as the paramount remedy with which to combat this dire disease. In this paper I purpose giving a careful review of the various arsenical preparations that have survived the test of experiment and have taken place among the accredited remedies of real merit.

Since the advent of "606" active research has not ceased in the realm of chemiotherapy, seeking to discover a more certainly destructive agent for the spirill of syphilis. In the experimental work upon metals as bactericidal agents the names of Armand Gautier, Laverin, Thomas, Kopke, Louis Martin, R. Kock, Salmon, Mesnil, Danysz, Nicolle, and Morgenroth, and prominently that of Ehrlich and his collaborators and students Karren, Vanden Branden, and Mlle. Leupold have been more or less constantly before the profession.

In 1913, Mouneyrat published an important work upon arsenotherapy and his discovery of galyl, or tetraoxydiphosphotetraaminodiarsenobenzol, which added to the phosphate of arsenobenzol possesses a concentration of arsenic greater than is found in neosalvarsan and marks, an important advance in the treatment of syphilis.[1]

About the same period the new remedy discovered by Danysz began to be experimented with in the clinic of Cochin Hospital—but we will consider the well known arsenical preparations in the order of their appearance.

Salvarsan or 606 (of Ehrlich and Bertheim: experimented with upon rabbits by Hata). This remedy was first used upon the human subject in

France in September, 1910. It is a yellow powder, containing 34 per cent. of arsenic; soluble in water in a clear yellow liquid with hydrochloric acid. In the presence of soda the chlorhydrate decomposes, forming Na C of an insoluble base; if an excess of Na O is added the base is redissolved, the two oxhydrils OH are replaced by Na O and form a soda base.

At first Ehrlich practised a single intramuscular injection, expecting it to cure syphilis by one powerful stroke (therapia sterilisans magna). Employing a dose of 0.30 to 0.60 gm. and even going as high as 1 to 1.20 gm. In following this practice some made use of an alkaline solution (Ehrlich, Herxheimer), some a neutral emulsion (Wechselmann, Blaschko), and some an acid solution (Duhot). Dorsal injections which gave rise to numerous accidents soon gave place to deep gluteal intramuscular injections. At the end of two months of experimentation of the single injection it was abandoned, the initiative being taken by Ehrlich himself, who recognized that a single dose even in amount that passed the limits of safety did not suffice to destroy the spirochetes. Hudelo treated 24 patients by the single gluteal injection,[2] and in less than six weeks 6 returned with full secondary symptoms. The single injection also gave rise to much inflammation and in some cases deep seated gangrene of a grave character.

Balzar has remained faithful to the intramuscular injection of salvarsan, as have also Kromayer, Levy-Bing, Lafay, and Queyrat using an oil emulsion. Balzar injects 20 gm. suspended in one cubic centimeter divided into two doses, injecting one-half into the mass of sacrolumbar muscles on each side. These injections give rise to pain that endures for a few hours; the reaction is not severe and is well supported. The injections are renewed weekly in series of 5 or 6, as with gray oil, and these series are repeated after intervals of repose of one and two months. Balzar has pronounced himself well satisfied with the results he has obtained, both clinical and serological. The administration of this remedy by the buccal and rectal routes has been largely abandoned.

To-day 606 is chiefly employed in intravenous injection, using a soda base, by dissolving the dose of 606 in 30 to 40 c.c. of a 15 per cent. solution of chloride of sodium for 10 gm. of the salt, adding 2 drops of HCl to precipitate the base (mayonnaise emulsion), then 2 drops more to redissolve the base (yellow Chartreuse liquor), and one drop supplementary to assure a perfect alkalinnation. The *crises nitritoides* and the congestive accidents (menigocerebral) have been attributed to an insufficient alkalinization which has not saturated the 2OH. Finally, distilled or sterilized water is added at the time of using in the ratio of 50 grammes for 10, 100 for 0.20, 250 for 0.50 gm. of the salt.

In November, 1910, Ehrlich advised increasing the injections from one to three, employing 0.30 to 0.60 gm. with a period of five to six days intervening. Milian advised four injections over a period of nineteen days, employing a total of 1.70 to 2.10 gm. Leredde advised that following the third injection the dose be determined in the ratio of 0.01 to the kilogramme of the patient. Little by little the number of injections has been increased. Ravaut gives from 6 to 10 for each cure, but in feeble doses.

Under all of these methods the results obtained were remarkable. If the subject was put under treatment during the primary period, in a few days the chancre became cicatrized and the disease seemed to be aborted. No secondary accidents appeared of either roseola or mucous plaques. If the chancre was less than twenty days old and the Wassermann test was negative before the treatment it remained negative after the treatment. If the chancre was more than twenty days old and the Wassermann had had time to become positive it became negative at the end of the cure. Certain authorities believe that when these conditions exist after the administration of 2.20 (Querat) complete sterilization exists, as shown by a persistent negative Wassermann, and absolute integrity of the cerebrospinal fluid over a period of years. Yet as a safe precaution they counsel the giving, from time to time, of 0.30 gm. of 606, called the "reactivation,"[3] thanks to which if the patient has not been sterilized, his Wassermann again becomes positive and he is again subjected to a cure of from thirteen days (Milian) to as much as thirty days (Leredde).

One formal proof of radical cure cited by Milian is the observation of a patient who, cured of his chancre by 606, returned three months later with a fresh primary chancre resulting from intercourse with his wife, who was found in a virulent condition of the disease, having submitted to no treatment.

We will later consider what deduction may be made from this reinfection and its significance.

When the patient is brought under treatment by 606 at the beginning of the secondary period, or later, when the roseola is in full bloom accompanied by cutaneous eruption and mucous plaques, 606 will in a few days cicatrize the mucous patches and cause the disappearance of the cutaneous symptoms. Also, but upon condition that the cure has been fully extended (Leredde estimates this at a minimum of nine injections), the Wasserman which was formally positive, slowly returns toward the negative and the cure should be continued until this complete result is secured. But is this result sufficient? It is an important point to observe that at this stage of the disease, the cerebrospinal fluid is always affected by the treponeme and it is exceptional to find it returned to its primary integrity after a single course of treatment by 606; as a rule it still exhibits a certain degree of alteration (hypertension, albuminosis, lymphocytosis). It is necessary after a period of repose, which, according to Leredde, ought not to surpass three weeks or, according to Jeanselme, not more than two months, to undertake a second course?

In our opinion, if after the close of the first treatment the blood analysis and lumbar puncture give negative results, we should discontinue all treatment but control the conditions by repeated examinations of the patient and by the "reactivation" test, at first every month, then every two months, then every six months, and then from year to year for at least five years. If on the contrary, the tests at the close of the first treatment, do not afford full satisfaction we should subject the

patient to a second course at the end of four to six weeks.

Hudelo reports[4] that from 1910 to 1914 he used the 606 treatment upon several thousand cases. At the outset he employed a series of three intravenous injections (1.55 gm.), increasing as he advanced in experience with the remedy to four and six (2.85 to 3.10). Although in all his primary cases he secured favorable clinical and serological results (absence of roseola and mucous plaques or other secondary accidents, with negative Wassermann), he found the majority were not cured; many returned at the end of a few weeks or months either with a positive Wassermann or with secondary reaction, cutaneous or mucous, the secondary period having simply been retarded. With those patients who came in the secondary period and whom he submitted to successive treatments with periods of repose of two months intervening, he arrived at a result of complete sterilization, both clinical and serological, which with some of them had continued from 1911 to the date of his communication.

Jeanselme[5] treated 14 pregnant women with 606 at different periods of gestation, who as a result were all delivered of children who were still living at the end of eight days when they left the obstetrical wards. The treatment by mercury or by iodine and mercury does not give like results.

With the advent of the neosalvarsan, a modification of 606, the number of practitioners who have remained faithful to the latter is limited, and they remain so because of what they term its *"mordant"* (destructive) qualities and the durable results it furnishes.

Neosalvarsan, or 914 of Erlich, first appeared in 1911. Its preparation for use is free from complicated manipulation. It is a powder of yellow saffron color, soluble in water. The solution is rapidly altered by exposure to the air, taking on a cherry red color and becomes toxic. It contains 21 per cent. of arsenic and corresponds to two-thirds of its weight of salvarsan.

Gaston experimented with intramuscular injections of this remedy, which were found to be too painful for endurance and they were abandoned. Wechselmann employed concentrated subcutaneous injections of 50 per cent.

Balzer adopted the same method as with 606, injecting every seven days 0.30 gm. in two injections of 0.5 c.c. each, first in the lumbar and then in the gluteal region at the point of Schindler. The pain lasted only a few hours, and was supportable. His series of injections comprised four to five renewed the same as for gray oil or calomel.

Intravenous injections, universally employed today, are made with the salt dissolved in distilled or sterilized water: at first one centigramme of 914 was dissolved in 1.5 c.c. of water or 45 c.c. of water to 0.30 gm. of the salt. Revaut[7] proved the safety and advantage of a solution much more concentrated (10 to 17 c.c. of water to 0.45 to 0.90 gm.)—to-day this has been reduced to 4 and 5 c.c. and even to one.

The dose employed per injection is from 0.30 to 0.75 gm. In women the dose has been from 0.30 to 0.90. Leredde has used upon certain occasions from 1 to 1.5 gm.

The interval between two injections was at first fixed by Schreiber at two days. To-day it is put at from five to seven. As with 606 each cure is made by progressive doses, commencing with the minimum and increasing with each dose for five to ten doses, giving a total of from 3.30 to 6 and 7 grammes.

The general direction of treatment by 914 is the same as with 606; the clinical and serological results are identical; the after care is the same and by the same procedure (examination of the blood and lumbar puncture).

Hudelo in his use of this remedy has had the same experience as with 606. Since May, 1912, he has tried it in his Clinic upon a great number, and even in those who have been subjected to an extended medication comprising 6 to 7 grammes the cure has proved only apparent. Numbers have returned after a cessation of a few weeks or months with secondary symptoms (roseola and mucous patches) with an increasing Wassermann.

In the case of those who were negligent and irregular in treatment (and the number is great in every clinic) he was struck by the oftentimes intense symptoms of relapse (cutaneous, mucous, hepatic, nervous), always accompanied by an increasing Wassermann. In his opinion the recurrence of symptoms following treatment is more frequent with 914 than with 606.

Galyl or 1156.—Numerous autopsies have shown that where 606 and 914 were the cause of death there existed in every case hemorrhagic centers showing the toxic qualities of these salts. Moreover there are countless cases of serious nervous symptoms when the resisting power has been passed by the size of the dose, according to the idiosyncrasy of the individual.

With a desire to overcome these disadvantages, Mouneyrat in 1913 sought to find an arsenical remedy analogous to these which should not have a vasodilator or a neurotropic action, and brought out two preparations, galyl or 1156 and lutyl or 1151. These products were experimented with by de Beurmann and Tanon.[8] The first only has remained in use—it is a tetraoxy-diphospho-aminodiarsenobenzine, representing 35.3 per cent. of arsenic and 7.2 per cent. of phosphorus. It is an inodorous yellow powder, which dissolves in a saturated solution of bicarbonate of sodium; thus dissolved it can be put in closed tubes and kept indefinitely. It is administered in a series of uniform dosage, not in progressively increased dose as with the other remedies. At first the cone comprised 1.50 gm. of the salt administered in three doses by intravenous injection, with eight days interval between each; at present a total of 2 grammes is given but in doses not surpassing 0.25 with the same intervals. It is also administered by intramuscular gluteal injection in an oil monstrum.

Galyl has proved its right to a place among the arsenical preparations, but in my opinion possesses no advantage over others and demands the same degree of caution in its employment, and it cannot be said to have accomplished the prime object of its author, viz., the elimination of the toxic qualities possessed by its predecessors.

We now come to a consideration of the last and in some respects the most important of arsenical

products that has appeared in the search after an agent that will completely destroy the disease germ and yet do no harm to the patient.

Luargol or 102 of Danysz.—As early as 1913 Fournier (Louis) of Cochin Hospital commenced the use of the remedy and when I joined his service in June, 1916, they already had recorded more than 4,000 cases treated and in some instances with remarkable results.

Dr. M. Danysz of the Pasteur Institute has studied the therapeutics of syphilis for many years, and after a long line of experimentation, added a new element to a combination which from the evidence already accumulated would appear to be the most important and effective of the remedial agents, so far discovered. He first combined silver with losine and obtained a precipitate which was dissolved by the addition of chloride of sodium. This product showed a marked antisyphilitic action, but its deleterious effect upon the injected veins of rabbits precluded its clinical employment. After progressive experiments M. Danysz[9] mixed a solution of nitrate of silver with an aqueous solution of the chlorhydrate of dioxydiaminoarsenobenzol, and obtained a limpid liquor more or less dark in color, following the amount of silver employed.

In treating this liquid with chloride of sodium or any other electrolyte, there was produced a floculent precipitate and testing the acidity of the superimposed liquid, the reaction showed no appreciable change. Treated with sulphuric acid, there was precipitated from the composition an abundant clear yellow sediment and the superimposed liquid showed only traces of silver and arsenic, proving that these elements were fixed by the dioxydiaminoarsenobenzol.

M. Danysz then had the idea to replace the chloride, the therapeutic action of which was contraindicated, by the bromide or iodide of silver, which in themselves possess microbicide qualities. He mixed solutions of these two salts with cyanide of potassium in a solution of dioxydiaminoarsenobenzol. The dry product gave the following:

Bromide mixture: Ag. 10.06; Br. 8.14; As. 26.99; SO_4H_2 15.97.

Iodide mixture: Ag. 10.50; 1.11.47; As. 26.80; SO_4H_2 15.97.

In an earlier paper upon this subject[10] I cited the fact that Ehrlich had made a series of studies analogous to those of Danysz, of which fact the latter was ignorant, and that he arrived at the formation of his combination before he became aware of the work done by the former.

Ehrlich named his composition K3. Dr. Milian states that Ehrlich personally confided to him a certain number of ampouls to study its action in syphilis, and the result of his observations was that it tended to produce attacks of apoplexy, similar to that of salvarsan and was often followed by "*crises nitritoides*," and was a dangerous remedy. Fortunately, so far none of these evil results have folowed the administration of the "102" of Danysz.

The "102" is a composition of bromo-argentic-antimony of arsenobenzol. In hope to augment the specific action of the arsenobenzol bromo-argentic (product 88[3]) Danysz introduced a certain quantity of antimony in the form of the trichloride ($SbCl_3$); he thereby obtained the sulphate of dioxydiaminoarsenobenzolate of the bromide of silver and antimony (product "102" $C_{12}H_{11}O_2N_2AS_2$) 2Ag. Br. SbO. $H_2SO_4)_2$ as near as can be determined, for the molecular formation is so intimate it is difficult of exact determination.

The following table shows the comparisons:

	Theory per 100.	Analysis.		Average.
		One.	Two.	
C	19.88	19.87	19.82	19.84
AG	7.45	7.39	7.41	7.42
Br	5.52	5.50	5.56	5.53
As	20.70	20.68	20.52	20.60
Sb	8.29	8.18	8.20	8.19
S	8.86	8.89	8.85	8.87

Toxicity. The dioxydiaminoarsenobenzol bromo-argentic or "88[3]" is toxic in the dose of 10 centigrams per kilogram to rabbit, guinea pig, and mouse. The same product with antimony added or "102" is toxic in the dose of 25 centigrams to the kilogram of the mouse. The accumulating evidence goes to show, that "102" has greater and more beneficial action than any other of the arsenical remedies in trypanosomiasis.

In rabbits infected with surra, the malady develops in about the same manner as in the large mammals and in man. Following a period of four or five days of incubation, the subject has a rise of temperature of 1° to 1.5° C. and commences to lose flesh. Thirty or forty days after the invasion, lesions appear upon the skin and mucous membranes, followed by nervous manifestations".

In treating animals during the different periods of this disease by the arsenical preparations (atoxyl, arsenophenylglycine, arsenobenzol, "88[3]," "102") in doses of one centigram per kilogram of weight, all were cured by any of these products during the period of incubation.

During the second period, only a certain proportion were cured by atoxyl, arsenophenylglycine, and arsenobenzol, whereas "88[3]," and "102" cured at this stage all the rabbits treated.

During the third stage of the disease "102" cured 5 out of 6 treated with the dose of one centigram to the kilogram. It required double this dose of "88[3]," to obtain the same result and with the three other products mentioned no appreciable benefit resulted.

M. Danysz discovered in his experiments another important and valuable element, viz., That with "102," as well as "606" a better and more certain result is secured by a small dose frequently repeated rather than massive doses, at no matter what periods between; his conclusions have been verified in the treatment of syphilis by Professor Fournier with "102" in Cochin Hospital, where commencing with a small dose it is gradually increased to a given limit at the close of the treatment.

I think a clearer conception of the principles underlying the experimental investigation of this subject can be given the reader by quoting in its entirety a recent communication received from M. Danysz which he furnished at my request.

"The therapeutic value of the arsenical compounds have been known a long time and since the investigations made by Armand Gautier, have been

given greater prominence than other of the mineral compounds. The good effects of the cacodylate and methylarsinate of soda as well as atoxyl and hectine of arsenobenzol in malarial fever, trypanosomiasis, syphilis, and other parasitical diseases have long been known, and an interesting fact to note for future research, is that it is not so much the quantity of arsenic as the structure of the molecule of which it forms a part that determines its beneficial effect.

"For instance; the cacodylate which contains 48 per cent. of arsenic, has no streilizing action upon the trypanosomes or treponema, while the dioxydiaminoarsenobenzol which contains only 40 per cent. has a powerful action upon these parasites: *but all of the mineral or organic arsenical compounds seem to have a common defect; the organism and parasites soon become accustomed to their presence so that the sterilization of the organism becomes difficult and sometimes impossible and the apparent cure is sooner or later followed by a new outbreak.*

"To overcome this difficulty the idea occurred to me to combine the arsenical compounds with elements known to possess powerful action upon parasites, to which the system does not show a tendency to become accustomed, notably the metallic salts.

"I realized the first practical result in the combination of dioxydiaminoarsenobenzol with the silver salts[2] and following this with the copper salts[3] and experiments upon animals have shown these compounds to be considerably more active upon trypanosomes and treponemes than that of arsenobenzol alone.

"We have known some time that arsenobenzol could be combined with quicksilver, gold, platinum, and almost all the metals and from a chemical point of view, these compositions possess great interest.

"The dioxydiaminoarsenobenzol is an irritant product for the reason that its chemical components are not in affinity, but by the addition of two molecules of some other substance the composition is brought into a condition of greater stability and harmony. However, from a therapeutic point of view, it is not desirable to add to one molecule of arsenobenzol two of a silver salt or of quicksilver per thousand, for then the dose of these toxic metals would be too strong to produce a curative effect.

"As the quantity of arsenic could not be safely augmented, in searching for a substitute I finally added one molecule of antimony which by its chemical and therapeutic properties, resembles arsenic very much.

"*En résumé*, the arsenostibio argentic compound, which is designated luargol or "102," contains a a little more of arsenic and antimony together than arsenobenzol contains of arsenic, and besides, contains about 13 per cent. of the bromide of silver."

Experiments upon animals have fully confirmed the theories regarding this product and have shown that luargol is more stable, more active, and relatively less toxic than arsenobenzol[4].

For certain trypanosomiases and in particular for surra the relation between the dose tolerated and the curative dose is 80 to 1: for the trypanosoma Gambieuse 100 to 1; whereas for these same trypanosomiases, for atoxyl is 4 to 3, for arsenophenylglycine is 3 to 1, and for arsenobenzol is 10 to 1.

For sleeping sickness luargol is thus shown to be 75 times more active than atoxyl, 30 times more active than arsenophenylglycine, and 10 times more active than arsenobenzol. In addition to this it has been proved that luargol will cure mice infected with trypanosomiases dimorphon, where they are absolutely resistant to the action of the three other products mentioned.

In experiments made upon rabbits with syphilis, luargol caused the treponemes of the chancre to disappear in 24 hours in doses of 2 to 3 milligrams to the kilogram of the animal.

The same results are obtained in the treatment of men, viz., disappearance of the treponemes of the chancre and of mucous patches in 24 hours after a single injection of 0.10 to 0.15 centigrams, which result is obtained with arsenobenzol only by the employment of a dose two to three times this strength; and it has been found possible to employ luargol or "102" where other organic compositions of arsenic are not tolerated because of the much stronger dose required.

The chief advantage possessed by "102" over the previous arsenical preparations is its benign action in the presence of grave lesions of the central nervous or circulatory system. We have records of many fatal accidents following the administration of "606" and "914" in the presence of these lesions; whereas it has been shown in the treatment of many thousands of cases in Cochin Hospital, that "102" can safely be injected at any and all stages of the disease even in tabes with commencing ataxia, without eveil results; the prompt action of the remedy in arresting the progress of the disease is invariably the same, and so far no fatal accident has followed our employment of this remedy in more than 6000 cases in the most advanced stages and worst phases of the disease.

The limits of this paper will permit of the record of only a few of the worst cases treated.

The first reports of results upon the human subject with "102" were presented before the Paris Academy of Science by Professor Laveran[5] being a résumé of the experience of Drs. Fournier, Renault, and Guénot.

One of the early cases showed the improvement following five injections of salvarsan 0.50 each and proceeded to a complete cure under luargol commencing from the first injection. Drs. Dalimier and Levy-Frankel, army surgeons reported to the military authorities upon 22 cases treated with luargol. Three phagadenic chancres, one of the size of the palm of the hand, cicatrized in 15 days; dose for each 1 gram. One gangrenous chancre with edema of the penis; cicatrization in one week after 0.60 grams of luargol.

Secondary period, ulcerous syphilides, uninfluenced by gray oil, cured in 12 days after 0.40 gram. of luargol.

Tertiary period, two malignant cases. One ulcerated gumma of sternomastoid, size of an orange, cured in 11 days after 0.90. One, a hardened testicle softened in ten days and complete cure after two months.

Syphilitic myelitis. Brown-Séquard syndrome, incomplete on right side, which side is paralyzed.

Exaggerated reflexes with epileptoid tremors; positive Babinski sign both sides, abdominal reflexes abolished; defensive reflexes exaggerated to second dorsal vertebra; purulent cystitis, retention of urine, fecal incontinence. First injection of luargol

Fig. 1.—Before treatment.

Jan. 28. On Feb. 9, after four injections, patient can stand alone. Feb. 14, can walk.

Syphilitic aneurysm of aorta; history of chancre twenty-five years back. Examination showed marked depression in recumbent position: thoracic pains, insomnia; double murmur at aortic orifice pulsation in the substernal space.; double heart beat of Stokes pronounced; left pulse more feeble than right. First dose of luargol Jan. 19. Treatment continued every third day to Feb. 25 with total administered of 1.20 gram. Oppression and insomnia gone, rough murmurs now soft, pulse equal, pulsation of aorta now barely perceptible. Patient so much improved he left the service promising to return but has not since been seen.

The patient whose photograph is shown in Fig. 1 entered Cochin Hospital, May 5, 1916. His chancre appeared Jan. 18, 1916, Feb. 3 Wassermann test positive. A local doctor gave him 49 injections of hectine, one every day, the last 9 being of 0.2 gm. each. During this period he also took 30 pills of protoiodide of mercury and 250 grams of Guilbert's syrup (a mixture of mercury and potassium iodide). Treatment continued from Feb. 10 to May 2. Chancre disappeared March 20.

Patient had the rupial syphilides as shown upon entrance. He was given injections of luargol, Mondays and Thursdays beginning with 10 c.c. and increased to 30 c.c. at the fifth injection, when photograph Fig. 2 was taken. Amelioration was apparent after the first injection: crust dried and fell off following the second injection. He was discharged cured at the end of 21 days.

We usually commence with an initial dose of 5 to 10 c.c and increase to maximum of 35 c.c, but usually to not more than 25 c.c., 1 c.c. representing 1 centigram of the salt.

Our experience with "102" confirms our opinion of its excellence in the treatment of syphilis, but particularly in the tertiary and grave forms of the disease. Containing the smallest proportion of arsenic of any of the arsenical preparations, it can with safety be administered at any stage of the disease, although none of the arsenical products should be given in the presence of albuminuria or diabetes.

Of late we have followed the treatment by luargol of the tertiary cases, by "606," feeling that the more powerful remedy better insures the future of the patient.

What can we conclude from our study of the arsenobenzines? Can we with safety discard the use of mercury, brought to a degree of perfection after fifty years of experimentation, and replace it entirely with the newer remedy, as is advised by many recognized authorities of the present day?

It is an incontestable fact that the introduction of arsenic into the treatment of syphilis has arrested the attention of the entire profession by the marvellous rapidity with which, in the great majority of cases, it cicatrizes the chancre, the erosive or ulcerous accidents, the mucous patch, extensive syphilides; causing the disappearance of the treponeme after the first does; the contagiousness of the disease is thus caused to disappear in a few days. This alone forms a gain of social importance of the very first order, and if it presented no other advantage this would suffice to give it a leading place in the present day treatment. As a second advantage of prime importance, is the fact that the ability of arsenic to render the patient sterile and non-dangerous in a few days permits of his being hospitalized for a few days only in place of weeks, as in the case of a course with mercury; a patient is much more amenable to hospital sequestration for eight or ten days than for that many weeks. Rendered non-contagious, the patient can return to his usual occupation on condition that he returns to the clinic over a given period of time at regularly fixed dates to complete the cure.

The marked success of arsenic in pregnant women is noticeably superior to mercury and forms

Fig. 2.—After treatment.

a precious agent to combat the infantile mortality of syphilis which is at the actual moment more menacing than at any previous period.

It is claimed that the subjects treated at the commencement of the primary period, before the ap-

pearance of the roseola have the greatest chance of being cured after 2 to 3 grams of arsenobenzol or 5 to 7 grams of noversenobenzol; not only are they free from any further clinical evidence of the disease but their Wassermann and cerebrospinal fluid give completely negative results. As an additional and indubitable proof of complete cure, are cited the cases of reinfection, which are as frequent to-day as they were rare under the former mercurial treatment, and many of these reinfected cases are in those who were apparently cured with only 3 or 4 injections.

Careful observation of these cases does not permit me to coincide with these claims for I have come to the conclusion that, far from being cured, these are cases showing marked affinity to the remedial agent; the disease has been arrested with the first injection, and after the few injections reported, all tests being negative and the patient apparently completely relieved is discharged cured, but he was not cured; the disease was simply "put to sleep," retarded in its progress; a certain nidus of infection, dormant in the system, came to life and the reinfection was simply the external evidence of a fresh outbreak. It must be noted that the reinfection appears only in those treated in the primary periods, there is a notable absence of cases of reinfection among those treated in the secondary period and later[16]. Certainly it ought to be as often observed in those "cured" in the second as in the first stage.

A very important fact bearing upon this question of reinfection is that most of the reinfected cases come back two to four months after they were pronounced cured and this coincides with the delay ordinarily observed in patients who rendered noncontagious and permitted to leave the service upon the promise to return regularly, have been negligent and irregular, who break out with the various mucous and cutaneous accidents, icterus, and various incipient forms of paralysis.

Boyet, Deneux, Desjardins, Gaucher, Fribus, Diday, and Hudelo, have commented upon similar cases that have come under their observation, where there had been no possibility of reinfection, showing the fresh chancre to be simply a relapse. Taking all the evidence into consideration the cases of reinfection resemble very greatly a relapse of the primary condition.

When the treatment by arsenic has caused the disappearance of all cutaneous and mucous signs; has progressively caused the Wassermann to change from H° to H⁵ are we warranted in believing our patient cured, even repeating the test every month, then every two, then every six, and from time to time giving a reactive test injection of 0.30 of arsenobenzol making a serum re-examination at the end of 10, 15, or even 30 days (Leredde)? I am only one among many who do not believe we can assure a patient that he is cured. With the extended history, accumulated over long years of careful notation of the evolution of syphilis, I doubt if at any time, under any condition, we can be certain that a cure has been effected.

Going further, in cases where the patient has presented nervous accidents and upon examination we have found the cerebrospinal fluid affected, can we, after all visual evidence has disappeared, the serologic test become negative, the cerebrospinal fluid become normal, assure the patient indemnity from any further danger attached to the meningocerebral or meningomedullary system? I should not want to commit myself to that assurance; and, even if we felt certain on this point, what is to be said about the future indemnity of the spleen, the liver, the kidneys, the heart, the arteries, or the medullary substance of the bones? The history of long years of accumulated experience of the great teachers past and present has shown the possibility of a point of latent infection resting quiet in any one of these systems, coming to life and virulent manifestation after five, ten, or twenty years, stupefying the patient, who had been assured that he was cured. It is necessary to recoguize that we have to-day no sure and certain means of knowing for a fact that syphilis is cured. Once a patient leaves our care "cured" apparently, our prognosis of his future can be based only upon presumption. Eternal vigilance is the price of safety and in nothing is that truer than in the treatment and care of a syphilitic; we can repose confidence *only* in a chronic examination and treatment as opposed to the most chronic of all known diseases.[17]

It is too soon to predict how large a place is to be filled by the arsenical products in the treatment of syphilis. When we consider that the total of our statistical knowledge of the efficacy of the arsenical treatment extends only over a period of seven years we cannot yet know how many of our "cured" will return sooner or later with renewed manifestations of the disease.

Our experience in Cochin Hospital with the latest of these remedies, luargol or 102, persuades us of one superior advantage it possesses over those that have gone before, viz., there are no contraindications to its use. We know there exist many in the case of 606 and 914 and that they have been the cause of many fatalities, especially when the disease has attacked the central nervous or central circulatory system. We have experienced some remarkably good results in tabes, general paralysis, leucoplakia, lesions of the aorta, and affections of the cranial nerves, in all of which 606 and 914 are contraindicated and dangerous.

We know the immediate good results of arsenic, and perhaps with a more complete knowledge we may find the way to use it to insure the permanency of these good results, but at the moment a great number of syphilographers complain of the numerous cases of relapse after the primary treatment by this agent. We can ask if the administration by intravenous injection, the rapid distribution through the circulation and its equally rapid elimination, permits the medication, mercury as well as arsenic, to destroy completely and effectually the disease germ; the same question arises regarding the intravenous treatment of malaria by quinine.

If arsenic alone cannot effect the complete sterilization of the system, why should we not call mercury to our aid, the efficacy of which has been proved by decades of practice. This is a question that is being asked by leaders forming a new coterie uniting the partisans of mercury with those of arsenic; using arsenic for the arrest of the disease, the rapid cicatrization of the contagious accidents, then after some weeks of repose commenc-

ing the classic cure by mercury. Brocq and Weisser advocate this procedure, and, judging by the statistics recently published[18] of this treatment in the armies, takes the place of honor. It is always possible and permissible to make a new cure by arsenic, in the presence of a return of cutaneous or mucous accidents, or where the system rebels against the mercury or where a rapid and intensive action is called for.

Danysz says of the preparations of arsenic: "The organism and parasites soon become accustomed to their presence, so that the sterilization of the organism becomes difficult and sometimes impossible," and, in my opinion, herein lies the present failure of arsenic alone to procure the permanent results we so earnestly seek; there is therefore well-founded reason for the return of many to the old faith in mercury to realize the permanency of result wherein at present arsenic seems to fail. Among those who have made favorable reports upon this combined treatment are de Lapersonne (ocular lesions), Vaquex (heart and aorta), P. Marie (nervous system). Alternate cures of arsenic and mercury have been tested favorably by Favre and Longin.

In the effort to simplify this combined treatment several combination remedies have been introduced. Enesol (Salicylarsinate of mercury) is injected intramuscularly or intravenously 0.03 gm. per cubic centimeter and 2 c.c. are injected every day or every other day: this remedy has been employed as high as 4 to 5 c.c. per day two to three times per week until ten to twelve injections are made, then one month of repose and repeat.

Hectargyre is a combination of hectine and mercury. Hectargyre A is composed of 0.10 hectine and 0.005 mercury; hectargyre B is composed of 0.20 of hectine and 0.01 mercury per cubic centimeter. It is also made in solution to be administered by the month; 20 drops correspond to 0.05 hectine, 0.005 Hg.

Enesol and hectargyre are well tolerated, but slightly toxic, and have a moderate and gentle action.

Hudelo has practised in the military ward of his clinic the following and expresses himself well satisfied with results.

With five days' interval he gives injections of novarsenobenzol of from 0.30 to 0.90 until he has injected a total of 4 to 5 grams; alternately with these he injects 0.01 of cyanide of mercury until he has given twenty doses. In some severe cases (intense cephalalgia, abnormal reaction from the medication, intense fever vomiting) he made a lumbar puncture and found the characteristic reaction; at the close of the treatment the serologic and spinal tests were normal and the patient appeared well. On all the discharge cards was noted the advice to recommence the treatment at the end of two months with mercury by pill or injections as might be possible.

Some method of combining mercury in the treatment with arsenic is recommended by Favre and Longin,[19] Pautrier,[20] Goubeau,[21] Pasteur and Mallein,[22] and Thibièrge.[23]

In private practice, where we can make our influence felt to a greater degree with the patient, we can pursue a course of after treatment following the indications in each case. If the Wassermann remains negative after six weeks to two months of repose, put the patient under the classical treatment by mercury, choosing by preference the soluble salts (benzoate, biniodide), giving a series of twenty injections followed by one month of repose, or ten injections per month for six consecutive months. If the Wassermann shows a tendency toward the positive when the patient presents himself after the period of repose following the first course of treatment, repeat the first course of forty days' mixed treatment and permit only three weeks to elapse before again submitting him to a serological test. If the lumbar puncture at the end of the first treatment gives an abnormal result (hypertension, albuminuria, lymphocytosis) the arsenic treatment alone or mixed with mercury should be given until these evidences return to normal and then the mixed or mercurial treatment should be inaugurated, but with not more than one month of repose between each cure. If the severe accidents appear (cephalalgia, cerebral obtrusion, vertigo, fever, nervous phenomenon), we agree with Ravaut and Hudelo that it is better to follow the lighter treatment by small dosage (0.05 to 0.15 of luargol and 0.01 to 0.015 of benzoate of mercury), extending over longer periods (10 to 15 injections of luargol in particular), repeating until these symptoms are brought under control.

After the patient has been brought to normal (Wassermann and lumbar negative), we still persist in following the classical treatment with mercury over a period of five years, making a Wassermann test at regular intervals to insure perfect control. Even with every known remedy and every precaution taken, we cannot be certain of a complete and permanent cure, and I do not believe we will arrive at a certainty of cure for this malady, which has been the curse of the human race since the dawn of history, until we have brought it under the influence of that magic cure for all diseases of microbic origin, syrum-therapy, if we ever arrive at a degree of knowledge that permits it.

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MATERNAL IMPRESSIONS AND FEEBLE-MINDEDNESS.

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ANYONE who comes much into contact with the parents or relatives of the feeble-minded is certain to appreciate the widespread belief in maternal impressions. For example, he will be told that a certain child is epileptic because its mother, while pregnant, was frightened by a mad dog, or she saw someone in a convulsion; that another child is paralytic because its grandfather or someone else had a "stroke" in the mother's presence prior to the child's birth; that another child is feeble-minded because it was "marked" by a certain animal, a drunken man, a "simple" person who lived in the neighborhood, etc. Indeed, the various maternal impressions alleged to have caused mental and physical defects of all kinds might be quoted ad infinitum. It must not be supposed, however, that such reasons are given only by the unerudite; in fact, it is not at all hard to find clergymen, physicians, and others of the learned professions who assert their convictions as to the truth of maternal impressions as a cause of harm, and when those who are considered leaders and moulders of thought in their respective communities sponsor the doctrine, it is no wonder that it has such a tenacious hold upon people of all classes.

The belief in maternal impressions is as old as history. Evidences of it can be found among all peoples at all times. It is referred to in the Bible, also in the Laws of Lycurgus which commanded all Spartan wives to look only upon pictures and statues which exemplified the strong and the beautiful. And at various periods it has been attacked in books written in all languages. Though we believe our age to be a very intelligent one, this theory is still universally prevalent, and in the literature of the day we find it vouched for, sometimes by those whose opinions are considered authoritative.

The theory is no doubt founded upon the principle of the scapegoat.[1] From time immemorial man has striven to escape from that which would make him unhappy, and when obstacles to happiness presented themselves it was his wont to attempt to do away with them, as well as the responsibility for their appearance, by transferring the evil or sorrow to some person or thing, and by killing this person or thing he believed the impediment to his happiness was removed. If he could transfer a burden of wood or stones from his own back to that of another he reasoned he could likewise transfer pain, sorrow, disease, and evil of any kind to someone or something else. On this principle, animals were killed in times of plague; criminals or other human beings sacrificed for the sins of the community, or to keep it holy; and disease, by ceremony, transferred to animals or things and these done away with. The trial and punishment of individuals said to have caused evil by reason of witchcraft, the "evil eye," etc., and also the trial and punishment of animals and things, as during the Inquisition, relates to the same principle. And, no doubt, the effort to make animals or persons responsible for defective children follows the same lines. Or it may be considered part of the so-called projection mechanism, which, objectively at least, is founded on the principle of the scapegoat. Man's interests, and the community's interests, too, demand that his child be normal, but in the birth of a defective child an obstacle to happiness is encountered. It is an evil, a sorrow for which a culprit must be found even if in these times neither the evil nor the cause can be removed and forgotten. Man does not want to feel responsible for this evil; he feels, consciously or unconsciously, that he himself may be at fault, but such a thought would cause unhappiness. Hence he seeks some force that is working against his happiness, and to escape responsibility he makes a scapegoat out of someone or something. Or we may say he projects his difficulty upon someone or something and punishes it by his hate. The mechanism represents the age-old effort to escape the unhappy, to throw burdens and difficulties, due often to self-deficiencies, upon something else, and in doing so shifting the responsibility, and thus escaping unhappiness. And how people seek to escape personal responsibility for their defective offspring is shown by their hiding ancestral taint; in the husband, blaming the wife, and vice versa; in blaming animals, or persons, for the evil. Moreover, those who know the fallacy of the doctrine of maternal impressions are loath to disbelieve it. They realize that it is possible for a defective child to be born to them and in such a case the interpretation that the public may have upon it, even though the child's condition is due solely to extrahereditary causes. In maternal impressions they have a cause, a means of transferring possible responsibility, an object upon which to vent their hate, and, last but not least, an explanation believed by the curious.

The theory of maternal impressions contends that a vivid impression or emotion of some kind experienced by the mother can in some mysterious way produce a structural change in the unborn child corresponding to the maternal impression. For example, fright occasioned by a rabbit may cause harelip in the child; fright from fire, the sight of blood, an unsatisfied craving for cherries, tomatoes, etc., or the mother's touching herself while frightened may result in nevi or so-called strawberry marks. According to some, even reading a book that is unpleasant, or harboring an unpleasant thought may affect the child in some specific manner. The theory also assumes that it is possible for the mother to have her child a genius or anything she desires, simply by willing such. Also, it espouses the belief in the direct transmission to the child of mutilations experienced or witnessed by the mother.

Without doubt severe emotional states experi-

enced by a pregnant woman, or unpleasant emotions continued over long periods, may have a detrimental influence upon the fetus. However, if they act, they do so by interfering with the nutrition of the fetus, either by rendering the mother's blood poor in quality or quantity, or by rendering it poisonous. The emotions, we know, excite many of the ductless glands, causing them to liberate large quantities of material which, in large amounts, act as poisons; the emotions also upset normal metabolism. Werber,[2] by selecting injurious substances known to arise during faulty metabolism in the human being, as butyric acid, and acetone was able to produce deformities such as cyclopia, defects of the ears or eyes, hydrocephalus, etc., in the offspring of the marine teleost fish, *Fundulus hetcroclitus*. Of course, it is possible that such poisons may be produced in large amounts as a result of continued emotional states, but it is as yet unwarranted to assume that such explain human developmental anomalies. Granting that the emotions may affect the fetus detrimentally such an effect would be general and not specific; that is, the structural change or changes in the child would not correspond to the particular emotion of the mother nor its cause. As a general thing, in practically all cases where fright is the alleged cause of the "mark" the fright was so slight as to cause scarcely more than transient thought at the time; indeed, it was quickly forgotten, to be resurrected, after much thought often, subsequent to the child's birth. We should remember, too, that a pregnant woman can apparently experience much emotional shock without detriment to the child; if harm is done it usually results in death of the fetus. The report of Baron Percy is often quoted to show the apparent influence of fright upon the pregnant woman. According to him, of 92 children whose mothers had been exposed to the cannonade at Landau in 1793, 16 died at the instant of birth, 33 died between the eighth and tenth months, 8 became idiotic and died before the age of five years, and 2 were born with numerous fractures of the ribs. However, Pestalozzi and Resnevic some time ago respectively reported on 40 and 20 women brought to the Rome maternities from the earthquake district. All of these women had undergone the terrors of the last Italian earthquake, and many had been buried under the ruins for hours. But two gave birth to premature children; the remainder gave birth to living, normal babies.

The impossibility of a specific maternal impression having a specific effect upon the unborn child should be apparent to anyone at all familiar with physiology. The only connecting link between mother and fetus is the umbilical cord which has no nerves. The only means of communication between the two is the blood and the mother's blood does not directly pass to the child, being first deposited in the placental blood spaces. That the blood cannot carry impressions should be conceded without question.

Negative evidence alone should be sufficient to disprove the theory. Quoting Pohlman[3] Bischoff in 11,000 confinements was unable to find a single case of maternal impression, and William Hunter says that for many years all the women who entered a large maternity hospital in London were asked if anything had especially affected their minds. If so the answer was written down. In no case where an abnormality was noted on birth of a child could a relationship be traced to its mother's recorded answers though the women frequently suggested a cause when they learned the nature of the abnormality. Again, we see day in and day out anomalies of development in the vegetable and animal kingdoms without attributing such to maternal influences; and if there were anything in the theory monstrosities should be the rule and not the exception, considering how impossible it is for a woman to go through a pregnancy without being impressed by some unpleasant emotion. And thousands upon thousands of mothers, who feared their children would be "marked," have found, as is the case with most worries, that they concerned themselves unduly over things that did not happen.

Doubtless, it will not be hard for believers in the theory to find some cases that apparently support their belief. But as a rule such oft quoted, stock examples as have been thoroughly investigated have been disproved, and the real etiological factor traced to something more in accord with science. A great many of the stock examples are as old as the hills and are not open to investigation; they have been accepted on the mere say so of someone and have been recorded in the literature without verification, and we must remember that errors not infrequently creep into medical books and journals which are considered authoritative. Human beings are gullible; moreover they delight in the mysterious and have a love for that which appears dramatic, and considering the number of coincidences which happen daily it is nothing remarkable if an occasional case, which apparently supports the theory, occurs.

It is probably in connection with the feeble-minded that the theory of maternal impressions is most used. Some time ago the writer went over some 300 cases of definite feeble-mindedness in the preparation of some statistics. The frequency with which the parents or relatives ascribed the mental defect to maternal impressions was truly noteworthy. "Marked by a horse, a hurricane; mother frightened by a drunken man; mother fondled a feeble-minded boy," etc., were but a few of the many reasons given. Yet in all but one of these cases, and in this one case the history was not complete, the true cause of the deficiency could be found in a tainted heredity or other causes recognized generally in the etiology of feeble-mindedness. For example, one epileptic idiot was said to have been "marked" by a seal. The family history of the patient shows that some of his maternal relatives are mentally defective, his father is feeble-minded and an alleged luetic, his mother is feeble-minded and epileptic, his sister feeble-minded and epileptic. Surely such an ancestry is enough to explain his condition. It is now well recognized that from 60 to 80 per cent. of all cases of feeble-mindedness can be traced to a morbid heredity; the remaining cases to injury at birth, disease in early life, etc. If

one looks up various text books on feeble-mindedness he will, of course, find a certain number of the cases, from two to five per cent., alleged to be due to disturbed mental states in the mother. However, the writer has always felt that such statements are unsatisfactory, and are used often when, owing to an incomplete or unreliable history, there appears nothing else to explain the defect. Mongolism, which comprises about three per cent. of the feeble-minded, is often ascribed to emotional states of the mother, but we must confess that its real etiology is unknown. At any rate, it is preposterous to believe that it may be caused by a mother being frightened by a Chinaman. When we face the facts we must admit that in the etiology of feeble-mindedness maternal impressions play no part; if we were to believe interested persons they would explain at least 50 per cent. of all defectives whether mental or physical.

Of the impressions alleged to cause mental defect "marking" by animals is most common, and if we were to study a group of low grade defectives we would surely find many who betrayed characteristics more or less peculiar to animals. The brothers Ceretti, the Bird Man, the Rabbit Man, and others described by Lombroso can easily be duplicated in any institution for the feeble-minded. The writer has encountered many of these children said to resemble some animal but it has been his experience that in none of these cases have the parents noted the fancied resemblance; usually they ascribed the cause to something other than fright by an animal. In other cases where fright caused by an animal was the alleged cause, no resemblance could be found to the animal mentioned. In all the cases the true cause could be found among the recognized causes of mental deficiency. The fact that some low grade defectives may bark like dogs, chirp like birds, neigh like horses, crow like roosters, etc., and betray actions said to resemble those of a certain animal is not at all peculiar. Low grade defectives are physically deformed and they act in atavistic fashion simply because they are idiots or low imbeciles, to which such peculiarities are common. As a rule, the alleged resemblance to a certain animal is much overdrawn and would not be noticed if someone of a fanicful turn of mind had not pointed it out.

Should an illegitimate child be feeble-minded there are those who believe that the illegitimacy is, *per se*, sufficient explanation; if they are of a strongly religious turn of mind, the defect is attributed to the wrath of God; the worldly minded may ascribe it to the experience of shame and sorrow the unwedded mother is supposed to go through. The fact that a child is unwanted, whether the mother be married or single, has been cited as a cause of the so-called epileptic constitution. However, the principal fact determining whether or not an illegitimate child, or any other child for that matter, will be born normal mentally and physically is the quality of the germ cells that go to form its make-up. If these cells are normal the illegitimate child has as many chances of being born normal as a child born in wedlock. Many illegitimates have made their niches in the halls of fame, as reference to Lombroso's "Man of Genius" will attest. We should bear in mind, however, that it is feeble-minded girls who are the mothers of a large percentage of illegitimates. It is generally accepted that at least 50 per cent. of prostitutes, street walkers, and others of similar ilk are mentally defective; others are epileptic, psychopathic, or diseased physically; the latter not alluding to sex disease from which all prostitutes suffer. Many of these persons living unchastely have, at one time or other, borne one or more illegitimate children. As a general thing, if one parent is normal and the other defective, the children are due to be apparently normal, though carriers of defective germ cells. However, the fathers of these girls' children are often feeble-minded, psychopathic, or otherwise unstable on an hereditary basis, in which case the child, receiving a double inheritance of defect, can hardly be normal. A tree is usually known by its fruit, and if a certain percentage of illegitimates are abnormal the probabilities are that such is an expression of morbid heredity, rather than a token of divine wrath or extra-hereditary maternal influence. Should such children prove immoral or otherwise anti-social they did not inherit these tendencies as such; they inherited abnormal nervous structures, the anti-social acts being merely symptoms of such. Even though the illegitimate proceed from normal parents it is only natural for it to become an enemy of society if, as is often the case, it develops in a poor environment. A good heredity gives a child the material upon which a good character may be built; it is training and environment, however, which moulds the character; and considering the many hardships society unjustly imposes upon the illegitimate, it is no wonder if it chooses, or is forced by chance or circumstances, to live at odds with society.

It is believed, too, that a child conceived while one or both parents were drunk is apt to be feeble-minded, or to show physical peculiarities, as a reeling gait. Some attribute this to the disgust and horror the drunken person excites in the other. It is also attributed to poisoning of the germ cells by alcohol. The influence of alcohol as a "racial poison" has been a matter of much dispute. Stockard's experiments, showing that alcohol caused various abnormalities in the progeny of guinea pigs, have been widely quoted. However, his views are by no means accepted by all. The experiments of Nice' are worthy of being read in this connection; briefly it may be said that Nice administered alcohol in the food and by inhalation to white mice without any appreciable effect as regards fertility, vigor of growth, and viability. Again, the results of experiments performed upon sensitive animals, as guinea pigs, hardly justify sweeping conclusions relative to their applicability to man. For example, liquid petrolatum will cure scurvy in guinea pigs but not so in infants. Instead of looking upon excessive drinking as the real cause of so much mental disease and defect it is more worthy of being considered an expression of some pathological condition. Drunkenness is often a symptom of insanity, feeble-mindedness, the neuroses; and many people drink excessively because they are nerv-

ously unstable rather than unstable because of drink. If the child of a drunkard is mentally defective, in place of blaming alcohol the real facts responsible for the drunkenness should be considered; if so, the defect will probably be a matter of heredity.

Sometimes because the child of a drunkard becomes a drink addict in later life some people conclude that the taste for drink was inherited; even that the sight of the drunken husband so influenced the mother as to "mark" her unborn child in this specific manner. There is a form of periodic drinking, apparently related to the epilepsies, which tends to act in an hereditary fashion, but it may be accepted that a specific taste for alcohol is not inherited. If the child of a drunkard is abnormal mentally it may take to drinking later in life simply to escape temporarily, at least, the various difficulties bound to arise as a result of the abnormal mental condition. In such a case the drinking is a sign that something is wrong. To-day we are getting away from the idea that drunkenness is largely a matter of habit; instead, there is more reason to believe that drunkards are drunkards because they find drink a means of escape from trials or problems with which they cannot adjust themselves. Just as the man who loses his position, who suffers a bereavement, etc., goes on a spree because he is unable to adapt himself to the new situation, so also do chronic drunkards, or the majority of them, at least, take to drink because they are unable to adjust themselves to the world of reality. Of course such is an abnormal condition, for the normal person is able to face the difficulties which threaten his happiness. If the child of a drunkard is born normal, family habit or environment or the development of a neurosis or other disease which does not permit of self-adjustment to difficulties will usually explain the drinking habits, if any. As most of us must have noticed, many of the children of drunkards are not only total abstainers, but are also normal mentally and physically; again, the children of races that drink hard routinely or at certain festive seasons are not conspicuous for mental or physical defect; that in both cases many of these children were conceived while one or both parents were drunk seems probable, thus weakening the case of maternal impressions. The occasional birth of a child which from the age of walking, or later, shows a gait somewhat like that of a drunken man is not at all sufficient to support the view that it was "marked" by a drunken father. No doubt many of the cases attributed to the latter cause were due to Friedreich's ataxia of which the reeling or drunken gait is typical. It is a family disease and sets in early in life. In Griffith's 143 cases, alcoholism was noted in only 7 cases, so that alcohol appears to play no particular part in the etiology.

Just as a tainted heredity will account for a large portion of mental deficiency alleged to be due to maternal impressions, so also will it account for many crass physical defects attributed to the same cause. There are any number of physical defects which act in an hereditary manner, as polydactylism, hypophalangism, acephalus, defects of the eyes, ears, etc. The real part heredity plays in causing these defects is often not appreciated. The average physician makes but a very perfunctory inquiry into the family history of his patient; again he hesitates to inquire deeply lest he cause offense. If the patient knows of familial deficiency, the tendency is to hide it; also, few people have much worth-while knowledge concerning their ancestors. An important point, too, is that hereditary defects sometimes skip a generation and so are apt to be forgotten as existing in the family line. The difficulty in tracing anomalies attributable to heredity is also added to when the characters act as recessives, and when, occurring in miscarriages or still births, they escape notice.

The impossibility of moulding the fetus into a genius or other desirable superior being simply by the mother's will-power is evident. Practically every expectant mother spends the days of waiting wishing great things for her unborn one, and how many times is she grievously disappointed! If there were anything in the theory the woman who sighs for a boy baby should not be disappointed so often by the birth of a girl.

If the mutilations were directly transmissible the children of cripples and others physically misfit through accident or circumstance should be likewise defective, yet we know that such is far from being the case. If a child is born with a digit or more missing, in place of its being due to the mother seeing a crushed finger or the like, the chances are that it is a case of hypophalangism which is hereditary and which, furthermore, may skip a generation. And if a child is born a paralytic there are any number of birth accidents to explain it rather than a maternal impression of some kind. As illustrating the apparent transmissibility of mutilations Prof. Häckel's instance of the bull which having had its tail squeezed off by a byre door subsequently produced tailless calves is often quoted. Another instance is that of a cow said to have produced hornless calves after losing her own horns through disease. Just what the real explanation of these cases is I do not know, but any number of animals lose portions of their physical members and have healthy progeny. As offsetting the examples quoted, the following is interesting: Last year we dehornated some 30 cows. At the time 12 were pregnant. All gave birth to healthy calves which to this day show no peculiarities of the horns.

Of course we will at times find anomalies of development which apparently defy explanation. But before falling back on maternal impressions we have more scientific theories to bring forth. For instance, in 1908 Mall,[5] from a study of pathological human embryos, concluded that defective prenatal development was due to faulty implantation of the ovum in the wall of the womb. This faulty implantation might be brought about by any diseased condition of the womb. When such implantation occurs the nutrition of the ovum is interfered with and this leads to its death or to a monstrosity. Diseases of the chorion, the placenta, are known to be associated with defective children; and toxemias may play a no small part. Lues apparently does not; Holt found the Wassermann negative in 56 children born with various

congenital abnormalities. Whatever the cause, in no instance open to investigation can a case be made out in favor of maternal impressions.

The theory of maternal impressions does no real good and causes much suffering. For one thing, it prevents people from realizing their hereditary defects, if any, and thus they feel free to marry and salve their consciences on the birth of a defective by making a scapegoat out of some animal, person, or thing. Moreover, the unfortunate offspring is denied the care and training it should have from its earliest years; it is a "marked" child and therefore not like other defectives on an hereditary basis. Again, countless women torture themselves throughout the days of their pregnancy, fearful lest some emotional experience, some abnormality they have seen, or even read about will, in some way, "mark" their children. Physicians and others in a position to do so should in every way possible combat the theory. It is not prenatal culture and the like that our future men and women need but prenatal care; if they have this, and if parents realize the right of every child to be well-born, the appalling death rate among infants and the number of defectives of all kinds will materially lessen.

From this article it is hoped that it will not be assumed that the writer is attempting to account for all sorts of deficiencies by a tainted heredity. Without doubt, heredity plays no small part in their causation, and a part more real than the average person supposes. However, while heredity will explain many abnormalities, many of the latter are also due to chance happenings which might occur in families of the purest stock. A defective child in a family is not, *per se*, a trustworthy sign that the whole family is tainted, yet many embryo students of heredity and social problems are not loath so to condemn it, thus causing lasting and irreparable harm often. They do so by reason of hasty generalization, without taking the trouble to seek out the facts; if they sought out the latter they would often find that the family they condemned showed evidences of being of infinitely more value to the community, present and future, than the amateur eugenicists. The question of heredity is a complex one, and only those fully acquainted with its various ramifications and apparent contradictions should presume to draw conclusions in any given case, and then only after a thorough investigation of the facts. Nor should we be led astray by the theories of those we consider authorities; as Lyon says: "Authority is useful as a factor in critical judgment; it is fatal as an object of worship." Heredity tells us what has happened in the past and what may happen in the future; but he who, because a certain point has been worked out in the animal or vegetable kingdom, presumes to say just what will happen as the result of any given mating, is apt to err. Bad trees sometimes bear good fruit. The author's contention is this: The belief in maternal impressions as commonly accepted has no scientific basis on which to rest, and along with many other archaic theories pertaining to the realm of medicine deserves a place in the waste basket. So far no one has made out a good case for it, and, in the light of our present knowledge, it is doubtful if anyone ever will.

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ON PAROTITIS AS A COMPLICATION OF INFLUENZA.

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WHILE an acute parotitis is not an uncommon complication in a number of infectious diseases, such as typhoid fever, etc., an inflammation of the parotid gland as a complication or sequel of influenza is of extremely rare occurrence. Osler in his "System" quotes twelve cases from the German army statistics. These are described more in detail by Leichtenstern in Nothnagel's "Handbuch" (Bd. IV, H. I. S. 147). That author mentions the sporadic occurrence of a parotitis in the influenza epidemics of 1580, 1732, and 1734 and further states that among the carefully studied 55,263 cases in German army statistics only *twelve* such cases were found. The present author has had the good fortune of studying a case of influenza parotitis which, owing to the great rarity of the condition, he deems worthy of reporting.

Mr. N. S., white, twenty-four years old, was attacked by influenza on October 4, 1918. The disease in this case was of an extremely severe character, with high fever (104°), marked prostration, and collapse symptoms. A few days after onset the patient developed a bronchopneumonia, chiefly localized in the right lung. The pneumonia lasted for two weeks, when the patient gradually began to improve and the fever disappeared.

At the beginning of the third week in the course of the disease the patient was suddenly taken with a pain in the right parotid region, a definite swelling was noted, and the patient could hardly open his mouth. It was at first thought that he was getting the mumps, but the subsequent course of the disease showed that that was not the case. The parotitis did not develop on the other side, but was confined to the right parotid gland. Instead of subsiding after a few days, the swelling increased and the symptoms became aggravated, requiring the use of opiates. A fever of 100° to 101° F. was noted. The patient was examined by Dr. Richard Follis, surgeon, in order to determine whether an abscess was forming, but no abscess formation was found. The parotitis persisted without softening of the gland for two weeks. After that period it began gradually to subside. A definite swelling and hardness of the parotid gland, however, was noted as late as three weeks after the onset of the complication. The patient finally made a complete recovery.

Physical examination of the chest and abdomen and analysis of the urine showed nothing remarkable.

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Pathogeny and Treatment of Cancer.—Cisneros recommends electroignition, which he has employed in cancer for eighteen years. He leaves the lesion open and proceeds against it at the first intimation of recurrence. Electrical methods may be used also as adjuncts to the knife and one may look forward to 100 per cent. of cures in operable cases along with a considerable percentage in inoperable cases.—*Semana Medica.*

Medicolegal Notes.

Workmen's Compensation Acts—Does "Surgical Aid" Include Artificial Limbs, Etc.?—The Connecticut Workmen's Compensation Act requires an employer to furnish such surgical aid to an injured employee as the attending physician or surgeon shall deem reasonable or necessary. The question is raised whether surgical aid or service includes the furnishing of crutches, artificial legs, artificial eyes, etc. The Connecticut act merely uses the general term "surgical aid," differing in this respect from the New York act, in which there is a specification of various things to be furnished. The Connecticut Supreme Court of Errors is of opinion that the Legislature, in using the general term, intended to include all things that might reasonably fall within its provisions. It is part of the duty of the surgeon, the court said, to prepare the stump of arm or leg for the artificial leg or arm. It is a part of his duty to adjust it. Why give the patient splints to hold the bones in place or crutches with which to walk and regard these as used in surgery? Why supply a glass eye? Because it is the everyday duty of the surgeon to order these things for his patient, and they are included as of course under "surgical aid." There is no difference in principle between supplying these and the artificial limb. That pertains to surgery and is used in surgery. The stump must be prepared by the surgeon to receive the artificial limb, and that must be adjusted to the stump by the surgeon. The only difference between the crutch and the artificial limb is that the latter costs more than the former.

The purpose of the provision in question is to restore the injured employee to a place in our industrial life as soon as possible by the use of all medical and surgical aid and hospital service which the ordinary usages of the modern science of medicine and surgery furnish. Humanity and economic necessity in this instance are in harmony in working for the accomplishment of the individual and of the public welfare. "Surgical aid" is a term of technical significance and has an established meaning in standard works on surgery. The duty of the surgeon does not end with the healing of the stump. "As soon as all sensitiveness has left the end of the bone, an artificial limb should be fitted and the patient urged to make efforts to use the extremity."—Keen's Surgery, Vol. V, p. 951. The duty of the surgeon continues until the artificial limb is adjusted and the patient has learned how, with the help of the surgeon, to use it properly. It would not be questioned that the entire bill of the surgeon for his services would fall under the head "Surgical Aid." It would be difficult to justify this expenditure, as well as that for bandages or ointments or other material used by the surgeon in his treatment of the patient, and not make a like expenditure for the artificial leg in connection with which these things were used.

Prentice, C. J., dissented because he thought the provision of artificial limbs for the improvement of physical efficiency, following such repair of the consequences of injuries received as the circumstances will permit, lies outside the sphere of the surgeon's professional activities as that sphere is commonly understood and established by actual practice.—Olmstead v. Lamphier, (Conn.) 104 Atl. 488.

Quarantine of Contagious Diseases — Delegated Powers of Boards of Health.—The Washington Supreme Court holds that though article 20, section 1, of the state Constitution provides that a state board of health shall be created, and makes no provision for the establishment of city boards of health, a city has general power by statute and at common law to enact necessary police regulations for preservation of the morals and health of the inhabitants, as to pass health ordinances or create the office of health commissioners, except as limited by contrary provision of the general law. It is held that ordinance of Seattle No. 15957, as amended by No. 32444, providing for the detention and quarantine of persons afflicted with contagious and infectious diseases, is not in conflict with the general law or the statutes creating the state board of health; the sole power in the state board being satisfied by the preservation of the right of appeal to that board. The ordinances and the statute creating the state board of health and rendering final its decision in matters of quarantine are legitimate exercises of the police power of the state, as founded in sound reason. It also holds that the act of the state board of health in determining whether or not a given person is afflicted with contagious, dangerous, or infectious disease is in no sense judicial, and the Legislature could provide for taking the judgment of persons skilled in disease as final on the question, without review by the courts. The questions grew out of the commitment to the isolation hospital of the city of Seattle of one found by the health commissioner of the city to be afflicted with syphilis.

One of the defendant's contentions, on appeal, was that the law is unconstitutional, in that it delegates legislative power to the health boards, since it leaves to them definitions and classifications of diseases. The court said that it has not heretofore considered similar laws as a delegation of legislative power or authority. The legislation is that of the legislative body, but it is not always practical to meet every phase of the necessity that has called for the law by the enactment of a general statute. The Legislature may well have taken notice of the fact that the nature, virulence and extent of territory covered by contagious and infectious diseases, whether endemic or epidemic, are all factors to be considered in the matter of quarantine, and that, after all, the whole working of a plan for quarantine must depend upon the judgment and discretion of men learned in the science of medicine, and that doctors often disagree. The Legislature, as well as the courts, would be helpless in such matters without resort to expert opinion, and their judgments would necessarily lie in greater or less degree in the facility of witnesses and the skill of counsel. It is most likely that the Legislature sought to avoid the confusions and delays that must necessarily follow if arbitrary classifications were attempted in the statute, for if it had the power to say, in emergency (in self-defense), that, inasmuch as the whole matter of quarantine must rest ultimately in the judgment of medical men, it would avoid the danger of partisan opinion and fix the seat of that judgment in men of its own choosing, or to be chosen in a way provided, and who being bound by oath to perform a public duty, and having a due sense of responsibility, presumably would discharge their office with justice and fidelity. The court thought there was no legal reason for denying the power to quarantine summarily.

It is settled that laws and ordinances creating boards of health and granting wide powers for the effective and effectual carrying out of the legislative plan for protecting health must be liberally construed. This being the rule, the power of the legislative branch of the government is not to be lightly interfered with or set aside. Courts will not seek for an opportunity to declare a right of appeal or review in cases resting in public necessity. In a similar case the Supreme Court of New Jersey said: "But upon the general merits of the controversy we are unable to perceive anything in the legislation referred to conferring upon the common pleas the right to review the conditions and the emergency in the locality which prompted the board of health to impose the restrictions and quarantine complained of in this case. We are unable to perceive any authority in the legislation itself, or in the public policy upon which it is based, which can be said to contemplate the submission to a legal tribunal of the public necessity, which requires in an emergency the prompt and expeditious intervention of a board to which the Legislature for the protection of life and health in a community has especially committed the determination of the facts." Board of Health v. Court of Common Pleas, 83 N. J. Law 392, 85 Atl. 217—for, as said in that case, to assume to review a finding of a properly constituted officer vested with authority to determine a fact in a critical situation involving detriment to the life and health of a community is tantamount to a declaration that the police power of the city is moribund and useless.

Finally, the court held that it is within the power of the Legislature, in dealing with the problems of public health, to make the determination of a fact by a properly constituted health officer final and binding upon the public as well as upon the courts.—State v. Superior Court, Washington Supreme Court, 174 Pac. 973.

Military Medicine.

The Solar Dressing for Wounds.—Pierra applies this term to the heliotherapy of wounds. He considers especially the local application of the solar rays, leaving sun baths, which combine free air with light and warmth, for other writers. In the solar dressing the rays exert a direct sterilizing influence on the wound surface, and moreover hasten cicatrization. The author has closely studied the action of the rays on wound healing under suitable control. He selected atonic and especially trophic lesions such as result in part from a mechanical factor, including freezes and varicose ulcers. In these torpid lesions there is no lymphorrhea, no epidermization. The rays cause first in such wounds a hyperemia which should in turn give rise to pigmentation. The latter signifies that vitality in the cells has been awakened, and with it the reparative process. Edema and lymphorrhagia may also be seen and this means that the wound is draining and cleansing itself. By taking a large number of torpid wounds of various kinds and timing them under the influence of the solar rays, he satisfied himself that healing nearly always occurred and within a relatively short time. The number of hours of exposure added up from 12 to 142 and the number of séances from 5 to 45. So much for the power of cicatrizing old and torpid wounds. The author, however, finds another indication for the rays, to wit, in the sterilization of recent infected wounds. These must of course, be accessible, for deep wounds with pockets cannot be reached by the rays. The bactericidal power is greater over anaerobes than over aerobes. It is hardly correct to speak of a bactericidal action for it is really one of mere inhibition on germ activities. The results are more inconstant than in torpid lesions and the figures quoted seem to show that the sun does not compete with other standard methods in this class of wounds, but might be of much use in the absence of the surgeon's ordinary equipment and as an accessory. The author confesses that by itself the sun would hardly answer here, but as an accessory it is of value even in bone and joint surgery. —*Journal de médecine et de chirurgie pratiques*, October 25, 1918.

Influenza Decreases in Camps.—A report from the War Department, on December 20, states that although influenza is still prevalent in all the army camps there has been a decline in the number of cases for the week ended December 13 as compared with the preceding week. The total number of cases was 3,830, a decrease of 426 over the preceding week.

Hospital Construction Approved.—The plans of the Public Health Service for hospital construction costing $1,000,000 have been approved by Congress.

Will Aid Blind Soldiers.—Sir C. Arthur Pearson, head of the British National Institute, devoted to the care of men who have lost their sight in the war, and himself blind, sailed for this country on December 20. The object of his journey is to confer with those who are responsible for the care of American soldiers blinded in the war and with Canadian authorities regarding the future welfare of Canadian soldiers trained at St. Dunstan's Hostel for Blinded Soldiers and Sailors in Regent's Park, London.

Oregon Soldiers Make Record.—The records of the Surgeon General's office show that of all Oregon's enlisted and drafted men only one-half of one per cent. have been found suffering from venereal disease. Oregon is said to have the honor record of the war in this respect.

Maj. John M. Berry, former epidemiologist in the New York State Department of Health, has recently been promoted to the rank of Lieutenant-Colonel.

Deaths in the Service.—Lieut. Thomas Jefferson Palmer, M. C., U. S. Army, of McAlester, Okla., a graduate of the University of Illinois, Chicago, in 1905, was gassed while on duty in French Hospital on the western front, September 10, and died October 28, at Base Hospital No. 14, Bordeaux, France, at the age of 39 years.

Assistant Surgeon Bertram L. Cunningham, lieutenant U. S. N. R. F., of Jamaica, N. Y., a graduate of the New York Homeopathic Medical College, in 1913, on duty at the Medical Office, Third Naval District Headquarters, New York City, died on October 21 from bronchopneumonia, aged 30 years.

Lieut. Samuel Dennison Shannon, M. C., U. S. Army, of Baltimore, a graduate of the University of Maryland, Baltimore, in 1915, in the British medical service, died from influenza in the Red Cross Hospital, London, on November 5, aged 26 years.

Capt. James McFarland, M. C., U. S. Army, of Burlington, N. J., a graduate of the University of Pennsylvania in 1911, aged 31 years, died in France on October 24 from wounds received in action.

Lieut. Frederick George Carow, M. C., U. S. Army, of Brooklyn, N. Y., a graduate of Jefferson Medical College, in 1917, aged 30 years, died from pneumonia while on duty at Camp Upton, N. Y., on October 16.

Lieut. LeCount Rochambeau-Lovellette, M. C., U. S. Army, of Chicago, a graduate of the University of Illinois, in 1917, died from lobar pneumonia while on duty at Fort Sam Houston, Texas, on December 2, aged 25 years.

Lieut. Albert Fabian Welin, M. C., U. S. Army, of Rio Vista, Cal., a graduate of Leland Stanford, Jr., University, Palo Alto and San Francisco, in 1915, died from pneumonia following influenza, at Camp Kearney, Cal., on October 31, aged 28 years.

Capt. Pleas Daniel Barnhill, M. C., U. S. Army, of Brenham, Texas, a graduate of the University of Texas, in 1876, died from arteriosclerosis on October 26, aged 52 years.

First Lieut. Clarence Macomber, M. C., U. S. Army, attached to the base hospital at Aviation Field No. 4, Garden City, L. I., was instantly killed in the main street of the camp on December 20, when a team of runaway mules crashed into an ambulance. Lieutenant Macomber was 40 years of age, and came from New Charon, Me.

Lieutenant Donald G. Russell, M. C., U. S. Army, of New Haven, Conn., a graduate of Yale University Medical School, in 1914, died of disease recently while on duty in France, at the age of 28 years. He had served in the Medical Corps since shortly after the United States entered the war.

MEDICAL RECORD.

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THE RELATION OF INCOME TO SICKNESS.

ECONOMIC conditions have a great deal to do with the incidence of sickness, but whether this depends upon inferior diet chiefly, upon unsanitary modes of life, or upon a concatenation of these circumstances, has not been made quite clear. In the case of pellagra it appears to have been shown in a sufficiently convincing manner that diet is a preponderating factor in the causation of this disease. With regard to rickets, evidence goes to show that unsanitary conditions in the home are, at any rate, contributory causes of the disease, but opinions differ as to the rôle played by diet.

Recently, Drs. G. A. Wheeler and Joseph Goldberger of the U. S. Public Service and Edgar Sydenstricker, public health statistician, have published in Public Health Reports, September 22, 1918, the outcome on some investigations into the economic conditions prevailing among a population of seven cotton-mill villages of South Carolina and the effects of these conditions upon the health of this community. The authors state that while extreme caution should be exercised in drawing broad conclusions from the small amount of data which they have been able to gather as the result of their investigations, the experience derived from the census of sickness and from the records of working days lost on account of sickness in the seven cotton-mill villages studied appears to suggest the following: (1) A higher sickness rate, involving inability to work, and a greater amount of working time lost on account of such sickness were found among members of families whose incomes were low than among members of families with a more favorable economic status. This condition appeared for persons of either sex and of similar ages. Only when a family income approximated $10 per half month per adult male unit, or about $900 a year for a family of normal size in 1916, did the sickness rate appear to be as low as that suggested by similar censuses in a number of localities in the United States as the normal rate. (2) Low economic status appeared to be a more striking concomitant of high sickness rate than employment in mill work. (3) A greater proportion of disabling sickness, of relatively long duration, appeared among persons whose family income was below the average than among persons with a more favorable economic status. The data collected and analyzed by the authors are too incomplete to warrant the making of dogmatic statements or of drawing definite conclusions therefrom. However, the data do suggest, from the fact that where the income was very small disabling sickness was prevalent, that there is a relationship between low economic status and ill health. This view seems to be corroborated by previous observations and recent investigations. The lowest paid and the least regular workers are the worst nourished and the most prone to disease. As the authors say, the data presented by them afford additional ground for the suggestion that in the analysis of morbidity facts the factor of economic status should be given due emphasis.

THE CAUSATION OF RICKETS.

THE causation of rickets is still a moot point. In spite of the fact that several authorities on children's diseases in this country and in Europe have pointed to dietetic deficiency as a main etiological factor, this view is by no means unanimous. There is one feature of the situation, however, on which all are agreed—that children most liable to rickets are those who live under unsanitary conditions, and the statement applies more especially to the condition of the home itself than to that of the district. There is much to be said for the argument that rickets is essentially a food deficiency disease, but it has not been proved conclusively to be so.

The British Medical Research Committee has published recently "A Study of the Social and Economic Factors in the Causation of Rickets," based on work carried out in Glasgow by Miss Margaret Ferguson under the direction of Prof. Noël Paton and Dr. Leonard Findlay. The subject of rickets was thoroughly investigated from social, economic, and dietetic points of view in families containing rachitic children, in families of the same social scale in which no rickety children were discovered, and also in a proportion of families resident in garden cities.

Twenty-five conclusions were reached, the most interesting being those dealing with the question of diet. It was found that the duration of breast feeding seemed to have no relationship to the incidence of the disease. That the majority of cases of both rachitic and non-rachitic children seemed to have had an adequate supply of fat during infancy. That the age at which artificial feeding was commenced seemed to be of little moment. That the diets of the rachitic and non-rachitic families showed no significant difference in energy value or protein content. That while the amount of fat in the diets of non-rachitic families was on the average 10.7 per cent. higher than in those of the rachitic, the overlap was so great that a defective supply of fat could not be considered as playing an essential part in the causation of rickets, and the evidence was against a deficiency of milk, of butter, or of the fat-soluble A substance being a determining factor. On the other hand, it was

decided that inadequate ventilation and deficient exercise were potent etiological factors.

In the opinion of the investigators the condition of the house had much to do with the causation and development of the disease. Overcrowding, vitiated air, and lack of cleanliness in the house, favored the production of rickets, and by improving the housing conditions the disappearance of the disease would be brought about.

These findings are interesting, though, of course, not in any respect final. They appear to minimize somewhat unduly the effects of dietetic deficiency in the causation of rickets. Good air and exercise tend, no doubt, to prevent rickets, but a sufficiency of suitable food would seem to be an etiological factor of at least as great importance. The evidence in favor of diet being closely concerned with the causation and development of rickets is quite as strong as that which attributes the condition to unsanitary surroundings.

NONSPIROCHETIC EPIDEMIC ICTERUS.

That in times of war and general distress a form of epidemic icterus, which is not a benign type of spirochetosis icterohemorrhagica, may occur, is well shown by an account by Professor Cantacuzene in *La Presse Médicale* for Oct. 24 of an epidemic in Rumania. This occurred in the autumn of 1917, beginning in the latter part of August and attained its maximum at the first of October. It did not become entirely extinct until the expiration of another six months. It was originally limited to troops but eventually became a civilian disease. The major features were extreme diffusibility, absolute benignity, and constancy and simplicity of clinical picture. Many Rumanian contributions on the epidemic were published. Other forms of jaundice encountered at the same time could readily be excluded, such as icteric recurrent fever, icteric typhoid, and the like. The disease first appeared in isolated foci but soon spread in waves. Hundreds of soldiers presented subicteric tinge of the conjunctiva, often so slight as to escape the subjects' own observation. In some cases there were gastroenteric symptoms. The contagiousness is well shown by the fact that a soldier on leave of absence immediately conveyed the disease to the members of his family, whence it soon spread among the neighbors. An infected soldier who lodged with seven others spread the disease so rapidly that in a few days all were infected. As to the exact mode of transmission nothing has been proved. Lice and mosquitos can readily be excluded as carriers. There is evidence to show that healthy human carriers can spread the infection.

The subjects were apparently non-febrile, but the thermometer and the complaint of slight chilliness showed a subfebrile temperature. After this period some men complained of nausea or diarrhea. Physical examination showed considerable enlargement of the liver. Conjunctival icterus was a relatively late symptom. When this arrived the patient was usually feeling well despite the presence of asthenia, which persisted for a time. The symptoms due to icterus in general, as presence of bile in the urine, pruritus, etc., were more or less in evidence. Only in the pregnant woman was the disease severe, and about the only deaths occurred in these subjects. Autopsy on one case revealed absolutely nothing to account for the special morbidity. The liver showed considerable fatty metamorphosis and the adrenals were the seat of pathological alterations. The gravidæ all died of paradoxical syncopal attacks. Bacteriological and hematological studies yielded no positive finds. The only clew to the nature of the malady was the occasional coincidence of paratyphus bacilli in the blood, suggesting the possibility of a modified strain of this germ endowed with icterogenic properties.

STUDY OF THE URINE IN CRIMINOLOGY.

In a practical note in the *Annales d'hygiène* (cited in the *Journal de médecine et de chirurgie pratiques* for November 10), Remlinger of the Pasteur Institute of Tangier reports some curious results of a study of the urine of criminals as a means of identification. It has long been known that sex is readily betrayed by the urinary sediment the excretion of the female being characterized by the presence in health of large pavement epithelium from the external genitals not present in the male. The author or reviewer neglects to mention that while this holds good for health, similar bodies are found in males with urethral disease. Still, as is justly claimed, the test usually answers in practice.

While no actual expertization is narrated Ramlinger deals with certain supposititious cases. Thus suppose a man or woman is found in bed in the morning assassinated. The medical coroner or equivalent should not fail to have the urine in the chamber pot examined from this viewpoint. If the subject be a man, the presence of certain epithelia known to urologists as almost peculiar to women would be near evidence that a female person of some kind had been with him during the night. Conversely if the subject found dead be a woman the presence of spermatozoids would betray the fact that a man had occupied the room with her. But a little reflection will show that a complete analysis could throw light not merely on the sex but the personality of the voider of the urine. Thus in the art of detecting the perpetrator of a crime the operator could readily perhaps secure urine passed by the suspect and the presence of albumin, casts, sugar, etc., might constitute a valuable lead. As the author suggests, identification by this means might become so developed that the underworld would be forced to adopt a new caution "never urinate."

The editor recalls at least one case in which an employee who feared that his boss would not live long resolved after consultation with a medical man to bribe a loose woman with whom the sick man consorted to obtain some of the latter's urine. The outcome of this resolution is unknown but doubtless

medical practice is full of analogous cases. We do not, of course, refer to the custom of obtaining a specimen of urine vicariously through a man's wife in order not to alarm a nervous husband, but to cases in which some element of chicane enters. The detective would be compelled to use subterfuge and bribery in order to obtain his samples, and it seems doubtful whether legal evidence based on such activities could be introduced to convict a man, however valuable it might be to the State.

Malaria as a Simulator of Disease.

It has usually been said that syphilis is the mocking bird among diseases, and this may still be true of chronic affections, but malaria is equally potent as a simulator of acute diseases, as is well shown by an article by Castellani, in the *Archives Médicales Belges* for August, devoted to tropical affections on the Balkan front. The following is a list of apparent diseases which were in reality masked malaria: Purpura, pernicious anemia, polyneuritis, typhoid fever, tetanus, rabies, sleeping sickness, dysentery, cholera, cirrhosis, Raynaud's disease, orchitis and orchiodynia, various dermatoses, appendicitis, peritonitis, cholecystitis, pancreatitis, and abscess of the liver. This list by no means exhausts the possibilities. Some of these simulations seem so incredible that a brief review is in order. In regard to tetanus the author has seen four cases in which patients presented trismus, opisthotonos, and tonic convulsions. The normal temperature would perhaps have put the medical man on his guard about the possibility of tetanus, but blood tests showing the plasmodium and the curative power of quinine told the whole story. In regard to rabies, the author while in Colombo was summoned to see a supposed case of the latter. There was at the first contact with the case a paroxysm such as occurs in rabies, with temperature of 102° F. The mere sight of water provoked a spasm of the larynx. The author first examined the spleen, and found it quite large. Having a portable microscopic outfit, he then examined a drop of blood and found the plasmodium. Fifteen grains of quinine thrown into a muscle caused all the phenomena of rabies to vanish in a few hours. The author admits that this case may have been hysterical hydrophobia, but the blood test could not be disregarded. Of conditions not listed above as masked malaria may be mentioned a syndrome which suggested both yellow fever and Weil's disease. In a case of this type death occurred despite heroic quinine treatment, but the blood count was evidently decisive. There was also a single case in which Malta fever was exactly simulated. But not all borderline cases were malarial, for alongside of the masked malarias the author found true Malta fever, kala azar of adults, recurrent fever, pappataci fever, and a host of other tropical and exotic affections.

Influenza Pneumonia in 1847.

Dr. Arias-Carvajal, who has been reading accounts by eyewitnesses of the epidemic of 1847 as it visited Southern France (*El Siglo Medico*, October 5) states that the description applies word for word to the recent visitation in Spain. The old episode began on November 5, in the city of Montpellier; and exactly one month later was at its acme. The affection was readily identified with a visitation ten years earlier. Dr. Rodrigues, then practising in the city, termed the malady "grippe" the word having been first used in France by Sauvages in an epidemic in 1743. This author referred to another visitation in 1831, of great contemporary interest because it began in August during an unusually hot and dry summer, which agrees in every way with the summer of 1918 in Europe. The identity of these epidemics with the present day one having thus far been upheld a description of the symptoms would be redundant, but we may justly cite the references to pneumonia which should serve to lay the ghost of rumors of exotic pestilences. The term pneumonia was evidently not in general use but "pulmonary fluxion" and "suffocative catarrh" replace it. A young married woman perished rapidly, literally suffocated by a pulmonary fluxion, which could not have been prevented. A man of 31 who rose at night for a drink of water was seized with a paroxysmal cough and orthopnea. He was at once bled to his advantage, but on the third day was dead. More suggestive was the fate of Professor Delmas of the Faculty who was attacked with bronchial catarrh which rapidly extended to the parenchyma of the lung and was promptly followed by death. Aside from such deaths the majority occurred in the aged and "asthmatic," as a result of a kind of "ingurgitation of the lungs," apparently not one of the victims of this class escaping. Children were attacked by a "suffocative catarrh." The Spanish writer naturally sees in all of these deaths only fatal secondary bronchopneumonia. Of interest is the state of the tongue which is described as "crapulous," referring perhaps to the appearance of the tongue after a debauch. In the present epidemic much stress is laid on a typical grip tongue, a heavy white coat with red, raw edges and tip. This tongue has been figured in some journals and is none other than the strawberry tongue so common in scarlet fever. The alleged sense of pain and constriction under the sternum, so common in the recent epidemic, is mentioned, as is also the mild angina regarded by some today as characteristic in appearance.

A Lay Medicopsychologist.

The novelist Huysmans has been added to the already long list of lay medicopsychologists, which includes Shakspere, Balzac, Poe, de Maupassant, Dostoyevsky, and others, whom the medical profession have been willing to acknowledge as such. From an editorial article in *Le Progrès Médical* for September 14, we select some of the statements of Dr. Levrat, who has written a brochure on the medical knowledge of Huysmans and of another writer, Lavalée, who has published an essay on the character of Huysmans himself; so that the author may be studied in his creations. It is enough to state that he was a misanthrope and a born "knocker." His character of Tibaille in the "Soeurs Vatards" was the first of a type of depraved personages sketched who were mentally disequilibrated, and in all of whom Lavalée sees Huysmans himself. Prich-

ard, in "A Rebours," is morally insane, and Follantin is a hypochondriac. All of the characters agree in having a bad heredity and in being eccentric, unstable, without family affection, misanthropic, bored with life, antisocial, and ever on the lookout for new sensations and experiences. Their degeneracy can readily be diagnosticated by the medical reader. Huysmans cannot write about goodness and good people, but he does show that these personages come to evil through their inborn dispositions. They finally arrive at the commission of the worst offences, or those thus regarded by normal men. Their bent sometimes leads them to pseudoreligions just as it causes them to commit blasphemies and sacrileges. Thus far, medicopsychology does not appear in any surprising degree, but a further study shows clearly the presence of fixed ideas and obsessions, various types of hallucination, impulsive acts, and exaggerated doubts and scruples. A study of *folie de doute* in one of his characters is so correct that it might have been taken from the pages of an alienist. One character becomes converted to religion, but apparently is hardly changed thereby in his personality. It is said that Huysmans, as might have been anticipated, was no lover of the medical profession. To sum up, the great skill with which he drew his characters was due to familiarity with all the vagaries of psychasthenia, and these he found within himself.

News of the Week.

Annual Report of Charities Aid Association.—This report emphasizes the overcrowded condition of the New York State hospitals for the insane and the need for immediate expansion of the system. The thirteen hospitals of the State have a capacity of 28,997 patients, but the end of the fiscal year found them housing 35,462, showing 22.3 per cent. overcrowding. The State is now committed to the construction of a new hospital at Creedmore and one at Marcy, a psychopathic hospital in New York City and a new State hospital for the Metropolitan District to take the place of the Mohansic institution. The association urges that the building program be pushed and that additional sums be appropriated as soon as possible.

Would Make All Women Nurses.—Louis I. Frank, Superintendent of Beth Israel Hospital, New York, has written letters to ex-Presidents Taft and Roosevelt and to the Surgeons General of the Army, Navy, and Public Health Service, and also to a number of prominent sociologists, urging that with the coming of peace Congress should enact a law for the universal training of females in nursing. Mr. Frank points out that the hospitals at the present time could accommodate 2,000,000 nurse students, and asks that at about the age of sixteen all girls shall be required to spend two years at theoretical and practical nursing. He says this need is pressing since there are not enough nurses to care for the illness incident to demobilization.

Woman Sues Hospital.—A suit for $50,000 has been brought against a hospital in this city by a woman who alleges in her complaint that her face has been disfigured as the result of exposure to rays of radium for twelve hours, while she was undergoing treatment for the removal of a mole.

Frank Richardson of Cambridge, N. Y., has been appointed commissioner of narcotic drug control by Governor Whitman. This commission was created by an act of the Legislature of 1918.

Miss Julia Lathrop, Chief of the Children's Bureau of the Department of Labor, and Miss Grace Abbott, Director of the Child Labor Division, have sailed for Europe, where they expect to consult with child welfare experts in England, France, and Italy.

Gifts and Bequests.—The will of James R. Steers provides for the following bequests: Presbyterian and Sloane Maternity Hospitals, $10,000 each; the Post-Graduate, Manhattan Eye and Ear, Woman's, and St. Andrew's Hospitals, $5,000 each.

Under the will of Jean B. Bourdis, French Government institutions for blind and hopelessly crippled soldiers receive a bequest of $96,500. The Asylum St. Vincent de Paul, the Ecole Maternelle of Paris, and the New York Hospital receive $3,820 each.

By the will of the late James Crawford, of Scranton, Pa., the sum of $100,000 is bequeathed to the Crawford Hospital and Boys' Home of India.

By the will of the late Homer H. Partridge of Philadelphia the sum of $1,000 is bequeathed to the Presbyterian Hospital.

The Association of Ex-Resident and Resident Physicians of the Philadelphia General Hospital held its thirty-second annual dinner at the Hotel Rittenhouse on the evening of December 3 under the presidency of Dr. Oscar H. Allis. Toasts were responded to as follows: "Blockley in the Sixties," Dr. Oscar H. Allis; "Blockley Clinics and Clinical Teachers," Dr. Richard C. Norris; "Blockley: A Vision," Dr. Wilmer Krusen; "Blockley Women-Physicians," Dr. Marion H. Rea; "Blockley Resident Physicians," Dr. R. W. Watson.

Dr. Edward Martin, who recently resigned from the John Rhea Barton Professorship of Surgery in the University of Pennsylvania to enter the Medical Corps of the United States Army, has been elected Emeritus Professor.

Influenza a World Plague.—A writer in the *Times* of London states it is reasonable to believe that throughout the world about 6,000,000 persons perished from influenza and pneumonia during the last three months. It is estimated that the war caused the death of 20,000,000 persons in four and a half years. Thus it may be seen that influenza has proved itself five times deadlier than the war. Never since the black death has such a plague swept over the earth. It is pointed out that this illustrates the need of a new survey of public health measures.

A report from the Pennsylvania State Department of Health announces that 45,000 orphans were created during the present influenza epidemic in that State.

Health Department to Sell Emulsified Milk.—In view of the fact that present milk prices have inflicted injury to the health of the people, and especially of the younger generation, the New York City Health Department has decided to sell emulsified milk at its milk stations. The emulsified milk is made of ordinary milk with the butter fat extracted and the water dried off. The powder which remains forms the basis of the emulsified milk,

which pediatricians recommend as equal to "Grade A" milk. The emulsified milk will be retailed by the Health Department for eleven cents a quart.

In Memory of Doctor Samuel Adams Green.— Appreciations of Dr. Samuel Adams Green were given at the meeting of the Massachusetts Historical Society, Boston, on December 12. Dr. J. C. Collins Warren spoke of his medical career, so closely associated with the private and public institutions of the city of Boston. Judge Robert Grant, who was Dr. Green's private secretary when he was mayor in 1882, paid a tribute to his memory in the service of the city, and Julius H. Tuttle, long associated with him in the library of the Historical Society, spoke of his services to the society during his membership of nearly 59 years.

Dr. Eugene A. Stanley of Waterbury has been appointed superintendent of the State hospital for the insane at Montpelier, Vt., to fill the vacancy caused by the death of Dr. W. L. Wasson.

Dr. Martin Stiles has been appointed Health Officer of Walla Walla, Wash., to fill the vacancy caused by the resignation of Dr. J. E. Vanderpool.

Dr. Esther Sunderlof has been appointed assistant physician in the *x*-ray department of the Boston City Hospital.

Dr. Anthony Bassler has been appointed professor of gastroenterology at the Fordham University Medical School, New York.

Dr. William V. P. Garretson has recently been appointed consulting neurologist to the Hospital of Functional Reeducation of Disabled Soldiers and Sailors, which is affiliated with Cornell Medical College, New York.

Dr. Colin Fulkrod of Philadelphia has been elected to the Board of Governors of the Maternity Hospital to fill the vacancy on the staff caused by the death of Dr. Clarence H. Gray.

Dr. William T. Shoemaker of Philadelphia has been appointed ophthalmologist to all the American Hospitals in England. Doctor Shoemaker went to France in 1917 as ophthalmologist to the Pennsylvania Hospital Unit.

Medical Society Elections. — The Morgan County (Ala.) Medical Society, at its annual meeting held in Decatur, Ala., December 7, 1918, elected the following officers for the ensuing year: *President*, Dr. W. C. Bailey, Decatur; *Vice-President*, Dr. A. M. White of Harzelle; *Secretary*, Dr. William Dinsmore, Albany.

The Shreveport (La.) Medical Society, at its annual meeting held December 3, elected the following officers for the ensuing year: *President*, Dr. J. A. Hendricks; *First Vice-President*, Dr. R. F. Harrell; *Second Vice-President*, Dr. A. D. Hatcher, Greenwood; *Secretary* (reelected), Dr. W. P. Butler; *Treasurer*, Dr. A. A. Herold.

The Pierce County Hygiene Society (Wash.), at its annual meeting held in Tacoma, December 5, elected the following officers for the ensuing year: *President*, Elmer Hayden; *Vice-Presidents*, Judge O. G. Ellis and U. E. Harmon; *Secretary*, F. Geigen; *Treasurer*, Walter J. Thompson.

Obituary Notes.—Dr. Samuel F. Brothers died suddenly at his home in Brooklyn, N. Y., on December 18, aged 55 years. He was a graduate of the New York College of Pharmacy in 1885, and of the College of Physicians and Surgeons, in 1890. He was the organizer of the Columbus Dispensary. He was formerly assistant in pediatrics to Bellevue Hospital and assistant in surgery at the Mount Sinai Dispensary. More recently he was gynecologist to the former Zion Hospital and Dispensary, the Metropolitan Hospital and Dispensary (now the Beth David), and the Beth Israel Dispensary.

Dr. Alvin M. Strusse, President of the Rockefeller Institute at Guatemala and Chief of the Supreme Council of Salubrity, died of pneumonia, at Guatemala, on December 18, aged 28 years. He was a graduate of Jefferson Medical College, in 1914.

Dr. Watson L. Wasson, superintendent of the State Asylum for the Insane at Randolph, Vt., died of acute dilatation of the heart, on November 24, aged 44 years. He was a graduate of the Medical Department of the University of Vermont, in 1901, and a contributor to the medical literature on insanity, alcoholism, and eugenics.

Dr. Eliza F. Pettingill died at Philadelphia on December 2 at the age of 77 years. She was graduated from the Women's Medical College of Pennsylvania in the class of 1864. She was one of the visiting physicians to the Women's Homeopathic Hospital and a member of the American Institute of Homeopathy.

Dr. Joseph Vincent Kelly died at Philadelphia on December 6 at the age of 74 years. He was graduated from Jefferson Medical College in the class of 1868. He served in both army and navy during the Civil War. He was a member of the Philadelphia County Medical Society and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Correspondence.

AN EVENING CLINIC FOR THE DISABLED.

To the Editor of the Medical Record:

Sir:—The Red Cross Institute for Crippled and Disabled Men, 311 Fourth Avenue, has been maintaining an employment bureau for disabled men for about one year. This bureau has received the greatest cooperation possible from the medical profession in this city. When the bureau was first started it was decided that placements were to be as scientific as possible and for that reason, wherever it was possible to secure a diagnosis of the patient's case before referring him to employment, a letter was sent to the hospital. At first the doctors did not seem to understand the need of this diagnosis and very few of the letters were answered. It is interesting to know, however, that recently about 75 per cent. of these letters have been answered by the various hospitals and dispensaries in this city. The institute wishes to take this opportunity of thanking the doctors of this city who have cooperated in this way and sincerely hopes for a continance of their interest in the proper placement of disabled men.

In endeavoring to get work for disabled men one of the greatest needs appears to be that of an evening clinic. Many men come to the bureau for work who are perfectly capable of following some light employment if they continue their treatment at the hospital two or three times a week. Such men

usually come to us for work when their funds are very low. Their earning ability may not be as great as it was before their accident. It would therefore be a very great difficulty for such men to have to pay for private treatment evenings.

There are two things that may happen to the man out of work who needs medical treatment. First, he may discontinue his treatment in order to do day work. This situation often becomes dangerous for other members of the worker's family. Second, he may take a night job in order to have the treatment regularly. There are objections to this, because the man is generally unaccustomed to night work. His family disturb him at day, as they are not used to the new schedule of hours. The waiting is so long in the dispensaries, often a large part of the day is taken up, so that the man cannot get sufficient sleep.

The theory that every disabled men who possibly can should find employment is a new one. We all know the moral effect upon a man not working when he can and when he wants to. In providing an evening clinic the medical profession can offer a great contribution in this problem. We do not want to see men selling pencils on the streets. If men want a chance to earn an honest living everything that human effort can do to help them should be done. Here is where the doctors can help and I know they will.

GERTRUDE R. STEIN,
Employment Secretary.

NEW YORK.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE MEDICAL PARLIAMENTARY COMMITTEE—WHITE BREAD—THE ANTISCORBUTIC VALUE OF VEGETABLE JUICES—DEMOBILIZATION AND THE SPREAD OF VENEREAL DISEASE.

LONDON, November 4, 1918.

THE belief that, despite the enormous administrative difficulties connected with the conclusion of the war, the country would proceed before Christmas to a general election was widely held, and was shared by the medical profession, with the result that a feeling became acute among some of our leaders of thought that the parliamentary position of medical men required profound improvement. From this belief sprang the institution of the Medical Parliamentary Committee, which, however, came into being too late to make itself felt as a practical force in the imminent election. Most of the constituencies had chosen their candidates, while it became apparent that any further candidates for parliamentary honors would largely be selected by the Coalition with a mandate to obtain good peace terms for the Allied Countries and the United States rather than to carry out domestic reforms; and, of course, it is in domestic reforms that the medical voice is required in Parliament. In the forefront, however, of the program of the Coalition (as Mr. Lloyd George's non-party government is briefly termed) occur promises of vast improvement in our housing and extensive attention to the needs of the operative and laboring classes. It need hardly be said that in all measures having such objects in view, medical knowledge and medical experience are invaluable. The Medical Parliamentary Committee therefore determined to do what was possible with regard to the approaching election, even in the very few days at its disposal, and it has already shown itself to be an active body. The Committee has made inquiries through the country to obtain the names of medical men who are willing to stand for Parliament, is ascertaining their party views, and keeping a list which will be at the disposal of the various election organizations in future contests. It is necessary that the Committee should ascertain by what party label a candidate desires to be signalized, for only in this way is it possible to ascertain in which particular direction party machinery can be brought to his aid; but every medical man who is selected in this way by the Medical Parliamentary Committee will understand that the medical view comes first with the Committee. This is of course the only way to regard the situation. The medical man has the same right to his general political views as has any other citizen, and it is certain that he will only get into Parliament as a representative of those general views and not as a representative of medicine. But the medical profession has also the right to expect from every medical man that, finding himself in Parliament, he will remember that the health of the people is his real responsibility. The Medical Parliamentary Committee has now associated with Dr. Arthur Latham in the secretaryship Dr. Charles Buttar, who for the last four years has been the untiring Chairman of Executive in the Central Medical War Committee. Money is being raised in the first instance among the members of the Medical Parliamentary Committee themselves for propaganda purposes, and the Committee has invited medical men to come forward as speakers wherever any medical candidates for Parliament desire such assistance. There are standing at the present moment twenty-eight medical men, of whom four may be said to be representative of the profession scientifically, namely, Sir Watson Cheyne, Sir Wilmot Herringham, Sir William Whitla, Sir Robert Woods. Sir Auckland Geddes and Dr. Christopher Addison, members of the outgoing administration, are both ex-teachers of anatomy and preliminary sciences, but hardly count as medical men, though the medical profession likes to include these distinguished politicians on its roll.

Doctors in this country are viewing with some regret the rapid return of the population to the use of white bread, for they consider that there is strong evidence for believing that the use of wholemeal bread has been valuable to the health of many. Whole-meal bread, that is, bread in which all but some 15 per cent of the wheat grain has been utilized in the flour, was introduced as a necessary measure of war economy, and was received in the first instance by the public with no alacrity. The Ministry of Food proclaimed its nutritive virtues, doctors and chemists swelled the chorus of official approval, but the public nibbled whole-meal bread with a virtuous air, as who should say: "We are winning the war by stern endurance." And truth to say, most of the war bread of three years ago was nasty eating. The wheat-flour was mixed with varying, almost capricious, quantities of other cereal flours; each different mixture required some different baking to get a good result; all bakers had not the necessary plant to cope with the variations. Of course, experience

quickly won the day, and now for many months we have enjoyed admirable bread, though not the white loaf of pre-war days. Habit in many, and predilection in others, is now bringing about a return to white flour, and the needs of animal stock are likely to help in making that return complete. For, of course, the whiter the flour the more abundant the husks—or "offal," to use the technical term, and the fatter the pig. The "offal" is not wholly wasted by going to the pig, but its return to man as pork is attended by considerable metabolic reduction. So that on the grounds of economy whole-meal bread can be defended; on the grounds of health its claims are loud; on the ground of palatability every one must speak for himself. Palatability does not lend itself to exact scientific measure, but it has a scientific value, inasmuch as food that is relished is always better digested.

I alluded in a previous letter to the valuable work done by Dr. Harriette Chick and her collaborators at the Lister Institute in regard to the anti-scorbutic values of lemons, and, in almost equal degree, of oranges. The work has been continued along other lines, and in view of the position of the British milk supply may prove to be of the first importance. In studying the distribution among foodstuffs of the antiscorbutic accessory factor, a group of workers in the Lister Institute gave particular attention to milk. A preliminary report of these investigations was published in *The Lancet*, the results showing that cow's milk, even when fresh, is poor in anti-scorbutic properties; from which it results that much of the criticism passed on "infant foods" (proprietary) as incentives to rickets may have been unfairly directed. For it would seem that only a large daily ration of fresh milk could possibly contain a sufficiency of the anti-scorbutic factor, and this is unobtainable in Great Britain under the existing machinery for collecting, transporting, and distributing the milk. Dr. Chick, in association with Miss Mabel Rhodes, has now made an investigation of the antiscorbutic properties of oranges, grapes, turnips, carrots and beet-root with a view to their juices being adopted as adjuncts to the dietary of infants, and the following summary of their work is of genuine medical interest. They find:

1. Cow's milk possesses antiscurvy properties, but these are present in small degree in comparison with other antiscorbutic foodstuffs. Its value in this respect is further reduced after heating or drying. It is therefore advisable to provide some extra anti-scorbutic material in the diet of infants nourished upon heated or dried cow's milk.

2. The antiscorbutic value of various materials that might suitably be included in an infant's diet has been experimentally determined by means of experiments with guinea-pigs. Among fresh fruit juices that of the orange is easily the most suitable, and possesses a value about ten times as great as that of fresh grapes. Of the raw vegetable juices examined, raw turnip juice proved to be far the most potent, approximating in value to raw orange juice; the raw juice of carrots was found to be much inferior, and that of beet-roots failed to prevent scurvy in the largest dose (20 c.c. daily) that could be administered to the experimental animals.

It will be seen that the view is supported which was put out by Hess and Fish four years ago in the *American Journal of Diseases of Childhood* and last year by Miller in the *Cleveland Medical Journal* that incipient scurvy among artificially fed infants is not a negligible danger, and that the addition of new fruit juice to the diet of such children is a reasonable and even valuable precaution.

It has been the unfortunate experience of the past that the demobilization of armies has been attended by the spread of venereal disease among the civilian populations. It is perfectly natural that there should be present at such a time as demobilization great exaggeration of the circumstances which promote sexual intercourse. There is large resumption of martial relations, in condition almost of remarriage, many marriages between young people are consummated, and illegal unions, generally of a very temporary nature, are formed galore. The demobilized troops while on service have been placed with regard to venereal disease, at one and the same time, in extremely good and extremely bad conditions with regard to infection. During active service there was little opportunity of infection occurring, while if it did occur segregation and therapy were prompt and concealment of illness heavily punished. But on leave all these safeguards were withdrawn, and on leave accident as much as temperament dictates the incidence of venereal diseases among soldiers, officers or men. They have been cut off from the natural outlet of passion for a long period, and while a certain proportion are able to remain chaste, the effect of discipline holding good in the absence of its penal restrictions, a certain proportion are not so strong-minded. This latter class are exposed in bulk to common sources of infection during the whole of their leave time and accident determines whether the chances of infection are rampantly present or fortunately absent in the locality where the leave is spent. In a war of such duration as the one now concluded, a large proportion of officers and men have obtained leave, and the vast opportunities for license and its concomitant dangers have been taken advantage of, as is shown by a debate which took place in the House of Lords at the end of November to consider special measures of precaution upon demobilization. Lord Sydenham, chairman of the National Council for Combating Venereal Disease, on that occasion solemnly warned the Government that, if such measures were not taken quickly, there would be serious results to the whole population extending over many years, adding that the necessary legislation had not been taken in time, and that the only measure on the statute book, namely, an act dealing with quack remedies, was of no practical use. Lord Muir Mackenzie, who had presided over a committee which took evidence on all these points, complained that that committee was belated in appointment, so that no chance had been given for introducing a bill embodying any recommendations which it might make, but he urged that the next Parliament would take up the matter in the light of the information that was now available. The probability is that nothing practical will be done for some weeks, as Parliament is prorogued to make way for the General Election, and the new members will not assemble till January at the earliest. But

the feeling among medical men is that while political machinery is arrested and debating has ceased in Westminster, the permanent officials of the Government Departments are not rendered inactive thereby, but on the contrary obtain a freer hand. The Local Government Board will be expected to be aware of the dangers which must arise from the release of a large number of infected men and to be ready with arrangements for meeting the evil. Lord Sydenham's Council have published recommendations which should be carefully considered by the Board and all other Departments concerned. One of these goes to the root of the matter, for it suggests that no sailors or soldiers should be discharged while in an infective stage; they incurred the disease while in the service of the country, and it is the business of the country to return them to society in as fit a condition as possible. The sense of this recommendation is obvious. The Navy and the Army have got the men in their disciplinary control, can watch their treatment stage by stage, and can compel the measures necessary to make them safe members of society. It is estimated that this recommendation concerns at least 300,000 men, but a large proportion of these would in former days have been considered to be cured. For the general population many treatment centers have been established in England and Wales at which infected citizens, whether recently belonging or not to the Forces, can obtain treatment, with as much privacy as the organization can contrive, at the hands of specialists, while at these centers the general practitioners of the neighborhood are invited to attend, so that everywhere they may familiarize themselves with techniques of treatment which have evolved from comparatively modern medical science. Here is at once a direction in which the cure of the infected and the prevention of infection can both be greatly strengthened. These centers require immediate multiplication. Many Army doctors have now specialized in the treatment of venereal diseases, and their services should be used in connection with the establishment at all large provincial hospitals of centers for the treatment of venereal disease. And it is at these centers that the terrible problem of the woman infected with gonorrhea will in the end have to be treated. At first it will be difficult to sweep the women into the therapeutic net. Many women hand disease on with no idea that they have anything the matter with them; and even when their dangerous state is ascertained the cure of chronic gonorrhea in the female remains a terribly disappointing task. It is a task, however, that will have to be tackled in this country, and perhaps in the United States, if only because chronic gonorrhea in the female is the most potent cause of sterility.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

INCREASED EFFORT TO ARREST GRIPPE—PARIS HONORS HER WARRIOR DEAD—THE PARIS GAMIN AND OUR WAR TROPHIES—PSYCHOLOGY OF THE ARMISTICE CELEBRATION.

PARIS, November 25, 1918.

THE Rector of the Academy of Paris has ordered all the lycees and colleges to be closed all this week and until next Sunday, inclusive, in consequence of the epidemic of influenza. The Prefect of the Gironde has prohibited all theatrical and moving picture performances, concerts, and lectures in his department, and has ordered the schools to be closed and religious services to be limited as much as possible. All cafés, restaurants, and drink-shops are to be closed at 9 p. m. and all indoor public places are to be frequently disinfected. The mayors of Limoges and Tours have issued similar orders. All the schools and colleges at Bourges have been closed.

Paris, for the fifth time since the beginning of the war, observed the feast of All Saints by the customary pious pilgrimages to the cemeteries. The rainy weather of the preceding day had given way to bright sunshine that seemed symbolic of victory. The cemeteries were thronged with people, including many women in deep mourning, who had come to lay wreaths, in which chrysanthemums were predominant, on the graves of their relatives, some of them soldiers who had died in the military hospitals. The French President and Mme. Poincare, accompanied by municipal councillors, visited the cemeteries of Bagneux, Ivry, and Pantin, and deposited flowers on the soldiers' graves. Mr. Pams, Minister of the Interior, went to the Montparnasse cemetery. Over 130,000 people went to the Bagneux cemetery, Paris, during the day. The number at Pere Lachaise was over 62,000, at Montparnasse 40,800, at Pantin 85,400, and over 46,000 at Ivry. At Suresnes, near Paris, the cemetery was visited by the Municipal Council and many people, who laid wreaths on the graves of the American soldiers in token of France's grateful remembrance of the men who had sacrificed their lives on her soil. The graves near the front were not forgotten, and M. Abrami, the French Minister, conducted the ceremonies at the cemeteries of Bouresches, Belleau, and Chateau Thierry, where French, American, and British lie side by side.

If Poulbot discovered the Paris gamin who drills and wages mimic warfare in the dismal ruins of the demolished houses of Montmartre, it was Clemenceau who gave him the real guns and bigger manoeuvring grounds of the Place de la Concorde. For all the boys of the French capital, thanks to the launching of the new Victory Loan and the military display of captured enemy guns, are daily delighted with the splendid and unprecedented toys that Krupp's have made for them, and which the French Government have put at their disposal. What matter that, like the boxes of lead soldiers and mechanical trains of peace days, these marvellous and monstrous playthings were "Made in Germany"? Essen has this time builded well; the blasting furnaces and the grimy Hun workmen have wrought infinite desolation—now they are providing infinite joy. It is not for the childish mind to remember that the murderous machines, now filling the peaceful paradise of Young Paris, were bought with blood. The juvenile artillerymen, absorbed in the practical and serious business of soldiering, have no time to reflect upon their part in the composition of this unforgettable picture. They play with an earnestness, a zeal, such as they have never had before, oblivious to all but the guns and the imaginary enemy, whom they mow down in battalions. All ages, from four to fourteen, are

here among the howitzers—from 3-in. to 12-in. howitzers—the huge trench mortars, the minenwerfers, the machine-guns, the whole paraphernalia of death and destruction. The French boy knows as much about these German guns as the German gunners. He knows, because he has found out for himself. No intricate detail escapes him. He is avid of knowledge, and learns by his own nimble intelligence. He needs no masters, no manuals. Sometimes, perhaps, but very rarely, does some complicated piece of mechanism puzzle him, and he will turn for an expert opinion to the passing artilleryman. The passing artilleryman, no matter how tremendous and grizzly his moustache, spares no pains to enlighten his excellent young colleague, and the two heads bend together over the cranks and tackle.

Paris for two days after the signing of the armistice was one wild city of abandoned rejoicing: forty-eight hours, with no remission, night or day, and for the first time in four years the city has been illuminated. No more air raids; no more searchlights sweeping the sky, or sentinel airplanes hanging overhead in watchful waiting for the first distant appearance of an enemy. The Champs Elysées looked like day all of two nights, and some of the buildings were outlined, as in bygone days, by gas jets or incandescent lamps. All business was suspended, and shop girls and clerks, soldiers and civilians were constantly parading up and down the boulevards and avenues, arm in arm, the full width of the street, with banners, flags, bunting, flowers, bands, trumpets, horns, bells, and even tin pans, for lack of other instruments. It seemed they could not make sufficient noise to relieve the pent-up feelings of four years of anxiety, grief, and privation.

One old woman standing beside me said, while the tears coursed down her furrowed cheeks, "My boy is dead, but I hope he can see and hear this rejoicing; it will make him better satisfied." Lorries, camions, autos, all sorts of vehicles were pressed into service, decked with flags, bunting, posters, portraits of the great leaders—every country was represented. Traffic was wholly suspended. All thought of affairs and the ordinary routine of life was swallowed up in the one universal rejoicing. The most astonishing thing of all was the crowd. Where did they come from? It is known that Paris has lost one-third of its population by death, wounds, missing, removals to smaller cities where the cost of living is less; but no one would have suspected it from the ceaseless streams that have filled the streets for two days.

The ceremonies at the statue of Strasbourg, which for forty-seven years has never been free from emblems of mourning, will remain vivid in memory for all time. The Alsace-Lorraine Society came in a great body and before the massed thousands and in the presence of the members of the Government removed every trace of mourning, decked the statue in flowers, the national flag and arms, and the veterans of 1870 fired a salute while the crowds fell on each others' necks, sobbing for very joy; hundreds and hundreds filed by kissing the flag or even the bare stone if they were not able to reach the front of the noble monument itself.

OUR CANADIAN LETTER.

(From an Occasional Correspondent.)

CARE OF THE FEEBLE-MINDED IN CANADA—INFLUENZA—SOLDIERS' CIVIL RE-ESTABLISHMENT HOSPITAL—ORGANIZATION OF VITAL STATISTICS IN CANADA—OSTEOPATHS DEMAND LEGAL RECOGNITION IN THE PROVINCE OF QUEBEC—SCIENTIFIC AND INDUSTRIAL RESEARCH IN THE DOMINION—THE FOOD QUESTION—INAUGURATION OF A NEW SECTION AT THE ACADEMY OF MEDICINE OF TORONTO—ANNUAL MEETING OF THE NORTHWESTERN MANITOBA MEDICAL ASSOCIATION—OBITUARY NOTICES.

MONTREAL, December 17, 1918.

A CANADIAN National Committee of Mental Hygiene has been in existence now for some little time and has already justified its creation. There is a very considerable number of feeble-minded insane and epileptics in the Dominion, and it goes without saying that to allow such irresponsible persons to be at large is to permit a constant menace to the general population. Moreover, at the present time it is peculiarly fitting that adequate steps should be taken, not only to safeguard the public from the source of danger but to care for the men coming back from the front nervous and mental wrecks. The Committee, indeed, has an immense amount of work of an arduous and important nature to do in the near future. Fortunately, the fact is fully recognized by the Committee, and a policy is being formulated whereby the problem of the feeble-minded insane and the mentally deranged or defective will be dealt with in all parts of Canada. In accordance with this wise policy it has been decided to have a branch of the Canadian National Committee of Mental Hygiene in Montreal. With this end in view, a meeting was held recently in the house of Col. Colin K. Russell, when the matter was discussed. There were present at the meeting most of the Montreal members of the Committee under the presidency of Sir Vincent Meredith. Among other decisions arrived at, was to make a comprehensive survey of the feeble-minded and insane in the city of Montreal, and to endeavor to apportion as accurately as possible the relation of these disorders to crime, prostitution, and pauperism. Dr. J. C. M. Hincks, secretary of the Committee, pointed out that the chief reason why Canada was backward in providing for the treatment and care of the insane and mentally defective was because no coherent policy was followed throughout the Dominion, that is, the provinces had never been furnished with a constructive policy to cope adequately with the situation. This explained the action of the National Committee in placing its services at the disposal of provincial governments rather than in concentrating their efforts of reform upon the federal authorities. Referring to the men from the front who had come and were coming back broken mentally, the speaker outlined the need of efficient treatment of nervous and mental cases in suitable hospitals, and also drew attention to the demand for a follow-up system for discharged patients if the best results were to be anticipated. The Invalid Soldiers' Commission and the Committee had come to an agreement to appoint an inspecting psychiatrist to visit hospitals. Lieut.-Col. C. K. Russell then gave a sum-

mary of the work of the National Committee in connection with the army. With regard to immigration, he said that some interesting facts had been discovered by the Manitoba Public Welfare Commission. Statistics collected showed that the number of foreign born in jails and asylums for the insane and feeble-minded greatly exceeded those of Canadian birth. Col. Russell said that the federal authorities would be informed of these facts in an attempt to bring about a more careful selection of future immigrants to Canada.

Influenza has not left Canada altogether. The schools of Whitby, Ont., have been closed again during the past two weeks on account of a recrudescence of the influenza epidemic, and it has been decided to keep them closed until after the Christmas holidays. St. Catherines' Board of Health has issued a modified closing order on account of the recent increase in the number of influenza cases. Dance halls, the public library and all schools have been closed.

A hospital building to cost half a million dollars is to be erected near Woodbridge, in the vicinity of Toronto, for the Department of Soldiers' Civil Reestablishment, the cost to be borne jointly by the Provincial and Federal Governments. The location is considered ideal for an institution to treat lung troubles, and it is said that all tuberculous cases may be collected there.

In order that it may be known with accuracy how many persons are born, married, and die, and concerning the diseases which prove fatal or are most disabling in a country, it is necessary that the vital statistics be organized. In the establishment of a public health system on a sound basis, an essential step is the formation of a bureau of vital statistics. A conference with this object in view was held in Ottawa in June last, when preliminary action was taken tending toward a scheme of Dominion and Provincial cooperation. The report of this conference has been issued recently. The chief difficulty in the way of formulating a system of vital statistics for Canada lies in the fact that the provinces have different legislation and different methods of collecting and coupling results, so that it is impossible to make comparisons or to mold the returns into comprehensive wholes, although it is obvious that health problems must be studied on a broad basis. The aim of the conference was to arrive at a scheme of uniform legislation and administration by the provinces and the setting up by the Dominion of a central health clearing house. Agreement was reached on the general principles involved and a bill and a set of forms were sketched for reference to a committee for final adjustment.

The osteopaths of the Province of Quebec have declared their intention to endeavor to secure the enactment of a bill of incorporation at the coming session of the Legislature. It may be said that legislation favoring osteopaths has been passed in Alberta, Saskatchewan and British Columbia. Opposition in Quebec to the efforts of the osteopaths to be placed upon the same level as those who have undergone the training called for by the State and have passed the examinations which qualify a man to practise as physician and surgeon, will be strenuous on the part of the medical profession.

At a meeting of the Reconstruction and Development Committee of the Dominion Cabinet on December 2, Dr. A. B. McCallum, administrative chairman of the Council for Scientific and Industrial Research, brought forward the long-considered proposal of the council for the establishment of a central institute for research. The idea is to cause to be erected immediately at or near the capitol a central laboratory building to cost approximately $500,000. The building at first will have accommodation for some fifty laboratories covering all the necessary industrial research subjects. In a general way it will be designed to fulfill for Canada the functions now performed for the United States by the Bureau of Standards at Washington and the Mellon Institute at Pittsburgh. In part it will provide modern scientific equipment and methods for investigating Canadian raw material, industrial processes and manufactured products. It is intended to serve as a national laboratory for standards of all sorts, for the testing of materials, for the discovery of methods for utilizing by-products of manufacture hitherto wasted, and generally for experimental work in the application of the sciences to industry.

Although the war has ended, conservation of food is almost as necessary as when fighting was in progress. The food situation in Canada is far from satisfactory, for while there is a slight decrease in the cost of living the prices of the most nutritious foods are still so high as to bear very hardly on those with limited incomes. It must be borne in mind that there are many such, and that the exorbitant cost of most articles of food is a distinct and direct menace to the public health. The members of a joint special committee of the State Legislature of Massachusetts have been in Montreal recently investigating as to the cost of fish. They found that fish prices here were nearly thirty per cent. lower than in Boston.

A Section on Obstetrics and Gynecology has been inaugurated at the Academy of Medicine of Toronto. The first meeting of this Section was held recently under the presidency of Dr. B. P. Watson, professor of obstetrics and gynecology at the University of Toronto. In the very interesting address given by Professor Watson, mention was made of the success obtained by the use of radium in cancer and fibroid cases, and in various pathological conditions of the ovaries and ductless glands.

The annual meeting of the Northwestern Manitoba Medical Association took place a short time ago. The meeting was well attended, the President, Dr. O'Brien, being in the chair. The officers elected for the current year were: *Honorary President*, Dr. O'Brien, Rossburn; *President*, Dr. F. A. Smith, Birtle; *Vice-President*, Dr. Hudson, Hamiota; *Secretary-Treasurer*, Dr. Tisdale, Kenton; *Committee*, Dr. Andrews, Minnedosa, Dr. Swallow, Russell, and Dr. Fryer, Virden.

Capt. I. R. Guifoyle, London, Ont., died at Witley Camp, England, on October 28.

Dr. James Ewart Brown, F.R.C.P., of Toronto, died on October 12 from the result of too close attendance to duty. He contracted influenza but continued his practice and died absolutely in harness.

The son of Dr. W. F. Hamilton of Montreal was killed in action shortly before the close of hostilities.

Progress of Medical Science.

New York Medical Journal.

December 14, 1918.

1. Military Training as a Factor in Public Health. Charles O. Linder.
2. Psychanalysis. Frederick J. Farnell.
3. Syphilis and Matrimony. Edward Pisko.
4. Renal and Ureteral Infection with the Gonococcus. Leo Buerger.
5. A New Treatment for Compound Fracture of the Long Bones. Julius Asher Miller.
6. Yale's Medical Activities at Changsha, China. Amos P. Wilder.
7. Cellulitis of the Upper Lid Due to a Foreign Body. A Report of a Case. Alexander Rovinsky.

7. Cellulitis of the Upper Lid Due to a Foreign Body. A Report of a Case.—Alexander Rovinsky reports the following case: A boy of eight years of age was brought to the eye clinic of the Post Graduate Hospital, New York, with a history of having had a piece of wood "shoved" into his eye by a playmate some eight weeks previously. The right eye was enormously swollen and entirely closed by mechanical ptosis. No pain or tenderness was evinced on manipulation, and on forcibly separating the lids the cornea appeared transparent and the pupillary reaction normal. There was considerable chemosis at the nasal portion of the conjunctiva, and slight protosis outward; inward movement of the eye was somewhat limited. The patient was given some Burrow's solution for external application. When he returned two weeks later, swelling had abated to some extent and palpation revealed a firm, elongated body immediately under the lid. This proved to be a sliver of wood an inch long and a quarter of an inch wide, which was easily pulled out by the forceps. There was no reaction, ptosis gradually disappeared, and in three weeks the lid was normal in shape and motility. The author points out that, owing to the elasticity of the skin covering the lids and their loose attachment to subjacent parts, edema and ecchymosis resulting from trauma is much greater in the eye than in any other part of the body; it is necessary, therefore, to make a thorough examination to determine whether there is an open wound in the lid or any involvement of the orbit and eyeball.

Journal of the American Medical Association.

December 14, 1918.

1. Importance of a Complete Roentgen Study of Gastrointestinal Tract and Gallbladder in All Obscure Abdominal Cases. George E. Pfahler.
2. The Diagnostic and Prognostic Value of Blood Urea in Urology. Albert E. Goldstein.
3. The Influenza Epidemic in Chicago: the Disease as a Type of Toxemic Shock. Robert W. Keeton and A. Beulah Cushman.
4. Postciliary Scleral Trephining for Acute Glaucoma. A. E. Ewing.
5. Treatment of Neuralgia of the Fifth Nerve by Injection of the Gasserian Ganglion. H. H. Martin.

The Lancet.

November 23, 1918.

1. Introductory Remarks on Epidemic Catarrhs and Influenza. Sir Arthur Newsholme, K.C.B.
2. General Principles in the Treatment of Influenza, with Some Details Appropriate to Types of Cases Occurring in the Present Epidemic. Sir Thomas Horder.
3. The Incidence of *Bacillus Influenzæ* (Pfeiffer) in the Present Influenza Epidemic. James McIntosh.
4. Provisional Notes on the Pathology of the Present Epidemic. Surgeon-Lieut.-Com. P. Fildes, Surgeon-Lieut. S. L. Baker, and W. R. Thompson.
5. Three Cases of Malignant Disease of the Upper Extremity. J. W. Geary Grant.
6. The Ergoestesiograph: An Apparatus for the Graphical Representation of the Muscular Aptitude of Candidates for Aviation. G. Galeotti.
7. Neurasthenic and Hysterical Cases in General Military Hospitals. Major R. H. Trotter.

7. Neurasthenic and Hysterical Cases in General Military Hospitals.—Major R. H. Trotter points out the great importance of appropriate treatment of hysterical and neurasthenic patients while they are in a general hospital awaiting transfer to a special hospital. The greatest vigilance should be exercised also in looking out for symptoms of neurasthenia in patients admitted for physical disease. There is a tendency to consider such patients as cases for treatment only at the neurological center, and when diagnosis is made to mark them for transfer to the special hospital and to take little further interest in them. Major Trotter believes that early treatment in war psychoneuroses is almost as important as prompt surgical treatment in appendicitis, and it should be remembered that a neuropathic habit quickly becomes fixed if left untreated. Although the facilities found in neurological centers may be essential for complete cure, emergency treatment could be given in the general hospital and, when a vacancy in the special hospital occurs, a patient well on the way to recovery might be transferred. Accurate diagnosis, confident prognosis, understanding sympathy and inexhaustible patience are the essentials required. The patient should, if possible, be subjected to partial isolation in a special case ward, without irksome restriction; the nature of his ailment should be explained to him, and he should be confidently assured of an early and complete recovery. In motor psychosis relaxation is secured by passive movements. Cases of flaccid "palsy" should be treated by manipulation, the patient's confidence being restored by the sudden interruption of manipulation as soon as muscular resistance becomes powerful enough to retain the limb in a momentary rigidity. Exercise and employment should be given at once, as the patient left with an idle brain will relapse or develop a physical neurosis. In the latter case, a psychoanalytical talk will often remove many doubts and difficulties in the patient's mind. The author remarks that it is an interesting speculation how far the reflex contractures of Babinski and Froment would be prevented by early treatment. He adds that visceral neuroses are often aggravated by essays in surgery.

British Medical Journal.

November 23, 1918.

1. The Epidemiology of Influenza. Captain M. Greenwood.
2. Preliminary Report on the Influenza Epidemic at Bramshott in September-October, 1918. Lieut.-Col. C. E. Cooper Cole, with Introductory Note by Col. R. D. Rudolf.
3. Points in the Technique Employed in the Isolation and Cultivation of Anaerobic Bacteria. Brevet Major W. James Wilson and Sergeant P. Steer.
4. The Femoral Artery in War Surgery. James H. Nicoll.
5. The Curse of Immobilization. J. W. Dowden.
6. Variations in the Activity of the Ciliary Muscles. Major G. F. Alexander.
7. Blood Pressure in Pulmonary Tuberculosis. Richard J. Cyriax.
8. Prevention of Influenza in Naval Ambulance Trains. Surgeon Commander K. H. Jones.
9. Filariasis Amongst Australian Troops. Captains A. T. H. Nisbet and A. M. Lilley.
10. Intestinal Obstruction and Appendicitis. John O'Conor.
11. Local Application of Glucose. F. McG. Loughnane.
12. Varicella and Herpes. George Gunn.

5. The Curse of Immobilization.—J. W. Dowden from four years' experience of war surgery concludes that the lessons learned during these years have been, first, that nature is the most wonderful surgeon, especially when encouraged; second, that septic wounds should be thoroughly drained; third, that from the very beginning frequent passive and active movements should be carried out in cases of injured limbs, steadily increasing the range; and that splints should never be used except when absolutely necessary and then only for as short a time as possible, and should never interfere with passive and active movements. Massage he considers an excellent adjunct to active movements; electricity or baths he lays little stress on. In war surgery the future usefulness of the wounded must be borne in mind, the order of importance being muscles, joints, bones; not bones, joints, muscles. The danger signal in passive and active movements is pain. If, however, adhesions have formed after prolonged immobilization, pain must be endured while the adhesions are stretched or broken. Dowden believes that thousands of soldiers have been more or less disabled for life simply through prolonged immobilization of injured limbs, and cites as examples several cases that have passed through his hands. He says: "This needless disablement of men is really the most disheartening thing I know in the war," and closes with an expression of belief that "the future will see a great reaction from this most remarkable age of splints."

Berliner klinische Wochenschrift.

October 14, 1918.

The Results of Preventive Vaccination of Infants Against Tuberculosis.—W. Kruse states that Friedmann's remedy (bacillus of tuberculosis from cold-blooded animals) is studied in this paper from the viewpoint of its prophylactic value. Friedmann first resorted to preventive vaccinations in 1912 to the number of 319. The cuti-reaction, negative in every case, sometimes became positive during treatment. The injection, made in the gluteal muscle at the dose of 1 cc., never produced unfavorable results. A certain number of children could be followed up to 1918 and serve to establish the results of vaccination.

The writer finds them encouraging, but this impression does not bear much evidence from the statistical tables offered by the writer, which have been made from an evidently preconceived opinion. To give but one illustration in point: The usual general mortality during the first years of life is, according to Kruse:

First year, 213 0/00; mortality from tuberculosis, 3.9 0/00.

Second year, 44 0/00; mortality from tuberculosis, 5.1 0/00.

Third, fourth and fifth years, 15.3 0/00; mortality from tuberculosis, 3.1 0/00.

The mortality of children observed by Friedmann and Kruse was:

First year, 38/216; and from tuberculosis, 0/216.

Second year, 2/173; and from tuberculosis, 0/173.

Third, fourth and fifth years, 4/422; and from tuberculosis, 1/422.

The writers have not hesitated to transform these fractions into percentage. Thus, the relative mortality of tuberculosis, usually of 3.9/213 during the first year, descends to 0/176 under the influence of vaccination; that of 5.1/44 falls to 0/11.6, but the relative mortality of 3.1/15.3 of the third, fourth and fifth years jumps to 2/9.1 on account of a tuberculosis presented by ONE (!) of the vaccinated children.

These statistics recall to mind a certain German hospital, where, in the lapse of one year, the mortality from para B typhoid fell from 100 per cent. to 0 per cent., the number of cases treated being one the first year with one death and one case with recovery during the second year. Several other details in the statistics offered by Kruse could be thus criticised, and it would be an easy matter, did space permit, to show up absolutely contradictory results from those desired to be brought out by the writer. In these circumstances Kruse's paper does not show the necessity of resorting to antituberculous vaccination of entire populations as the writer proposes.

On Lymphogranulomatoses.—E. Fraenkel and H. Much have not observed any return of this morbid process during the last few years. It is to be regarded as depending in a certain measure on granular rods described by these writers, a rod similar to, but not identical with Koch's bacillus.

Münchener medizinische Wochenschrift.

October 8, 1918.

The Nature of the Diuretic Action of Theocin.—Veil and Spiro attack the current conception of a diuretic action of theocin by direct action on the kidney. Certain peculiarities of the action of bodies belonging to the purine series should cast doubt upon a purely renal action, and the writers offer, to uphold another theory, the following experimental facts: In a normal subject (man or rabbit) the injection of theocin produces a diuresis with a transitory decrease of the chloremia and an increase in the albumin content of the blood (from concentration of the latter). The body weight decreases, partly from the diuresis, partly also from the increase of "extra-renal perspiration." The relative increase of the latter manner of elimination is even more considerable than the increase in the quantity of urine. On the other hand, the writers have made comparative charts of the urine from normal rabbits and rabbits upon which nephrectomy was done. The drop in the blood chlorides and the increase of albumin is observed as in the normal animal, although in narrower limits. The writers conclude that the action of theocin is to eliminate the water from the vascular system and send it into the renal glomerulae and cutaneous glands. The diuresis is merely a local manifestation of this phenomenon, which takes place in different degrees in all the tissues and the entire cutaneous surface. The explanation shows the reason for the progressive exhaustion of the diuretic action of the purine bodies as well as the fact that this action is of longer duration in oedematous subjects.

Central Pneumonia.—W. Hesse publishes some radiographic plates in support of the supposition that central pneumonia is a more frequent phenomenon than is usually supposed. It may remain as such during the entire evolution of the disease, thus offering insufficient clinical evidence for stethoscopic diagnosis, or, on the other hand, it may undergo the evolution of a classic lobar pneumonia. The writer even considers that the central genesis of pneumonia is the usual one. Hepatization then progresses from the region of the hilum toward the periphery of the organ. The progression of the pneumonic process, as well as its starting point, probably follow the bronchial tubes rather than the vascular or lymphatic systems.

Deutsche medizinische Wochenschrift.

October 10, 1918.

War Food and Gastric Chemism.—L. Roemheld considers under the term of "war food" in Germany the absence of fats, the reduction of meat, the preponderance of carbohydrates and the richness of the diet in vegetable scoria and cellulose. He also includes the diminution in the consumption of alcohol and a marked increase in the use of tobacco. Besides these general food restrictions, a difference should be made between civilians and soldiers in the hospitals, where the diet is far less restricted than among the population. These differences, as well as the fact that it is necessary to carry out several test meals in the same patient, explain the divergence in the results reported by various observers. Roemheld found that the cases of anhydrochloria have been on the decrease since 1916, while those of hyperhydrochloria are slightly on the increase. This increase of cases of hypersecretion would undoubtedly be more evident if an epidemic of dysentery had not occurred and upset the statistics. The latter affection had a distinctly anhydrochloric action. Altogether, the effect of war diet has not been very considerable among soldiers, but the civilian population has suffered much more from it. From the standpoint of military aptitude, gastric chemism is not of much importance, no matter what may be its variations, if they are not accompanied by precise subjective disturbances.

Eosinophile Cells in Urinary Sediment; a Contribution to the Study of Membranous Ureteritis.—A. Edelmann and H. Lazansky report a few cases of nephritis with eosinophiles in the urinary sediment. The same phenomenon may be encountered in essential asthma. In nephritides the eosinophiles in the urine would seem to indicate a favorable prognosis, as they are absent in the nephritides having a lethal evolution, as well as in chronic nephritis. The writers also describe a case of right-sided ureteritis occurring in paroxysms of a nephritic type, in which the eosinophiles reached 92 per cent. The relationship with a muco-membranous enterocolitis might attribute an etiologic part to the "trichomona vaginalis" which was present in the urine in large numbers both at the beginning and the end of micturition.

Wiener medizinische Wochenschrift.

September 21, 1918.

Hemeralopia Considered as a Phenomenon of Deficiency Resulting from Nutritive Disturbances Contracted at the Front.—M. Gelencser again affirms the relationship of the symptom nyctalopia, which he erroneously calls hemeralopia, with nutritive disturbances denominated airtaminoses (Barlow's disease, scurvy, beri-beri, pellagra, etc.). He has frequently encountered the signs of scurvy in men sent to the rear for disturbances of nocturnal vision. Nyctalopia is, therefore, to be attributed to a want of important nutritive substances (vitamins of Funk) or to a disproportion

between the output of energy and alimentation. Night blindness may be a preliminary phase of scurvy, just as it can be an early symptom of the process. Its treatment is that of scurvy, calcium preparations being of great value.

The Treatment of Pulmonary Wounds.—E. von Klebelsberg offers a colorless contribution without anything original to this important question of war surgery. In cases of pleural hemorrhagic effusion of considerable amount he advises puncture of the pleural cavity, evacuation of the collection and the introduction of atmospheric air. Danger from infection by the air is *nil*. The writer insists upon the frequency of secondary tuberculous complications, which require careful isolation in all military hospitals.

Annales de Dermatologie et de Syphiligraphie.

September, 1918.

Wassermann Reaction in Tuberculides.—Schaumann of Stockholm relates cases which tend to throw doubt on the specificity of the Wassermann unless we concede that tuberculides so-called are often wrongly named. Ravaut, however, preceded him in this field, and moreover showed that salvarsan could sometimes cure these alleged tuberculides. Several other authorities have also noted this overlapping of syphilis and tuberculosis. The first case reported by Schaumann was one of typical erythematous lupus with so-called papulonecrotic tuberculides associated. She appeared to be free from any heredity of either disease, and as for acquired manifestations, there was only some enlarged lymphnodes in childhood. At the age of 29 the erythematous placques appeared and have persisted 15 years to date, with the evolution of new manifestations at the time of first consultation. Biopsy gave same diagnosis, animal experiment negative. Wassermann strong positive. Upon careful investigation there was absolutely nothing to suggest either inherited or acquired syphilis. She was seen three years later, when the skin lesions were still in evolution and still of the ultra tuberculide type. Wassermann still strongly positive. A mercurial course seemed only to aggravate the lesions, some of which recovered readily under carbonic acid snow. Some months later the evolution of tuberculides was still progressing in the form of papulonecrotic tubercles. The Wassermann was still positive, but the luetin test proved negative. The Mantoux intradermic tuberculine reaction was positive. The author was therefore forced to conclude that the lesions were tuberculous, although giving a positive Wassermann. A second case very briefly reported appears to be a duplicate of the first. There is no escaping the conclusion that the condition which underlies these nonsyphilitic manifestations is one which must be included, like leprosy, among Wassermann positive diseases. The reaction was as strongly pronounced as in florid syphilis.

Prurigo, Lymphadenia, and Eosinophilia.—Favre reports a case of this peculiar disease association which has been noted on numerous occasions. The mysterious disease prurigo is attended with enlarged lymphnodes and pruritus precedes certain diseases of the granulomatous type. The author has seen a group of these cases, and while the lymphnodes are primarily affected, foci of the same type were present at times in some of the viscera and skin, these being termed metastases. In regard to the preliminary itching the author admits that the condition is pruritus and that prurigo is a misnomer. This would imply that the early cutaneous lesions are artifacts. The cause of the pruritus would seem to be of vital significance—is this idiopathic or symptomatic of miscellaneous conditions? The author leaves this in part undecided, but states that it may vary in type if not in cause. One might confound it perhaps with simple itching followed by local infections and secondary slight adenopathies, but study of individual cases shows that no such simple sequence is present. The pruritus, in some cases at least, is essential, and appears in exacerbations during which there may be a febrile reaction. Again serious intercurrent lymphogenic phenomena may appear, as double pleuritic effusion, massive edema of the mammae, etc. There is also marked asthenia, and some of these patients die within a relatively short time after the first onset of pruritus. In a case of long duration the skin appears exactly as in chronic lousiness, the innumerable scratch marks being deeply pigmented. While the skin lesions may assume various types, there is no likelihood of confounding the condition with mycosis fungoides. Severest essential pruritus with a fever suggesting the undulant type, blood changes—notably eosinophilia—characteristic changes in the histological structure of the enlarged lymphnodes, all go to place this malady in the lymphadenia group. Of the half dozen or more of these which simulate and shade into one another, the so-called lymphogranulomatosis or malignant granuloma of some authors comes nearest to the malady in question. This in turn is comprehended by some under the general term of Hodgkin's disease. Tuberculosis was completely excluded.

Finska Läkaresällskapets Handlingar.

May-June, 1918.

Familial Occurrence of Pernicious Anemia.—Schauman's article appears in full in German. The author first refers to the modern tendency to see in this affection not a primary but a secondary anemia. This view is in part opposed by the occasional occurrence of familial cases, the first of which go back to 1891. Subsequent episodes have been reported by Sinkler, Bramwell, Caccini, the author (1900), and at least eight other reporters, including among Americans Cabot, Bartlett, Willson and Patek. In Bartlett's episode eight kinsfolk were attacked. But it is hardly necessary to quote individual reports, for it is now recognized that a not insignificant percentage of cases will if followed up be found familial. This is well shown by the author's experience, for since his attention was first called to the subject in 1900 he has unearthed 15 families with 2 or more members affected with bothriocephalus pernicious anemia and 7 other families with cryptogenetic pernicious anemia. Most interesting is the fact that both types of anemia can occur in one family. The genealogical researches are still in progress, and the author will probably be able to show that in at least a part of the nonfamilial cases members suffer, not indeed from pernicious anemia, but from anemic states of some sort. Furthermore, true pernicious anemia can be masked as heart or kidney disease, carcinoma, etc. On the other hand, bothriocephalus anemia, while it may not be severe, might simulate a familial affection because the members may be infected by the parasite at the same time. In some episodes of bothriocephalus anemia the kinsfolk had lived asunder in such a manner that a common infection was out of the question. Making all due allowances, however, the presence of a common endogenous factor seems undeniable, as in one family where several cases of pernicious bothriocephalus anemia and several of chlorosis occurred side by side. The latter is almost universally recognized as an endogenous malady. Another fact not previously stated is the serial occurrence of bothriocephalic and cryptogenetic in the same individual, who had been cured of a protracted parasitic case only to develop later a purely endogenous form.

Camp Universities in France.—In France medical colleges have been organized in the military zone, to be attended by military men and to teach military medicine. One of these will be near Rheims, where there are already 3000 beds and 70 students. The curriculum comprises surgery, medicine, histology and medical physics.—*Pathologia*.

Scabies in Holland.—According to Marsman scabies is not habitually prevalent in the Netherlands but of late has become so. The reasons are not far to seek for the country has been overrun with refugees from all quarters. Moreover, the proverbial cleanliness of Holland has suffered an eclipse through the scarcity of soap and new linen. Some concerted effort will be made to remedy this state of affairs and will begin no doubt with an ordinance requiring physicians to report all cases as fast as encountered. Already one municipality has appropriated money for combating the menace and much depends on the extent to which this precedent is followed.—*Nederlandsch Tijdschrift voor Geneeskunde*.

Society Reports.

AMERICAN ASSOCIATION FOR THE STUDY AND PREVENTION OF INFANT MORTALITY.

Ninth Annual Meeting, Held in Chicago, December 5, 6 and 7, 1918.

THE PRESIDENT, MRS. WILLIAM LOWELL PUTNAM OF BOSTON IN THE CHAIR.

Public Health Service Program for the Nation-Wide Control of Venereal Diseases.—Lieut.-Col. C. C. PIERCE U. S. Public Health Service, said that a great deal of thought had been given to the medical attack on venereal diseases in the United States, for it was a problem which not only affected the soldier and sailor but the civilian of to-day and to-morrow. Section 6 of the Act provided for the allotment to State Boards of Health of $1,000,000 each year for the two fiscal years beginning July 1, 1918, for the fight against venereal diseases. For the second of these two years the payment of the State's allotment was conditioned upon the expenditure of a like amount by the state in the prevention of venereal diseases. For the first of these two years this condition was not imposed.

1. State boards or departments of health receiving their respective allotments had to agree to the following cooperative measures: (*a*) Venereal disease must be reported to the local health authorities in accordance with state regulations approved by the U. S. Public Health Service. (*b*) Penalty to be imposed upon physicians or others required to report venereal infections for failure to do so. (*c*) Cases to be investigated, so far as practicable, to discover and control sources of infection. (*d*) The spread of venereal diseases should be declared unlawful. (*e*) Provisions to be made for control of infected persons that did not cooperate in protecting others from infection. (*f*) The travel of venereally infected persons within the State to be controlled by State boards of health by definite regulations that would conform in general to the interstate regulations to be established. (*g*) Patients to be given a printed circular of instructions informing them of the necessity of measures to prevent the spread of infection and of the importance of continuing treatment.

2. The Division of Venereal Diseases detailed to each of the various State boards of health an officer of the Public Health Service in uniform. His work was directed jointly by the Public Health Service and State Board of Health. The general plan of work for the State Bureau was as follows: (*a*) Secure reports of venereal infectives from physicians. (*b*) Suppressive measures, including the isolation and treatment in detention hospitals and establishment of free clinics. (*c*) Extension of facilities for early diagnosis and treatment through laboratory facilities for exact diagnosis and scientific determination of conditions before released as non-infectious. (*d*) Educational measures which included informing the general public as well as infected individuals, in regard to the nature and manner of spread of venereal diseases and measures to combat them. (*e*) Cooperation with local civil authorities in their efforts to suppress public and clandestine prostitution. (*f*) Accurate detailed records must be kept of all the activities of the venereal disease work, copies to be forwarded to the U. S. Public Health Service.

3. Local or legislative funds that might be available should be used by the State or city health authorities having jurisdiction for extension of the work.

4. In extension of the educational measures the State's health authorities and its bureau of venereal diseases should exert their efforts and influence for the organization of a state venereal disease committee for furthering the comprehensive plan for nation-wide venereal disease control.

5. The State health authorities should take such measures as might be practicable for the purpose of securing such additional legislation as might be required for the development of control of the spread of venereal infections.

6. The State allotment should be expended along general standard lines for all states and in accordance with an accounting system, to be forwarded by the interdepartmental social hygiene board, approximately as follows: (*a*) For treatment of infected persons in hospitals, clinics and other institutions, including arsphenamine and other drugs, 50 per cent. of the allotment. (*b*) In carrying out educational measures, 20 per cent. (*c*) In carrying out repressive measures, 20 per cent. (*d*) In general administration and other activities of venereal disease control work, 10 per cent. This distribution was provisional and subject to modification after conference and agreement between each State and the U. S. Public Health Service to best meet the needs of the particular State.

During the 609 clinic days represented there was a total of 25,224 visits to the clinics, with an average daily attendance of 41.09 at each clinic. There were admitted during the past month 2301 new cases. On November 15 there were 11,149 cases remaining under treatment. Twenty-eight thousand nine hundred and eighty-one treatments were administered during the month. Two thousand seven hundred and seventy-seven doses of arsphenamine were administered to syphilitics. A total of 2,933 prostitutes were treated in the clinics, detention homes and jails. Of the 833 prostitutes placed in detention during the month, 812, or 98.5, were found to be infected with venereal diseases. The remaining 21 or 2.5 were held for further diagnosis. Five thousand three hundred and sixty-five microscopical examinations were made. Nineteen of these were dark field illuminations for *Treponema pallidum;* 3267 were for release.

Conservation of Life of the Unborn and Newly Born Child.—Dr. RUDOLPH W. HOLMES of Chicago stated that the conservation of human life—of mother and baby—might be most happily realized by various correlated circumstances.

1. It would be desirable that every college for young men and women should have compulsory instruction on the influences of heredity. Every young man and woman should know the dire consequences to the offspring resulting from a tainted strain; every young individual should know that not only syphilis but many of the physical and nervous evidences of the stigmata of degeneration might be transmitted to the offspring; they should know that a clear descent only was obtainable from a clean strain. Every young individual should be instructed upon the general principles of the rights of the newborn—they should be made to recognize the principle that altruism should govern the selection of a mate; that, as one young man argued to him, his parents did not consider his inheritable possibilities, why should he consider the questionable attributes of his possible children, was the height of sophistry. It was an utopian dream, but it would be well if it were possible to curtail the mating of the misfits. Sterilization of the criminal insane, the moron, the epileptic, was a problem for the future. The legislative control of marriages of those afflicted with inheritable disease, requiring a medical certificate from one or both parties was theoretically correct—in practice was of questionable value. At the present time control of mental defectives, those afflicted with transmissible taints which might mar the mate or the young was too abhorrent to the yet uneducated mind. Coordinated to instruction given to the young in college, even high schools, it would be well to have systematic courses of instruction to young men and women who could not secure a higher education. Conferences should be held covering the general problem of eugenics; suggestive courses should be given to prospective mothers and to young fathers, that they might meet their responsibilities with intelligence and knowledge.

2. He would have a properly equipped maternity hospital with divisions covering the various needs of the prospective mother, her child before and after its advent into the world. He doubted the expediency of having independent centers for the prospective mother, for her confinement, and for the infant welfare. A properly coordinated whole under one efficient head would bring about more ideal results than haphazard attempt at conservation. Such an ideal center would comprise these divisions: (*a*) A social investigator who should visit the home and determine the true eco-

nomic need of the family. If the family had a certain degree of affluence they should be directed to approved, enthusiastic young practitioners who had the heart and conscience to carry on the truths of conservation for a stipend. Such physicians in an emergency could call upon the staff of the institution for aid or advice. (*b*) Opportunity and encouragement should be given to all prospective mothers to avail themselves of the antenatal clinics. At stated hours each day a corps of young physicians should be attendant so that periodic examinations, physical as well as those of urinalysis might be carried out; at the same time general hygienic rules might be formulated for the individual. As one-half of the crises incident to the unborn were more or less preventable, here was the first step to the conservation of infant life. (*c*) At the time of labor the record of the patient should be transferred, or at least made available to the maternity department. The personnel of this department should be imbued with the responsibility of the task; they should have an obstetric conscience; they should have a love for the work and an enthusiasm which would prompt them to sacrifice self in the need of the patients. Parenthetically an administrative body of physicians should have the control of policy, of expediency, that no man might become a fadist or an extremist without check. This department should control the care of the woman and her child until discharged from the institution. (*d*) Every woman, before leaving the maternity, should receive positive instructions for her return for a postpartum examination—for recommendations for her own welfare. (*e*) An infant welfare department where periodically the baby might be brought for weighing and advice; where it might be brought if ill. In conjunction with this department there should be an adequate department for the preparation of foods for infants. (*f*) Systematic courses of lectures should be instituted covering all the phases entering into the questions of personal hygiene, marriage relations, matters cognate to bearing of children, the care of women in pregnancy, and the care of children thereafter.

Syphilis and Its Relation to Infant Mortality.—Dr. P. C. JEANS of St. Louis said that when conception had taken place, the effect of maternal infection upon the product of conception was dependent to a large extent upon the duration of the pregnancy at the time of fetal infection. The infection of the germ cell, if such an event ever occurred, would preclude the possibility of its further development. The earlier in pregnancy the infection of the fetus, the more likely was pregnancy to terminate in a dead or non-viable infant. The birth of a viable syphilitic infant signified its infection late in pregnancy. The time at which fetal infection occurred was dependent upon the activity of the infection in the mother, and this in turn was dependent to a large extent upon the time elapsed since the onset of her infection. In many instances in untreated mothers pregnancies occurring ten years or more after the infection of the mother had resulted in the birth of nonsyphilitic children. It had become a well recognized fact that syphilis was the largest single cause of death of the fetus at or before term. Stillbirths had averaged in the neighborhood of five per cent. of all births wherever studied, and at least one-third of this number was due to syphilis. A compilation of statistics showed that of 4148 pregnancies in syphilitic families, 1258 or 30 per cent. resulted in the death of the fetus at or before term. That this was more than three times greater than what might be considered the normal waste of life at this early age was shown by a similar study among the poorer class in both St. Louis and London, and including no obvious syphilis. In St. Louis 9.9 per cent. of 886 pregnancies and in London, 9.4 per cent. of 826 pregnancies resulted in the death of the fetus at or before term. Though there might be some doubt as to syphilis being a frequent cause of sterility, there was no doubt that it was a fairly frequent cause of childless marriages. Adair stated that of 50 premature infants observed in Minneapolis, 9 or 18 per cent. were proven syphilitic. Prematurity occurred but 8 times in 886 pregnancies in 200 St. Louis families in which there was no obvious syphilis, while it occurred 10 times in 453 pregnancies in 100 syphilitic families, showing an incidence 2½ times greater in syphilitic than in non-syphilitic families, and indicating that syphilis was the most frequent cause of this event. The mortality among premature infants was relatively high whether with or without syphilis. When the problem of maintaining the nutrition and body heat of a prematutre infant was added to by a syphilitic infection, the outcome was much less hopeful. There was in the literature a scarcity of statistical studies bearing on the incidence of syphilis in the infant population of this country. Because of the high mortality connected with syphilis in infancy, the group studies among older children or among groups containing older children gave an incidence much lower than was to be found in infancy. In St. Louis clinical study was made of 854 infants of one or under, and Wassermann reactions were made on all infants whose family history, personal history or examination gave any suspicion of syphilis. Of the 854 infants studied, 42 or 4.9 per cent. were found to be syphilitic. This figure represented the minimum in this group because it was not a complete Wassermann survey. In New York Holt found 6.2 per cent. positive Wassermann reactions among 161 infants under 2 years of age. Holt's series was selected to the extent that it contained no clinical syphilis, but did contain a certain number of infants whose history or examination gave a suspicion of syphilis. Commisky reported 3.2 per cent. positive Wassermann reactions in 1074 new-born babies in Brooklyn. Because of the frequency of a negative Wassermann reaction in a syphilitic new-born baby, such a study, though interesting, did not represent the true incidence of syphilis. It would seem safe to assume an incidence of about 5 per cent. for syphilis in our infant population. Perhaps of equal interest in this connection was the proportion of the pregnancies in syphylitic families that resulted in living non-syphilitic children. Among 2450 pregnancies of his own and collected cases 408 or 16.6 per cent. resulted in children who were living at the time of the study and found to be non-syphilitic. This was but slightly more than one-fifth of the healthy living children to be found in a similar study among an equal number of pregnancies in non-syphilitic families. A survey of about 300 syphilitic families in which there occurred 1366 living births showed that 30 per cent. of these infants died at an early age. Since syphilis was the only known factor of difference between these two groups it would seem that the infant with syphilis had just half the expectation of life as did a non-syphilitic infant, leaving out of consideration all other factors. The prognosis in a syphilitic infant depended upon several factors, including the severity of the infection, the type of feeding, and the state of nutrition. From 10 to 20 per cent. of adult males and about 10 per cent. of married women were syphilitic, and a minimum of 10 per cent. of marriages involved a syphilitic individual. Seventy-five per cent. of all the offspring in a syphilitic family were infected. In a syphilitic family 30 per cent. of the pregnancies terminated in death at or before term, a waste three times greater than was found in non-syphilitic families. Thirty per cent. of all the living births in a syphilitic family died in infancy as compared to a normal rate of 15 per cent. in the same class. Probably 30 per cent. of clinically syphilitic infants died as a result of syphilis. But 17 per cent. of all the pregnancies in syphilitic families resulted in living non-syphilitic children which survived the period of infancy. About 5 per cent. of our infant population was syphilitic. According to St. Louis vital statistics 3½ per cent. of all infants' deaths were ascribed to lues.

The Springs of a Nation's Life.—Dr. EDWARD P. DAVIS of Philadelphia stated that to secure a healthy infant population it was absolutely essential that the conditions of life be such that early marriage could be encouraged. A living wage, sanitary and comfortable means of dwelling, civic sanitation, including a pure and reasonable food supply, and all those agencies which made for physical, mental and moral hygiene were of the utmost importance. A new responsibility was placed upon civic authorities, and more than ever was there imperative need for civic righteousness in the administration of civic affairs. From the standpoint of efficiency only, the great corporations were realizing the necessity for caring for the individual worker. Genuine philanthropy reached its highest and most intelligent

expression in this accomplishment. Some corporations employed skilled medical service, constructed hygienic dwellings, encouraged insurance and educated in matters pertaining to health, and not only gave a living wage, but taught those who worked with them and for them, how to live. No greater curse upon the nation in the care of its infant population could be devised than the presence of a large standing army. It was a fact familiar to all who had lived in continental Europe that marriage was forbidden to men of military age unless they possessed a certain stipend. The result was indiscriminate immorality, and in order to save its population the state was obliged to care for the mothers in hospitals and to rear the children in foundling asylums. The mortality percentage among infants so reared was notoriously high, and the effect produced upon pregnancy and parturient women was most injurious. Whatever might be the military necessity of the future, the people of these United States should take warning, and under no circumstances saddle themselves with a large and permanent standing army. But the crying need in the prevention of infant mortality was better obstetrics. It was true that in order to make improvement in obstetrics possible the economic and other factors to which reference had been made must be present, but it was also true that without better obstetrics these factors would be of little value. The encouragement of early marriage in sound individuals was a step of primary importance; marriage among those physically unfit was to be discouraged and, if possible, forbidden. It might not yet be possible to require physical examination of men and women before marriage, but certainly the need for such was evident. Education of the laity, nurses, and doctors in matters concerning the increase and care of the population was of paramount importance. The difference between prudery and honest pride in what was natural, and in itself beautiful, must be made evident.

The medical profession in Europe and the United States had for years been spreading abroad among women concise statements concerning the first symptoms of cancer. A brief description in simple language of its symptoms had been posted in rooms frequented by women only, upon the Continent and in some places in this country. Why should not a similar brief, clear statement of symptoms of dangerous conditions arising in pregnant women be posted in the rooms used only by women throughout the country? Why should not attention of expectant mothers be called to the dangers of miscarriage and convulsions and hemorrhage occurring during pregnancy? Much had been done to educate medical students and physicians for better obstetrics, but economic conditions and lack of hospital facilities had been such that doctors could not afford to do, in a large private practice, the careful work accomplished in good hospitals. At present there had been great improvement in many States of the Union, license to practise was refused to those students who had not had a fair obstetric experience. The multiplication of hospitals, the opening of maternity wards, the fact that patients resorted to hospitals for confinement, better knowledge of obstetrics, and, above all, the recent developments in obstetric surgery, had been great advances, and yet today there were three great dangers which threatened tthe physical life of women in the child-bearing age, tuberculosis, cancer, and parturition, and this condition was the result of the fact that in the so-called private practice of obstetrics, as indiscriminately carried on by the general practitioners, there was very much to be desired. The modern obstetric trained nurse had saved the lives of thousands of infants. So splendid was the profession of nursing that it was difficult to select one field more brilliant in results than another, but if life and health and happiness and joy of families were appreciated, then the well trained obstetric nurse had won great achievements. The trained nurse had made the modern hospital a safe refuge for the poor mother. The antiseptic precautions taken in such hospitals had eliminated to a large extent the greatest dangers of parturition. Maternity hospitals should contain a considerable number of beds devoted to pregnant patients only. Parental care he recognized as most important in the interest of mother and child. Pregnant women who were ill required hospital care and life and health were saved in a surprisingly large percentage by such protection.

How to Conduct a Survey in the Interest of Child Welfare Work.—Miss PANSY V. BESOM of Boston said that the most important factors in child conservation were parental care, obstetrical care and infant feeding. The committee felt that this survey would disclose the fact that deaths in early life were due to the failure of people to secure proper care in these fields of medical work. It was assumed that the well-to-do would always be in a position to secure competent, continuous medical care. So provision must be made for the rest of society to conserve life and thus increase our man power. A public health nurse was appointed for each health district in the state, and an additional nurse for Boston. These nurses were selected with the greatest care, and all of them had had not only public health training but a considerable amount of experience in actual public health field work for children. In making the surveys the nurses had visited the representatives of the boards of health, the child welfare agencies, the visiting nursing associations and other private or church organizations which were doing child welfare work. Positions had been created for forty-six nurses as a result of the movement, while thirty child welfare stations and eight prenatal clinics had come into existence.

The Home Care of the Infant.—Miss F. E. BISWANGER of Philadelphia said that at birth the infant's mouth and eyes should be cleansed with boric acid solution; the child turned upon its right side, so that its heart valve might properly close, and the child should be thoroughly but gently rubbed with warm olive oil. A warm sponge bath and the clothing of the infant in woolen abdominal band, woolen shirt, diaper and flannel slip would make it comfortable and it would rest and sleep. The new-born child should not be disturbed by friends or relatives. The secret of its comfort in its food and sleep lay in absolute regularity and freedom from disturbances. For good digestion the infant's mouth should be gently but thoroughly cleansed with boric acid solution before feeding. Water in addition to its food should be given at regular intervals by the use of a bottle and rubber nipple. Every effort must be made to favor the nursing of the infant. In cases where the first milk was too fat and disagreed it might be removed by the breast pump with very gentle pressure, and the child given the less fat milk which came after. Where the milk was thin and deficient, the attention of the physician must be called to this fact, and under his supervision suitable diet and perhaps tonics might be used. The first essential in artificial feeding was the cleanest and best milk available; the second essential, minute and written directions from the physician, and on the part of the nurse; the accurate measurement of the different ingredients of the child's bottle and the accurate carrying out of the physician's directions.

The Importance of Prenatal Care.—Dr. LIDA STEWART COGILL of Philadelphia read a paper on this subject, based upon experience at the Woman's Medical College of Pennsylvania, its hospital, the Woman's Hospital of Philadelphia, and the West Philadelphia Hospital for Women. She summarized as follows: "(1) More uniform and higher standard of obstetrical teaching in medical colleges with greater attention to the subject of prenatal care. (2) Establishing of a greater number of prenatal clinics and health centers. (3) Establishment of health clinics for mothers of child-bearing age." Child welfare workers were better able to cope with conditions affecting the life of babies from one year up to school age than they were with the prenatal conditions affecting mothers and the infants up to one year of life and they were calling for assistance and advice in remedying this defect. The Woman's Medical College of Pennsylvania was one of the first to realize the importance of instruction to students on the importance of prenatal care. The objects of the postnatal clinic were: (1) To have complete obstetrical record of mother and child from beginning of pregnancy to end of puerprium, eight weeks. (2) Questions as asked by the Babies' Welfare Association as to how many babies living and breast fed at

end of first month could be more easily ascertained. (3) Pelvic condition of mother could be watched and patient referred to another clinic for further treatment when needed. (4) Making of a stepping stone to the establishment of a mother's health clinic, thus overcoming that stage of neglect among mothers of child bearing age. (5) Help save those 15,000 mothers who die needlessly each year and that 80 per cent. of babies who perish before the first month of life.

The City Nurse as an Agent for the Prevention of Infant Mortality.—Dr. HARRIET L. HARTLEY of Philadelphia stated that in the matter of determining with some degree of accuracy the health of a given district or locality, we had no better or more intelligent surveyor than the city nurse. Her experience had brought her in contact with all kinds and conditions of men, her method of approach to the keeper of the home, usually the mother, was one which bred friendliness and confidence, and an understanding of the true condition of the home and its inmates was arrived at from a standard viewpoint with a minimum waste of time. The city nurse with her general training as a nurse knew the earmarks of disease. As a public health nurse she readily recognized poverty, destitution and alcoholism. She could judge whether the family income was large enough or expended in such a way as to insure the proper amount of health and comfort to the family.

Her connection with the board of health made her an authorized sanitary inspector and her general knowledge of the principles of housing and sanitation made her a good judge of the conditions surrounding the young infant. She could intelligently observe the care of the food, the refrigerator, utensils, etc., which either intimately or remotely affected the health of the baby. Here also brought into use her knowledge of ventilation and readily determined whether the baby got the proper ventilation to guard it against respiratory disease. In prenatal work the city nurse had no peer. The expectant mother was much more apt to confide in the nurse who gave advice about babies than she was any other type of health worker. The nurse often learned of the pregnancy early in its history, became the mother's friend and confidant and led her in the direction she should go.

The Work of the Training School of the Philadelphia General Hospital in Preventing Infant Mortality.—Miss BLANCHE SOULE of Philadelphia said that the Social Service Department took care of the prenatal work outside the hospital, and a great deal of prenatal work was done in the obstetrical department. The social service worker found the expectant mother, endeavored to gain her confidence and interest and impressed upon her the importance of medical care during her pregnancy. She was then directed to the prenatal clinic and at the same time the patient's name, address and a short history, home conditions, etc., were sent to the clinic. If the patient did not visit the clinic as she promised, the clinic found out why she had not come and looked after her. The Maternity Department was made up of two distinct departments, one for the clean patients and the other for venereal patients. In the clean maternity wards during the past year they had not had one case of toxemia in the patients who were under their care several months before delivery. In the Venereal Maternity Ward they had one case of toxemia in a patient who was admitted when eight months pregnant. In the Children's Department they had the same division as in the Maternity Department for the clean and the infectious patients. The vaginitis patients had a separate floor of the hospital. The doctors and nurses taking care of these children did not come in contact with children in any other part of the hospital. There was separate clothing for this department and all diapers were burned. In the work of prevention, the obstetrician, the pediatrician, and the nurse must work together with one common aim. She believed that if the nurse would accomplish the most good in this great preventive work she must be thoroughly prepared for it. She had lectures in obstetrics and pediatrics and classes in these subjects, attended clinics and did follow-up work on the wards.

Problems of Infant and Maternal Welfare in Rural Communities.—Miss KATHERINE M. OLMSTED of Chicago stated that the existence or the development of a well and a broadly organized public health nursing section in every State health department was the first and the most important need in any movement for better care of our rural health conditions. The obligation of this department should be: (1) To stimulate local county demand for public health nursing service and secure public funds for maintenance of work in counties. (2) To provide well trained competent nurses to meet the demand. This condition was improving. The work of the national association was being felt. (3) To coordinate and supervise the work of all the nurses throughout the State, much as was done with the county health officers now, with a view to standardizing fundamentals and stimulate the tendency toward a higher type of public health nursing in rural sections. The speaker firmly believed that were each State provided with such a department and each of these departments provided with an extremely efficient, well trained, widely experienced, supervising nurse within a few years most of the counties in all of our States would have efficient public health nursing services. The services of a State supervising nurse were varied; among them were (1) to enlighten the communities about the value of the service, the duties of the nurse and methods of adequately financing the work. (2) To assist each nurse in adapting herself to the specific demands of the community. (3) To visit the nurses and give advice and training. (4) To conduct through correspondence a library department for encouragement and stimulation toward better work. (5) To arrange with universities and schools within the State, courses for beginners and institutes for older workers in public health nursing.

Rural Work for Infant Welfare in Canada and Other Countries.—Dr. MAURICE MACDONALD SEYMOUR of Regina, Saskatchewan, in summing up the work undertaken in the different provinces of Canada, in the effort to reduce infant death rates in the rural districts, said the following were the important methods employed: (1) The establishment of municipal hospitals subsidized by the government at rural points. (2) The appointment of medical men at a salary by municipal councils, to serve the rural communities. (3) The conducting of child welfare clinics and exhibits, lectures, etc., at rural centers, more particularly in connection with fairs, when most publicity could be secured. (4) Wide distribution of literature dealing with care of the baby. (5) The adoption of a system of rural public health nursing which would be greatly increased in the near future. (6) Government maternity grant to expectant needy mothers in rural districts. (7) Education of the public and wide distribution of literature on the subject of infectious diseases, particularly with regard to the venereal diseases. In order to improve the situation the adoption of the following measures was to be strongly recommended: (1) A system of dominion-wide training, registration and thorough supervision of midwives. (2) A general system of rural public health nursing, with particular reference to child welfare and prenatal care. (3) The providing of free treatment for all syphilitics by means of cooperation between government and municipal authorities. (4) A more general provision for government aid for maternity cases.

Adequate Reproduction.—Professor ROSWELL H. JOHNSON of the University of Pittsburgh said that for any country, at any given stage of advancement of its arts and of exhaustion of its resources, there was an optimum number of inhabitants up to which the country could continue its population without producing an undue pressure upon subsistence. Above this optimum the number was such as to lead to injurious poverty regardless of faults of distribution. A well ordered community would strive to reach this adjustment. It might do so by encouraging or discouraging immigration, encouraging or discouraging emigration, or by raising or lowering the birth rate. General welfare demanded a mimimum death rate and a marriage rate limited only by considerations of the unfitness of the parents, so that neither should be modified for population considerations. Only the birth and migration rates might be modified for this purpose. There was little reason to believe that any large part of the world was especially not our own country. There seemed to be no cause for increasing our population, and

we needed to be concerned only in maintaining our population, which we were already doing. But so far we had considered the population as a whole. When measured it was found to consist of persons of widely varying individual and social worth. Our population was made up of a large number of those of middling value, with the proportion of persons above and below this middle average constantly diminishing as the deviation from the average increased. These differences in the value of the individual to society were known to be in large part inherited. It became of great moment to know the relative birth rate of the several sections. Obviously racial progress depended on a disparity in the reproduction of these groups in one direction. If reproduction of the most inferior was prevented, as should be done, then the remainder must yield to a higher birth rate. But in addition to that the superior half should have a higher rate than the inferior half. Professor Sprague of the Massachusetts Agricultural College found 3.7 births were necessary to sustain a fixed population. Hence we must expect more than 3.7 births from all superior women or we could not have a progressive race and maintain our numbers. There was then a racial *noblesse oblige*. Unfortunately it found little recognition, for there was abroad a spirit of misguided selfishness cloaking itself in fine phrases "realizing one's capacities," "being true to oneself," "following one's bent." The modern superior celibate, heedless of the future, set up these false gods. Woe to the nation which, like ours, found its superior women slacking on the job of motherhood, as ours were doing.

Election of Officers.—The following officers were elected: *President*, Dr. S. Josephine Baker of New York; *President-Elect*, Dr. Phillip Van Ingen of New York; *First Vice-President*, Dr. William Parker Lucas of San Francisco; *Second Vice-President*, Dr. N. S. Rankin of Raleigh, N. C.; *Secretary*, Dr. Henry F. Helmholz of Evanston, Ill.; *Treasurer*, Mr. Austin McLanahan of Baltimore; *Executive Secretary*, Miss Gertrude B. Knipp of Baltimore.

NEW YORK ACADEMY OF MEDICINE.

Anniversary Meeting, Held December 5, 1918.

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

The Biology of Democracy.—Professor EDWIN C. CONKLIN of Princeton University delivered this address, in which he stated that the war which had just closed was begun by autocracy and militarism for personal and national aggrandizement. It had ended in victory for those who had entered it to make the world safe for democracy. The world had been made not only safe for democracy, but unsafe for anything else. Many German scientists as well as military men had claimed the sanction of science and especially of biology for the beneficial effects of war, for a militarized state, and for an hereditary aristocracy. If democracy was to endure and prevail it must rest upon science as well as sentiment. It might therefore be profitable on this occasion in addressing members of the greatest of the biological professions to examine certain aspects of democracy in the light of biology, for undoubtedly the principles of biology applied to man and his institutions no less than to other organisms. There were three main lines of evolution—the physical, the mental, and the social. Of these the physical was the most visible, the intellectual the most rational, and the social the most ethical. These three were not antagonistic to each other, as Huxley thought.

The speaker then discussed the biological bases of democracy, stating that there were many kinds of democracies in many fields of human activity; for example, in government, industry, commerce, education, etc., and it was difficult to define the exact meaning of the term, but it would be admitted, he thought, that democracy in its widest sense meant the ultimate control of all matters of common interest by the people as a whole rather than by any person or class. The rights of man as man had ever been the foundation stones of democracies. Our Declaration of Independence and the motto of France, "Liberty, Fraternity, Equality," represented in many respects the fundamental ideals of democracy. Questions of great biological and social importance were these: How could we have individual liberty together with social organization and harmony, universal fraternity in spite of national and class antagonisms, democratic equality in spite of inherited inequalities?

1. *Individual Liberty vs. Social Organization.*—Was the ideal state one in which the social bond was as loose as possible and individual freedom was the chief aim, or was it one in which the bond was as close as possible and the good of the nation or race or species was the supreme object? There could be no question as to the biological answer. The whole course of evolution from amoeba to man was marked by increasing specialization or limitation of constituent parts of an organism and their integration and cooperation in the organism as a whole. Nature invariably sacrificed the individual, if necessary, for the good of the colony or race or species. If democracy means decreasing specialization and greater personal freedom it was doomed to disintegration and extinction. But democracy did not necessarily mean this. It was only our experience as a pioneer society, where every person could be a self-sustaining unit, that led to this conclusion. As a country became more populous greater specialization and limitation of individuals and greater cooperation and harmony among them were essential. The freedom of the individual must more and more be merged in the larger freedom of society. Democratic freedom must of necessity mean the freedom of society rather than that of the individual.

2. *Universal Fraternity vs. National and Class Hostility.*—Biology proved that we were all cousins if not brothers. If the number of our ancestors doubled in each ascending generation, as would be the case except for the marriage of cousins of various degrees, each of us would have had more than one billion ancestors one thousand years ago, say in the reign of William the Conqueror. Even allowing for numerous intermarriages of relatives it was highly probable that all people of English, French or German stock were descended from the same ancestors of a thousand years ago. All of us were literally descendants of royalty and of any and every other person of one thousand years ago who left many descendants, including nonentities and worse. We hunted up our noble ancestors and forgot the others. In length of descent we were all equal and in community of descent we were all cousins if not brothers. As a result of this common descent human resemblances were vastly more numerous and important than the differences. Racial and varietal differences represented a natural classification based chiefly upon physical characteristics and these differences tended to cause a natural and desirable segregation of races, but they did not justify racial antagonisms. The fundamental social instincts of all races were so essentially similar that all might and often did live together in harmony; and the cooperation of all types of men in organized society was so much a matter of education and environment that the most distinct races might work together in mutual helpfulness. When we come to those minor subdivisions represented by various European stocks the distinctions were usually so slight that they formed no natural barrier to the most intimate association and cooperation, as we had abundantly demonstrated in this country. The inherent antagonisms between these stocks that agitators and designing politicians told us about were really not inherent at all but were largely created, cultivated, and magnified for national and selfish purposes. The biologist must look with concern upon the breaking up of European nations into minor independent units, just as the intelligent American would deprecate the breaking up of our own country along similar lines. Such a process represented disintegration and devolution rather than progress and evolution. When we come to those minor class distinctions based upon occupation, wealth, or social position we had the most artificial and unnatural classification of all. This was not to say that persons should not associate in congenial groups which had common interests and ideals; but when attempts were made to array one group against another and to make these classes permanent and hereditary, an artificial disharmony was introduced into society which could work only disastrously. Autocratic personal or class rule was always bad, for no person or class was wise or

good enough to rule other persons or classes without their consent. The strength and stability of governments were proportional to their all inclusiveness, their breadth of base, whereas autocracies were inverted pyramids. Equal universal suffrage and majority rule were the only self-preserving mechanisms yet discovered for harmonizing conflicting elements in a population; they were the safety valves of society. Majority rule would level society down to general mediocrity were it not for the instinct of the people to follow leaders. Neither in a democracy nor in an autocracy did the people make the plans for the form of government, for war or peace, or for anything else. These plans were always made by leaders, but in one case they were laid before the people for approval or disapproval and in the other they were not.

The greatest danger that confronted democracy was not its slowness and inefficiency but the fact that unscrupulous leaders might pervert and misdirect the normal social instincts of the people in order to accomplish selfish and partisan purposes. The only remedy for this great danger was that the people as a whole should be educated to appreciate the difference between emotional and rational appeals.

3. *Democratic Equality vs. Hereditary Inequality.*—Our democratic creed was that "all men are created equal," and yet nothing was more evident than that men were unequal in personality, intellect, and influence, and biology showed that many of these inequalities were inherited. How should we harmonize the teachings of biology with those of democracy? Hereditary aristocracy was founded upon an obsolete idea of inheritance, namely, "the law of entail;" it confused social and biological heredity. A son might inherit the property of his father in its entirety, but not his personality; his titles and privileges, but not his intellect and character. In biological heredity the qualities of the parents were separated and redistributed to the offspring so that the latter were "mosaics" of ancestral traits. The best traits might appear in parents and be lost in their children. This was the great law of heredity discovered by Mendel and it differed fundamentally from the law of entail. The law of entail was aristocratic but the law of Mendel was democratic. No family had a monopoly of good or bad traits and no social system could afford to ignore the great personalities that might appear in obscure families or to exalt nonentities to leadership because they belonged to great families. Democracy did not mean that all men were equal in personality. It was not a denial of personal inequalities but the only genuine recognition of them. Rigid class and family distinctions, on the other hand, were denials of individual distinctions. It did mean equality before the law, no special privileges due merely to birth, freedom to find one's own work and place in society. In short, it meant that every man was to be measured by his own merits and not by the merits of some ancestor whose good qualities might have passed to a collateral line. Democracy alone permits a natural classification of men with respect to social value, and it contributed more than any other system of government to the contentment, peace, and stability of the peoples of the world.

THIRD RESUSCITATION COMMISSION.*

Meeting Held in New York at the Rockefeller Institute, Friday, May 17, 1918.

Chairman's Address.—Dr. S. J. MELTZER of New York said that the object of the commission was to consider efficient methods of artificial respiration in emergency cases, as they were met with in peace as well as in war. For more than a century England had had several life-saving societies, and many special commissions had been appointed to investigate the methods employed in resuscitation. In this country, about six years ago, a Commission on Resuscitation from Electric Shock was created for the first time by the initiative of the National Electric Light Association. It was now generally recognized that efficient artificial respiration was, for such conditions, the best and practically the only means available for resuscitation. It required but little consideration to realize that the need for an efficient means of artificial respiration was very widespread. For instance, in injuries to the head which stopped respiration, injuries to the chest (especially double pneumothorax) in laparotomies during which the respiration ceased occasionally, in cases of shock which occurred in peace and more so in the present war, in poliomyelitis with stoppage of respiration, in postdiphtheric paralysis, in poisoning by opiates, by volatile gases (ether, chloroform, etc.), by mine and fuel gases, poisoning by magnesium salts, in electric shock, and in drowning.

Mechanical Methods.—Dr. MELTZER demonstrated in the laboratory for physiology and pharmacology the efficiency of the method of pharyngeal insufflation in an etherized dog after complete removal of the anterior wall of the thorax, in which the lungs and heart were exposed to full view.

Dr. ROSSITER of the Carnegie Steel Company demonstrated the latest device of the Pulmotor Company, which was not identical with the original pulmotor. He showed also the original pulmotor. He stated that he had resuscitated eight patients asphyxiated by gas in whom respiration had stopped. This was done by the original pulmotor in which he had more confidence.

Dr. JAMES M. BOOHER, Medical Director of the Life Saving Devices Co., demonstrated the lungmotor. He showed a number of bloodpressure tracings, taken from animals which had received artificial respiration by means of this apparatus. In reply to a question he stated that in these experiments the lungmotor was connected with the animal by means of a tracheal cannula. In human cases it was applied by means of a face mask. Dr. Booher left with the commission histories of a number of cases in which the lungmotor had been used. The commission found no time to examine these written histories, but Dr. Booher reported especially two cases. One of these was subsequently investigated by the chairman. The life of a poliomyelitis patient with complete paralysis of the respiration was maintained for thirty-six hours by means of the lungmotor.

Mr. FOREGGER demonstrated an apparatus which was a modification of the insufflation apparatus of Meltzer. Among other changes the apparatus carried an oxygen generator tank. In reply to a question Mr. Foregger stated that the oxygen thus generated might last eight or ten minutes.

Manual Methods.—Mr. EGLIN read a letter from Mr. M. W. Alexander of the General Electric Co., stating that he hoped the "commission would be very definite in recommending the prone-pressure method, as experience has proved its value."

Mr. C. B. SCOTT stated that the Accident Prevention Committee of the N. E. L. A. had reached the point in its investigation where it felt that the prone-pressure method was best to recommend, bearing in mind that machines were not always available in emergencies. His own company had had nine successful cases of resuscitation by the prone method and three unsuccessful cases in which mechanical means were used.

Dr. SCHUBMEHL stated that the prone-pressure method had been most successfully applied by their two hundred and twenty-five first-aid men.

Mr. MACLACHLAN stated that he had the duty of training possibly three thousand men in the prone method. Their system required the men to practise this method at least once a month. The men were instructed not to desist in less than three and a half hours, and that not till then should they listen to advice from a physician who might tell the operator that the patient was dead.

The secretary read the following parts of a letter from Professor Schäfer of Edinburgh to the chairman: "The prone method has been adopted *exclusively* for about twelve years by the Royal Life Saving Society, the only important organization in the British Empire whose object is the resuscitation of the apparently drowned. It has also been adopted for several years by the London and other police forces, by the Board of Trade, by the Army and the Navy. The most important thing is in cases of drowning to have something ready which any man can use; which will effect

*Under the auspices of the Committee on Safety Rules and Accident Prevention of the National Electric Light Association.

respiratory exchange—whether exactly as much as normal matters very little."

In the discussion following the presentation of methods and evidence to the commission the following facts were emphasized: (1) That in most accident cases no resuscitation apparatus was at hand for immediate use. (2) That reliance upon the use of special apparatus diminished greatly the tendency to train persons in the manual methods and discouraged the prompt and persevering use of such methods. (3). That police officers or physicians often intereferd with the proper execution of manual methods, in that they directed that the patient be removed in an ambulance to some hospital, thus interrupting the continuance of artificial respiration. (4) That in many hospitals the members of the staff were not all acquainted with the methods of artificial respiration. (5) That in medical schools instruction was not properly provided for students in the manual methods of artificial respiration.

Resolutions.—In view of these facts the following resolutions were adopted by the commission:

"1. The prone-pressure or Schäfer method of resuscitation is preferable to any of the other manual methods.

"2. Medical schools, hospitals, fire and police departments, the Army and Navy, first aid associations, and industrial establishments in general should be urged to give instruction in the use of the prone-pressure method of resuscitation.

"3. Individuals who, from accident or any other cause, are in need of artificial respiration, should be given manual treatment by the prone-pressure method immediately on the spot where they are found. It is all important that this aid be rendered at once. The delay incident to removal to a hospital or elsewhere may be fatal, and is justifiable only where there is no one at hand competent to give artificial respiration. If complications exist or arise which require hospital treatment, artificial respiration should be maintained in transit and after arrival at the hospital, until spontaneous respirations begin.

"4. Persons receiving artificial respiration should, as much as possible, be kept warm and the artificial respiration should be maintained till spontaneous breathing has been permanently restored, or as long as signs of life are present. Even in cases where there is no sign of returning animation artificial respiration should be kept up for an hour or more.

"5. A brief return of spontaneous respiration is not a certain indication for terminating the treatment. Not infrequently the patient, after a temporary recovery of respiration, stops breathing again. The patient must be watched, and if normal breathing stops the artificial respiration should be resumed at once.

"6. Artificial respiration is required only when natural respiration has ceased. In cases of simple unconsciousness from any cause in which natural respiration continues, artificial respiration should not be employed without medical advice.

"7. The commission recommends that in cases of gas asphyxiation artificial respiration, whether given by a manual method or by special apparatus, should be combined when possible with the inhalation of oxygen from properly constructed apparatus.

"8. With regard to the employment of mechanical devices for artificial respiration the commission feels that it ought not at present to take a definite stand either for or against any particular form of apparatus. However, the commission recommends that the use and installation of apparatus should be confined, for the present, to properly equipped institutions under medical direction. The commission recognizes the great need of simple devices capable of performing artificial respiration reliably and efficiently. It therefore recommends a careful study of the problem, directed toward the *development of a reliable method appropriate for general adoption.* Such studies can best be carried on in properly equipped hospitals and laboratories which offer opportunities and facilities for critical observation and experimentation."

Dr. YANDELL HENDERSON presented a minority report dissenting from the statement in resolution 8 recognizing "the great need of simple devices capable of performing artificial respiration reliably and efficiently." "Devices which are excellent from the mechanical standpoint," he said, "are now available and widely sold; but the evidence regarding them indicates clearly that even if these devices were on the spot where several gassings or electrocutions occurred, and if all the victims were treated with them, except one who was given manual (prone pressure) treatment, this one would have much the best chance of recovery. In actual practice the apparatus is seldom right on the spot adjusted and ready. Critical time is lost, and thus in the above suppositious cases, as they actually occur, the only victim with any considerable chance of resuscitation (aside from those who recover spontaneously and are credited to the apparatus) is the one treated manually. Even more important is the fact, demonstrated now by universal experience, that when apparatus is known to be obtainable it is sent for and the manual method neglected. Thus to-day the apparatus in public use is on the whole contributing very materially to decrease the saving of life."

Recommendations.—"In view of the importance which the knowledge of proper methods of resucitation possesses for public health and safety, and considering the fact that many practitioners, members of hospital staffs, and graduates of medicine are not thoroughly familiar with the methods of resuscitation, especially that of the prone-pressure method, the commission recommends: (*a*) *That medical journals* (and other scientific and practical journals which are interested in the problem of resuscitation) *be asked to publish the resolutions adopted by the commission.* (*b*) *That a copy of these resolutions be sent to the medical colleges with a request that proper instruction in this subject* shall be arranged for in the college schedules. (*c*) That these resolutions be sent to as many hospitals as possible, with the recommendations that members of the house staff shall familiarize themselves with the methods of resuscitation. (*d*) In order that the resolutions of the commission may be brought to the attention of interested circles (fire and police departments, industrial plants, etc.) it is agreed that they be communicated to the Associated Press by the National Electric Light Association.

It was voted that the Third Resuscitation Commission should be properly organized and continue its existence, ready to respond when requirements arise.

Officers.—The following officers were elected: *President*, Dr. S. J. Meltzer; *Vice-President*, Dr. Yandell Henderson; *Secretary*, Dr. Reid Hunt; *Treasurer*, Mr. W. C. L. Eglin.

It was voted to appoint a committee for the collection of verifiable data relating to resuscitation. The president appointed to the committee Dr. D. Edsall, chairman; Dr. Reid Hunt, secretary; Prof. Elihu Thomson, and the president ex-officio.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

PRACTICAL PHYSIOLOGICAL CHEMISTRY. By PHILIP B. HAWK, M.S., Ph.D. Sixth Edition. 661 pages. Illustrated. Price, $3.50. Published by P. Blakiston's Son & Company, Philadelphia.

THE HUMAN MACHINE AND INDUSTRIAL EFFICIENCY. By FREDERIC S. LEE. 119 pages. Illustrated. Price, $1.10. Published by Longmans, Green & Company, New York.

SYPHILIS, PALUDISME, AMIBIASES: TRAITEMENT INITIAL ET CURE DE BLANCHIMENT. Par PAUL RAVAUT. 88 pages. Illustrated. Price, 4 francs. Precis de Médecine et de Chirurgie de Guerre. Published by Masson et Cie., Paris.

WAR NEUROSES. By JOHN T. MACCURDY, M.D. 132 pages. Price, $2.50. Published by G. P. Putnam's Son, New York.

THE SURGICAL CLINICS OF CHICAGO. October, 1918. Volume 2, No. 5. 1088 pages. Illustrated. Price, $10 per year. Published by W. B. Saunders Company, Philadelphia and London.

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